Tobacco in Australia  Facts & Issues
A comprehensive online resource
List of chapters available at tobaccoinaustralia.org.au

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5.0 Introduction

Most people who smoke as adults first tried cigarettes in their teenage years. Smoking uptake and prevalence escalates rapidly during adolescence, with 2% of young Australians aged 12 years reporting smoking at least monthly in 2008, increasing to 18% among those aged 17 years in the same year. While fewer than 10% of 17-year-old current smokers in 2008 were ‘certain’ they would not be smoking in 12 months’ time and 19% said they were ‘unlikely’ to be smoking, one-quarter of 17-year-olds were undecided, and 48% were ‘likely’ or ‘certain’ to be smoking in a year’s time. This suggests that the majority of Australian students who smoked in their final year of school in 2008 will continue smoking beyond their school years.

An estimated 16,500 Australian school children progressed from experimental to established smoking behaviour in 2008, down from 22,077 in 2004–05. Young people show signs of dependence on tobacco-delivered nicotine at very low consumption levels, and after smoking only a few cigarettes. British research has found that smoking just a single cigarette at the age of 11 can leave a child susceptible to later uptake of regular smoking, even after a period of three or more years. This could be due to neurobiological factors, or social or personal traits.

By far the majority of Australian teenagers who become smokers obtain their first cigarette from a friend or an acquaintance.

The first 18 sections of this chapter (5.1 through to 5.18) describe a range of factors that influence smoking experimentation and transition to more regular and established smoking. While the various threads are discussed separately, it is important to remember that in reality many of these factors are interconnected and should not be considered in isolation. The second part of this chapter, commencing with Section 5.19, examines the factors that occur or can be influenced to help prevent the uptake of smoking.

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i In this study, current smokers are defined as having smoked at least one cigarette in the week prior to survey. 
ii Using the methodology outlined in White and Scollo.
References


5.1 Stages in the uptake of smoking

The process of taking up smoking may be conceptualised as a progression through stages in a continuum, during which external influences and individual characteristics interact. These stages may be broadly summarised as:

**Precontemplation**

The individual has no positive thoughts about smoking and no desire to start in the near future. He or she is oblivious to, disregards or resists pressure to smoke. Never smokers do not proceed beyond this stage.

**Contemplation and preparation**

The individual develops positive beliefs and attitudes about cigarettes, shaped by influences such as family, peer group and the media.

**Initiation**

The individual tries the first few cigarettes, usually with the example of or encouragement by friends. Smoking can serve to boost self-image and secure the approval of the peer group.

**Experimentation**

Smoking gradually increases in frequency and is viewed positively, even if its initial physiological effects feel unpleasant. Uncommitted smokers at this stage tend to give up, while others will persist, become adept at smoking, and develop a self-image as a smoker. Being part of a family where others smoke assists with ongoing access to cigarettes.

**Regular smoking**

Smoking becomes more frequent and less sporadic. Adolescents may regularly smoke on the weekends, at parties, or on the way to and from school. At this stage, most smokers are not smoking daily or consuming many cigarettes. Not all smokers who have reached this stage will proceed to the next.

**Established/daily smoking**

At this stage the smoker is addicted, and tobacco use is perceived to fulfil a range of psychological and physiological functions.

The process of smoking acquisition usually occurs during adolescence, for some rapidly escalating into dependence, while for others becoming established more gradually. Progression to heavier smoking among adolescents is typically unidirectional but often discontinuous, interspersed by periods of not smoking. In any individual, transit through the pathway outlined above may halt, reverse or recommence, depending on a range of influences, including biological factors and whether early, subjective experiences with smoking are positive or negative.

Not all individuals who try smoking become committed smokers, and identifying the causes of different behavioural trajectories is an important theme for further research. Qualitative research undertaken in Western
Australia found that curiosity was one of the dominant reasons among adolescents for trying smoking, with teenage years marked by curiosity about and experimentation in many life experiences, including smoking.\(^7\)

Recent evidence differentiates some of the psychosocial variables (such as family factors and the influence of role models) influencing adolescent smoking onset compared with the frequency of smoking,\(^8\) while research has identified daily smoking in novice adolescent smokers as a risk factor that may be particularly important in the development of nicotine dependence and the progression to sustained smoking.\(^9\)
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Section: 5.1

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References


5.2 Factors influencing uptake by young people: overview

A range of socio-demographic, environmental, behavioural and personal indicators predict the likelihood of adopting or rejecting smoking, particularly in early adolescence. Detailed literature reviews have been published in the US Surgeon General’s reports of 1994, 2000 and 2001, and in several journal articles (e.g. Conrad, Sargent, Turner, and Moolchan).

The factors discussed in the following sections are ordered according to the Theory of Triadic Influence, a model for integrating and understanding the interrelated influences on youth uptake of smoking developed by Flay. This model encompasses the ‘big picture’ of personal, social and environmental effects on behaviour, dividing them into three separate but interconnected streams:

1. **Biology and personality** (intrinsic factors), covering individual demographic, physiological and psychological factors. These influence self-efficacy, which may be broadly defined as an individual’s sense of self, social competence, and self-determination.

2. **Social context** (extrinsic factors), relating to the influence of family and friends through their behaviour and attitudes, resulting in the development of a perception of what constitutes normative behaviour.

3. **Broader environment**, encompassing cultural contexts, the informational environment, and legislative and policy issues that affect the pricing and availability of tobacco. The broader environment influences knowledge, expectations, values and evaluations, leading to particular attitudes and beliefs.

The combined effect of the personal, social and wider environment leads to an individual’s intentions and ultimate decision about whether or not to smoke. A decision to smoke leads to trialling the behaviour, and the resulting experience is mediated by each of the three major streams of influence—the personal, the social setting and broader expectations and attitudes, as illustrated in Figure 5.3.1.

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**Figure 5.2.1**

Influences on uptake of smoking

Source: Personal communication to Margaret Winstanley from Dr Lisa Wood, Department of Population Health, University of Western Australia, e-mail 2008
Key characteristics that are influential in adolescent smoking uptake include a combination of age; ever smoking or drinking; and parental, sibling and peer smoking. Different factors may be expected to have a greater or lesser influence on behaviour at different stages in a person's life: the determinants of smoking in early adolescence may differ from those that are important in mid- to late-adolescence or early adulthood. Similarly, the importance of a range of smoking determinants may vary depending on the stage of onset, such as the development of the intention to smoke compared with nicotine dependence. There is some evidence of specificity in the factors predicting smoking among adolescents at different smoking stages (such as never smokers, experimental and regular smokers), with peer smoking and low school connectedness found to be more influential in later stages of smoking than in early stages, and alcohol use thought to be more influential in early stages. Other predictors, including depression, delinquency, parental smoking and family connectedness, may not be stage specific, significantly differentiating all smoking stages. Similarly, longitudinal research among young people aged 14 years has found the influence of several psychological factors including rebelliousness and thrill seeking to be greater in the transition from 'never smoking' to 'trying smoking' than in the change from 'trying' to 'monthly' or 'daily' smoking. Psychological factors have also been found to be more influential than the social factors of parental and close friend smoking behaviour. Note however, that the US Surgeon General concluded that the empirical evidence for stage-specific smoking predictors is weak.

The extensive influence of psychosocial processes occurring during childhood and adolescence on future life trajectories helps explain the source of problem behaviours and substance use throughout individuals' lives. Temperament, family experiences and interactions with the broader environment all affect whether adolescents will develop individual characteristics that make them more or less vulnerable to drug use and dependence.

Recent Australian research examined the predictors of changes in adolescent smoking behaviour across three analytic models based on data from Years 7–10 Australian students tracked through a 12-month longitudinal study. Results suggested that for males, the frequency of risk-taking behaviour and a male best friend who was a smoker were effective predictors of smoking behaviour changes, while for females, the key predictor was whether at least one parent was a smoker. The prediction of change in adolescent smoking behaviour was significantly improved in the models that included past smoking behaviour.

The protective effects of smoking cessation during adolescence were highlighted in analyses from a prospective Australian study undertaken in Victoria examining patterns of adolescent smoking and subsequent nicotine dependence in young adulthood. The study followed 1520 secondary students for 10 years from 14–15 years of age through eight waves of data collection, assessing adolescent smoking and quitting patterns in waves one to six. While almost 10% of participants were nicotine dependent in the final wave (aged 24 years), dependence prevalence differed markedly between daily (26.7%) and non-daily adolescent smokers (6.8%). Results indicated that daily adolescent smokers who had stopped smoking for at least two study waves (≥12 months), as well as adolescents who quit after non-daily smoking, were not at significantly greater risk of nicotine dependence than students who had never smoked. Nicotine dependence was also predicted by maximum smoking levels, how early daily smoking commenced, a longer duration of smoking (particularly daily smoking) and escalation time (length of time of transition between experimentation and daily smoking).

A Canadian prospective study exploring determinants of smoking initiation and sustained smoking followed Grade 7 students for five years and found a wide range of socio-demographic, psychosocial, health, lifestyle and contextual factors associated with smoking initiation, with a smaller subset of these variables predicting sustained (daily) smoking. Key predictors of smoking initiation included poor academic performance, stress and alcohol use. Smoking by parents, siblings and especially friends was associated with a higher risk of both initiation and sustained smoking, as was susceptibility to tobacco advertising. Some recent research also indicates that pleasant experiences during early smoking experimentation are an important factor in the transition to regular smoking, playing a potentially greater role than negative experiences.
References


5.3 Early biological factors

5.3.1 Genetics

Greater understanding of the human genome has led to enquiry into whether genetics can affect an individual’s chances of becoming an established smoker. Data from family, adoption and in particular twin studies have suggested that genetic makeup could contribute to the likelihood of both experimentation and progression to established patterns of smoking.  

In 2010, the US Surgeon General reported that ‘genes appear to predispose persons to smoking initiation and persistence and possibly are related to the extent of difficulty a person has in smoking cessation’. (page 156) Twin studies have variously reported that heritability for smoking (that is to say, the proportion in the variance in smoking that is attributable to genetic factors) ranges from around 50–80%, which is in keeping with heritability estimates for alcoholism, asthma and hypertension.

While inherited factors influencing initiation and dependence are likely to overlap to some degree, there is evidence that independent genetic influences may mediate each stage of tobacco use.  

For example, one review of the data has estimated that, in twins, around 60% of the liability to initiate smoking can be attributed to genetic influences.  

However, environmental influences obviously also play an important role in nicotine dependence and frequency of smoking, and genetic predisposition to tobacco use may be modified by individual and environmental factors such as family structure, religion and marital status.

Interactions between genetic and environmental influence, and the causes of the relationships between social risk factors and substance use, may change significantly over the course of development. For example, some recent evidence from twin research found that as twins developed from childhood to adulthood, the influence of shared environmental factors on church attendance (a consistent predictor of nicotine and alcohol consumption) declined dramatically, while the role of genetic factors increased. Frequent church attendance in adolescence appeared to reflect a range of shared familial and social–environmental influences that were protective against substance use, while in adulthood the inverse relationship between church attendance and substance use became stronger, stemming largely from genetically influenced temperamental factors.

Genetic influences may mediate the association between social factors (such as adolescents’ peer characteristics, including peer smoking) and smoking behaviour (including nicotine dependence) in other ways; for example, adolescents with specific genetic risk for nicotine dependence may be less affected by social context such as peer smoking than those with lower risk genotypes.  

The evidence regarding potential gender differences in the relative importance of genetic and shared environmental influences for adolescent smoking behaviour and nicotine dependence is mixed, while the extent of interaction between environmental and genetic risk factors in increasing susceptibility to nicotine addiction is unknown.

Smoking is understood to be a highly complex behaviour, and where a genetic basis is postulated, it is with the recognition that many genes are likely to be involved, each individually contributing only a small degree of influence. Candidate genes for investigation in tobacco initiation, dependence and persistence have included several known to affect neurotransmitter pathways, nicotine-specific pathways and nicotine metabolism. The inheritance of genetic material may include polymorphisms of such genes, affecting individuals’ physiological responses to nicotine, such as the rate of nicotine metabolism, receptor sensitivity to nicotine and to certain neurotransmitters, and the levels of neurotransmitters available at neural synapses. These individual differences in response to nicotine are likely to affect the trajectory toward the development of nicotine dependence. Other genes connected with traits such as depression and anxiety are also being studied. There is also emerging evidence that genetic factors may influence an individual’s choice of friends, and that some individuals’ genetic makeup may make them more susceptible to the influence of peer groups.

Baler and Volkow describe the power of genetic variations, even at the level of a single gene, to affect performance in key behavioural circuits and subsequently impact on addiction risk. Behavioural circuits are being developed...
constantly due to interaction between genes and experience, resulting in the formation of attitudes, temperaments and, often, fixed behavioural patterns. During this maturation there are numerous opportunities to introduce risk or resilience into the system, as so many complex and overlapping developmental processes are taking place; this will influence subsequent individual tendencies such as those towards risk taking, for example.\textsuperscript{13}

The role of genes in smoking behaviour is discussed further in Chapter 6, Section 4.

5.3.2

Effect of maternal smoking in utero on uptake of smoking in offspring

Several studies from Australia\textsuperscript{16,17} and internationally\textsuperscript{18–22} have reported an association between smoking during pregnancy and subsequent increased likelihood of uptake of smoking in offspring, even after controlling for a range of confounding factors. It may be that effects are different depending on the sex of the baby, with some research suggesting that female offspring exposed to tobacco smoke prenatally are more susceptible to taking up smoking as adolescents than male offspring similarly exposed.\textsuperscript{22}

The relationship between maternal smoking and subsequent smoking uptake by offspring might be partially explained by their shared genetic background.\textsuperscript{6} Mothers who continue to smoke after pregnancy may also affect children’s attitude to smoking through role modelling.\textsuperscript{6} Findings of at least one study suggest that the effects of maternal smoking may not persist beyond early adolescence, after which social factors (such as mother’s current smoking behaviour and peer smoking) appear to become more important.\textsuperscript{23}

However a connection between maternal smoking and in utero effects on the brain is physiologically plausible. While the exact mechanisms and long-term consequences of these effects have not been fully elucidated\textsuperscript{24} it is known that nicotine (a toxic chemical) present in tobacco smoke reaches the unborn child through the placenta, binding with and activating neurotransmitters in the central and peripheral nervous system and negatively affecting neurodevelopment. Chronic exposure to nicotine during prenatal development has been shown in some animal studies to affect reward-related neural circuitry, in turn modifying the psychoactive effects of drugs in later life.\textsuperscript{25} A recent behavioural study among Canadian adolescents found that participants who had been prenatally exposed to maternal tobacco smoke were significantly more likely to use an addictive substance later in life, even after controlling for other variables such as age and peer drug use.\textsuperscript{25} Investigators suggested that prenatal exposure to maternal smoking could interfere with cortical development (important in decision-making) via modification of the gene that produced ‘brain-derived neurotrophic factor’ (BDNF); this in turn could influence adolescent susceptibility to addiction through abnormal processing of reward-associated cues, facilitating impulsive behaviours and subsequently higher substance abuse rates.\textsuperscript{13,25}

5.3.3

Exposure to secondhand smoke

While exposure to secondhand smoke (SHS) has long been known to cause serious diseases\textsuperscript{6}, it has also been associated in a few recent studies with increased risk for initiation and maintenance of cigarette smoking,\textsuperscript{26–28} including experiencing nicotine dependence-related symptoms.\textsuperscript{27,28} Non-smokers exposed to high levels of SHS may absorb amounts of nicotine similar to smokers.\textsuperscript{28} For example, recent research examining the effects of SHS exposure on nicotinic acetylcholine receptors in the brain found that both smoking and non-smoking participants who were exposed to SHS for one hour as car passengers experienced significant receptor occupancy and increased plasma nicotine concentrations.\textsuperscript{26}

A recent exploratory US study investigated whether sensitivity to SHS exposure (assessed with reaction measures commonly used to gauge subjective reactivity to the first experience with smoking cigarettes) among never-smokers aged 8–13 years predicted susceptibility to smoking (measured through likelihood of future smoking).\textsuperscript{27} Those who reported more negative experiences with SHS exposure (such as coughing or feeling sick) tended to be less susceptible to smoking than those who experienced fewer unpleasant reactions. Some evidence was found
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5.3.4 Childhood illness and smoking uptake

The occurrence of asthma during childhood may be associated with reduced smoking uptake among male adolescents, but not females. Illness outcomes such as quality of life (QOL) and smoking have been shown to be related in studies among healthy and illness populations. The assumption that smoking causes a reduction in QOL was supported in some longitudinal studies, while other longitudinal research found that changes in smoking status did not predict QOL changes. A longitudinal study investigating whether the outcomes of asthma predicted smoking onset among adolescents with asthma found that poorer self-reported medication adherence and the maladaptive coping strategy of hiding asthma predicted smoking onset among both girls and boys, while poorer QOL predicted smoking in boys only. There is some evidence of an indirect relationship between asthma and smoking behaviour from a prospective population-based study conducted among almost 6000 Dutch adolescents in two waves 22 to 24 months apart. Participants with current asthma were more likely to report depressive feelings (as opposed to depression or depressive symptoms) than those without asthma: specifically, those with current, severe symptoms of asthma were more likely to report depressive feelings than respondents with mild and moderate symptoms. However, smoking behaviour was similar for adolescents with and without asthma. Depressive feelings and smoking were related both cross-sectionally and longitudinally.

There is a strong relationship between adolescent smoking and a range of psychiatric conditions; these are discussed further in Section 5.5.2.
References


Adolescence and brain maturation

The human brain does not reach full maturation until early adulthood, with significant changes to brain structure occurring during adolescence. This prolonged and complex developmental period results in a ‘long window of vulnerability’ (p 333) during adolescence. Initiation of substance use during this time is known to increase the risk of developing an addiction later in life; in addition, adolescence is typified by a tendency to engage in risk-taking behaviours, accompanied by a relatively high level of access to and experimentation with psychoactive substances. Adolescents are particularly susceptible to the effects of tobacco exposure, with evidence suggesting that adolescence marks a period of heightened biological sensitivity to the stimulatory and reinforcing properties of nicotine. Young smokers may rapidly become addicted to smoking, even at low levels of consumption, and at significantly lower nicotine levels than adults. For example, preliminary research among young people aged 13–17 years found that light smokers (1–5 cigarettes daily, mean duration of daily smoking 1.9 years) exhibited neural activation in response to smoking cues in brain regions important during the developing stages of addiction, areas similar to those observed in adult and teenage heavy smokers.

Young people’s tobacco use and nicotine addiction have both been classified as paediatric medical disorders, rather than for example attributing youth tobacco consumption to social habits or rebellious behaviour. This implies the need for a medical approach that acknowledges potential differences between diagnosis and treatment strategies for young people compared with adults, and adapts such strategies accordingly. However, there is a need for better understanding of how the effects of nicotine, including how nicotine dependence becomes established, interact with physiology and behaviour during child and adolescent development such that the young adult perceives substantial benefit and need from continued nicotine administration. Clinical assessment of individual risk of addiction, such as nicotine dependence, requires improved understanding and acknowledgement of the complex relationships between biological and environmental factors affecting neural development and subsequent behaviour.

The adolescent neurophysiological response to nicotine is likely to be mediated by comparative brain immaturity. There is evidence that adolescent exposure to nicotine may trigger long-term changes in brain function relating to reward pathways, learning, memory and mood as well as a permanent susceptibility to nicotine addiction. Long-term changes in brain function associated with adolescent exposure to nicotine may also predispose the individual to later use of other addictive substances, and to mental illness. There is some evidence linking adolescent smoking with impaired affective decision-making (decision-making that requires appraisal of the emotional and motivational significance of stimuli i.e. their potential for rewards or punishments). Numerous studies have demonstrated that impaired decision-making is associated with the loss of control contributing to substance abuse.

O’Dell proposes a neural framework to explain why adolescents are particularly likely to initiate tobacco use and are more vulnerable to long-term nicotine dependence. The model accounts for differences in experiences of the effects of nicotine between adolescents and adults (i.e. adolescents experience enhanced short-term positive and reduced aversive effects of nicotine, and fewer negative effects during nicotine withdrawal) through developmental differences within the mesolimbic pathway based on the established role of dopamine in addiction.

Early experiences of the physiological response to inhaling nicotine might also be an important predictor of continued smoking behaviour. For example, individuals who experience strong aversion may follow a different trajectory in ongoing smoking behaviour from those for whom the first rush of nicotine provides a ‘buzz’ or a ‘high’. It is also likely that the social context in which early experimentation occurs will influence an individual’s perception of the experience. Adolescence coincides with a marked shift in emphasis of psychosocial influences, including increased awareness of peer structures and changes in schooling. These factors are discussed in Sections 5.8 and 5.9 respectively. For further discussion on nicotine, addiction and the adolescent brain, see Chapter 6, Section 7.
Onset of puberty

The onset of the physiological changes associated with puberty may be associated with increased experimentation with tobacco and other drugs, independent of age or education level of the individual. Recent research from the US has shown that adolescents who mature early are twice as likely to try cigarettes as those with an average age of physical maturity. A variety of reasons have been postulated for an association between earlier pubertal maturation and behaviours such as tobacco use, including that early-maturing girls may associate with older adolescents and copy their behaviour. Girls who are more physically mature and developed for their age might not have developed psychological maturity, thus lacking the cognitive skills to resist social pressures from peers; in addition, such behaviours may be perceived as more adult-like or acceptable in adolescents who appear more ‘grown-up’, such that early maturers may receive fewer deterring comments than other adolescents. Early-maturing girls also appear to be at greater risk for internalising and externalising behaviour problems, suggesting that tobacco use may be one of a group of unhealthy activities adopted as a means of mood regulation in stressful situations. Similarly, greater disruption of parent–child relationships has been associated with early development; for example, early-maturing girls appear to experience more parental conflict than other adolescents, which may subsequently reduce those factors that are typically protective against tobacco use and other psychosocial risks.

In addition, findings from a longitudinal Canadian study (following over 8000 children for 10 years, from age 4–11 to 14–21) suggest that various aspects of low family socio-economic status (including father’s employment status and education level) may act as a psychosocial stress for early pubertal maturation, which may lead to engagement in drinking and smoking at a younger age, at least for girls.

Other research has suggested that drug use during puberty may also be mediated by the desire for sensation seeking, and that level of sensation seeking may be more closely related to an individual’s pubertal stage than to chronological age. Degree of sensation seeking is linked with levels of sex steroids. The increase in sensation seeking and risk taking associated with puberty may come into play before those parts of the brain that weigh consequences and exert judgement reach maturity. However, social factors such as peer group smoking behaviours and attitudes, and parental and school connectedness, also mediate the effects of puberty.
References


5.5

Temperament, mental health problems and self-concept

Initiation of smoking is associated with a cluster of poor lifestyle habits such as other drug use, not wearing a seatbelt, having an unhealthy diet, sleep problems including not getting enough sleep, not exercising, and engaging in unsafe sex. Early uptake of smoking among adolescent girls, for example, has been associated with daily use of alcohol and cannabis, lower age of alcohol uptake, and engaging in unprotected sex and other risky sexual behaviours.

Along with the mix of societal, social and family factors that can influence smoking uptake among children and adolescents, the relationships between smoking, personality traits and mental health have also been investigated in research, as summarised in the sections below.

5.5.1

Temperament

There is some evidence to suggest that children with particular personality or temperament traits are more likely to take up smoking. These traits may occur in combination and may mediate the relationship between adolescent smoking and other risk factors. In more extreme cases, these characteristics may present as mental health problems (see Section 5.5.2). Personality traits may also be moderated or exacerbated by family and peer factors (see Sections 5.7 and 5.8) and gender (see Section 5.8.1).

Characteristics associated with increased likelihood of tobacco use include the following.

Having poorer self-control. Individuals who are less adept at controlling certain other behaviours, including being impulsive, easily distracted or aggressive may be more inclined to take up smoking, with recent research suggesting increases in self-control problems and attention problems during mid-adolescence may be associated with substance use (including tobacco) later in adolescence. There is some evidence of gender differences in the relationships between different aspects of impulsivity (such as inattention and disinhibition) and adolescent smoking. There is also evidence that aspects of impulsive personality (i.e. reward-seeking and disinhibition) may differ in the degree to which they are associated with smoking status compared with nicotine dependence. For example, 2009 data from a US study, in which adults aged 30–54 years completed multiple self-report measures of impulsive personality and were interviewed regarding lifetime tobacco use, suggest that reward seeking is associated with smoking continuation, but not tobacco dependence, while disinhibition is associated with tobacco dependence among daily smokers, and a lower age for daily smoking among adolescent onset smokers. Investigators therefore suggested that disinhibition may underlie ‘a more pernicious form of tobacco use, in which people become addicted to cigarettes more readily and at a younger age’.

Rebelliousness. Rebelliousness against school and adult authority are markers for adoption of smoking. As young people are generally told not to use tobacco, smoking may for some represent the flouting of an obvious symbol of adult authority. Similarly, there is some evidence linking the concept of smoking behaviour as ‘forbidden fruit’ with current smoking and intention to smoke among US adolescents.

Sensation seeking and adopting risky behaviour. Sensation seeking is the desire to experience novel sensations and the willingness to take risks in their pursuit. Sensation seeking and risk taking are closely associated with tobacco use and other risky behaviours during adolescence and adulthood. Evidence suggests that risk-taking behaviours among adolescents tend to cluster rather than occur in isolation; adolescents who engage in one risk-taking behaviour are more likely to engage in others, such as inappropriate use of alcohol and other substances,
risk taking in sexual activity, and getting into trouble with the police. US research published in 2009 found that young adult smokers reported less risk, more benefit and more involvement than non-smokers in risky behaviours such as binge drinking and unprotected sex. Sensation seeking in primary school-aged children has been associated with more favourable implicit attitudes towards smoking, similar to attitudes of children with family members who smoked. Sensation seeking has also been shown to play a role in adolescents’ responses to peer offers of cigarettes, being positively related to the use of certain strategies (such as ‘leave’ and ‘avoid’) for initial and follow-up smoking offers among US students in grades 6 to 8.

Emotional distress and anxiety. Adolescents who experience stress, anxiety, anger, irritability and depression may be more likely to take up smoking.

Smoking may be seen as a means of coping with negative emotions: it has been described as ‘one aspect of adaptation to critical development tasks’ within the study of resilience and the broad lifespan view of development. Once smoking behaviour is established, the reinforcing effects of nicotine use (by modifying affect and provoking withdrawal symptoms) underpin its role. Expectancies or beliefs that smoking will reduce negative affect and increase positive affect have been shown to influence smoking behaviour and nicotine dependence in adolescents over time. For example, recent US research among adolescents surveyed regularly between 14 and 17 years of age found that higher depression symptoms across mid- to late-adolescence predicted a 17% increase in expectations of smoking reward, which in turn predicted a 23% increase in the odds of smoking progression. These kinds of expectancies may vary due to a range of factors such as changes in smoking behaviour; for example, positive expectancies may increase following smoking uptake.

While little is known about behavioural mechanisms through which stress influences adolescent smoking, aspects of impulsive behaviour may mediate the relationship between perceived stress and adolescent smoking. For example, there is some evidence that adolescent smoking cessation success may be associated with less risk taking in the face of stress, while under-controlled, impulsive individuals may be particularly susceptible to smoking in order to lessen aversive states.

High negative mood variability has also been shown to be a risk factor for future smoking escalation; for example, a longitudinal study among Chicago adolescents in grades 8 and 10 over 12 months found that high levels of negative mood variability at baseline significantly differentiated participants who escalated in their smoking behaviour over time from participants who did not progress beyond low levels of experimentation during the course of the study. Adolescents who reported an escalation in smoking experienced a reduction in mood variability as smoking increased, whereas participants with consistently high or low levels of cigarette use had more stable mood variability levels.

5.5.2
Mental health problems

5.5.2.1
Hockenberry review

The evidence for adolescent mental health issues as a risk factor for adolescent smoking onset was reviewed by Hockenberry and colleagues in 2011. Four commonly studied mental health symptoms were identified from 746 studies: depression, suicidal ideation, anxiety disorders, and attention deficit hyperactivity disorder (ADHD). A subset of these studies was then used to examine the link between mental illness and associated symptoms and the onset or progression (i.e. transition from experimental to regular tobacco use or increased frequency or intensity) of adolescent smoking. Key findings from this review are summarised below.
Chapter 5: Influences on the uptake and prevention of smoking

5.5.2.2 Depression

The literature was most extensive on smoking and depression, with most studies concluding a strong association. The reviewers found that while longitudinal studies typically found temporal precedence for depression and resultant smoking and vice versa, the relationship was often diminished following adjustment for potential mediating or potentiating influences or after controlling for unobservable factors.

Anxiety

Many studies also addressed anxiety due to the high comorbidity between depression and anxiety. Research results on anxiety were mixed, with findings that heavy smoking in adolescence predicted anxiety onset in later adolescence or early adulthood; social phobia and post-traumatic stress were found to lead to daily smoking; while other studies focused on anxiety found it to be associated with cessation.

Suicide ideation

Most studies on suicidal ideation (thinking about suicide) and smoking examined smoking as a predictor of suicidal ideation. In general, analyses indicate that adjusting for factors such as stress and parental attachment levels, and mental illness diagnoses, removed any significant association between smoking and suicidal ideation, suggesting that the relationship is largely mediated by depression status. There is some evidence from US research that adolescent smoking and suicidal ideation is likely linked due to common psychosocial causes rather than a causal pathway from smoking to suicidal ideation; adolescent smokers who did not have a parent who smoked were at higher risk for suicidal ideation than non-smokers.

ADHD

ADHD was generally considered to be an independent risk factor for smoking; while studies typically found an association between ADHD and smoking uptake or progression, many were limited by small sample sizes and none dealt with other unobserved factors that potentially drive both ADHD symptom development and smoking. ADHD was also found to be associated with nicotine use in adolescents in a meta-analysis of 13 prospective cohort studies. Interestingly, there was evidence that this relationship may be mediated by school adjustment (a construct including academic achievement, relationships with other students, academic and behaviour problems, and other general aspects of the child’s school experience) and by whether the ADHD is left untreated or is in combination with conduct disorder.

5.5.2.2 Other research on smoking and mental health problems

Low self-esteem. Some studies have found that having low self-esteem may be a predictor for taking up smoking in situations where it is perceived that smoking will improve personal image. This factor may be more salient for younger girls. Negative self-esteem has also been found to be associated with cigarette and cannabis use among male adolescents.

Other research has also shown a strong association between smoking behaviour and a range of psychiatric conditions in adolescence. Connections between tobacco use (including early uptake, the transition from experimental to daily smoking in adolescence, and the development of nicotine dependence) and disruptive behaviour disorders (such as oppositional defiant disorder, conduct disorder and attention deficit hyperactivity disorder), anxiety, major depressive disorders and other substance use disorders have been consistently and increasingly reported in the medical literature. Studies have associated child and adolescent psychopathology with nicotine dependence and heavy smoking. For example, Hu et al. found adolescent conduct problems to be predictive of adolescent nicotine dependence after two years, with greater effects for males than for females,
although other baseline factors such as parental nicotine dependence and adolescent smoking levels were of greater influence. Psychiatric factors such as externalising disorders confer risk for chronic smoking, smoking at an early age and smoking continuation into the 30s and have been found to be associated with greater tobacco consumption following uptake.

An analysis of national smoking prevalence in the US found that young teenagers who took up smoking were more likely than non-smokers to suffer from symptoms of mental illness such as hopelessness, worthlessness and depression. Earlier experience of symptoms of psychological distress was associated with earlier age of uptake of smoking. Overall, smokers aged 12–17 years were twice as likely as non-smokers of the same age to have experienced a major depressive episode in the previous year. Longitudinal US research (2009) examined childhood depressive symptoms as a predictor of adolescent cigarette use in a six-year study among children aged 9–12 years at baseline. Higher levels of childhood depressive symptoms were associated with cigarette use, higher levels of friends’ cigarette use and higher levels of depressive symptoms in adolescence.

There is some evidence of bidirectional self-medication processes in the relationship between adolescent smoking and depression, with peer smoking as one explanation for the comorbidity. A longitudinal study followed 1093 US adolescents annually from mid-adolescence (9th grade, age 14) to late adolescence (12th grade, age 18). Higher depression symptoms in mid-adolescence predicted adolescent smoking progression from mid- to late adolescence, while higher depression symptoms across time predicted an increase in the number of smoking peers, which in turn predicted smoking progression from mid- to late adolescence. In addition, smoking progression predicted a deceleration of depression symptoms from mid- to late adolescence. Higher baseline smoking levels predicted a deceleration in the number of smoking peers across time, which predicted a deceleration in depression symptoms from mid- to late adolescence. Evidence from the same cohort followed for a further period to 22–23 years of age suggested that higher depression symptoms in emerging adulthood (18–19 years of age) influenced smoking uptake and smoking rate through reductions in substitute reinforcers (alternative, pleasant activities such as arts and crafts). There is evidence that smoking may be ineffective at reducing depressive symptoms: results from a Canadian study following adolescents aged 12–13 years for five years suggested that participants with higher self-medication scores had decelerated rates of change in depression over time compared with participants with lower self-medication scores.

Depression and smoking are both related to higher levels of weight concerns and dieting among adolescents, especially girls. In a 2009 cross-sectional study among Dutch adolescents (mean age 13.8 years) using a survey that included smoking, depression and weight constructs as well as measured weight and height, a positive correlation of a similar magnitude between depressive symptoms and smoking was found for both boys and girls. However, the relationship between body weight and smoking uptake is explored further in Section 5.8.1.1.

Early uptake of smoking is also associated with an increased likelihood of developing a range of anxiety disorders, including generalised anxiety disorder (experiencing chronic anxiety and worrying often for no reason), panic attacks and panic disorder, and post-traumatic stress disorder. Experiencing or witnessing trauma in childhood (such as childhood sexual or physical abuse or interpersonal violence) is also associated with an increased likelihood of uptake of smoking. Research examining anxiety as an independent risk factor for smoking in adolescents is less developed than that in the case of depression and is often cross-sectional, making it difficult to determine temporal precedence or causality. Despite this, emerging issues are very similar to studies of depression and smoking; other factors, including familial and peer context, genetic factors and other unmeasured confounders, need to be taken into account in future studies, as does the high comorbidity between depression and anxiety and the difficulty of reliably distinguishing between the two sets of disorders. Some evidence from a school-based study in China suggests that male adolescents with high levels of depressive symptoms who have experimented with smoking may be more sensitive to smoking-related social influences such as perceived peer smoking prevalence.

Comorbidity of psychiatric illness and smoking may be due to common underlying factors (e.g. intergenerational transmission of parental nicotine dependence and psychopathology), a predisposition due to neurobiological alterations to the adolescent brain caused by nicotine, or self-medication. Use of nicotine to ameliorate symptoms
of depression and anxiety is particularly apparent, especially in girls. The connection between smoking and psychiatric symptoms may be bidirectional, each reinforcing and promoting the other. For example, while the association between smoking and depression in adolescents is well established, the temporal ordering of the association is subject to debate, as described in the evidence review by Hockenberry et al. Meta-analyses of 15 longitudinal studies published between January 1990 and July 2008 suggest that the association is bidirectional. Studies using clinical measures of depression were more likely to report a bidirectional effect, with a stronger effect of depression predicting smoking.

There is some evidence from autopsy studies that cigarette smokers have higher levels of brain nicotine receptors than non-smokers, which may mean a higher risk of developing neuropsychiatric disorders. Adults with mental illness have a much higher prevalence of smoking than the background population. See Chapter 1, Section 10.2 for further discussion. The association between smoking and use of other substances is discussed in Section 5.10.

5.5.4 Australian research on smoking and mental health problems

The relationship between smoking and several mental disorders among Australian adolescents was investigated from data collected on 1280 adolescents aged 13–17 years in the 1998–99 child and adolescent component of the National Survey of Mental Health and Wellbeing. Three main mental disorders were assessed: conduct disorder, depressive disorder and ADHD. Anxiety disorders were not included. Current emotional and behavioural problems were assessed through parent/caregiver appraisal and youth self-reports. After adjusting for demographic and socio-economic factors (age, sex, family structure, household income and age mother left school), all measures of mental disorders and emotional and behavioural problems were strongly associated with current smoking status. Young people with conduct disorder or with externalising problems had the highest rates of smoking. Externalising behaviours were more strongly associated with smoking than internalising behaviours. On average, young people with emotional and behavioural problems started smoking at an earlier age, consumed a larger number of cigarettes per day and smoked on more days during the past month than those without such problems, and were more likely to progress to current smoking. Smoking rates were higher for young people with two or more diagnoses of mental disorders. Both parent and youth reports were strongly associated with smoking status, suggesting that assessment of emotional and behavioural problems by either the parent or the youth would be a good indicator of potential smoking risk.

Statewide surveys of adolescent smoking behaviour in Victoria undertaken between 1992 and 1995 showed that teenagers experiencing symptoms of anxiety or depression were much more likely to take up smoking, particularly in settings in which peer group smoking was present. Young girls were especially susceptible to this psychosocial combination of factors. Recently published data from a 10-year longitudinal study conducted among adolescent Victorians indicate that symptoms of depression and anxiety in adolescence significantly altered the course of smoking and predicted progression to nicotine dependence well beyond the secondary school years for adolescent smokers. Five assessments with 1943 participants were conducted at six-monthly intervals from years 9 and 10, followed by two follow-up assessments during young adulthood (aged 20–21 and 24–25 years). After adjustment for confounding factors (gender, adolescent alcohol and cannabis use), adolescents who smoked and who had high levels of depression and anxiety symptoms were at increased risk for nicotine dependence in young adulthood compared with those who reported low levels of depression and anxiety. In contrast, adolescent depression and anxiety at any level did not predict nicotine dependence in young adulthood for adolescent never smokers. No significant association between adolescent mental health symptoms and daily smoking as a young adult was found for any level of adolescent tobacco use.

Research into adolescent smoking behaviour in Queensland from the late 1990s has shown that adolescents aged 14 years presenting with delinquency, depression, anxiety or somatisation (conversion of an emotional, mental, or psychosocial problem to a physical complaint) were significantly more likely to be smokers. Male smoking was more strongly linked to ‘external’ behavioural factors (delinquency and depression) and female smoking was more strongly associated with ‘internal’ factors (anxiety/depression or somatisation). Childhood aggression is also associated with smoking behaviour in adolescence.
Section: 5.5.5

Self-concept

Self-efficacy is concerned with perceived self-competence and refers to ‘beliefs in one's capabilities to organize and execute the courses of action required to produce given levels of attainments’ (p624). The principle of self-efficacy proposes that high levels of self-efficacy may reduce smoking behaviour. Research has demonstrated the contribution of self-efficacy to the initiation and continuation of smoking behaviour: low self-efficacy has been associated with smoking initiation and smoking rates as well as greater difficulty quitting and/or higher rates of relapse among adolescents, as well as higher levels of negative health behaviours.

Recent Dutch longitudinal research examined how baseline self-efficacy and changes in self-efficacy predict adolescent smoking over time, following never smokers at baseline (mean age 13.3 years) over four years. Refusal self-efficacy (adolescents' reported confidence in their ability to stay a non-smoker and to refuse a cigarette) was assessed at each wave. While baseline self-efficacy, parental and friends' smoking did not predict adolescent smoking at the final time point, baseline sibling smoking did. In addition, growth curve parameters showed that a decrease in self-efficacy, an increase in proportion of smoking friends, and an increase in sibling smoking over time were related to an increase in adolescent smoking. Investigators concluded that a reduction in self-efficacy over time, rather than baseline self-efficacy, is associated with smoking initiation in adolescence.

In recent research among US high school students, self-efficacy partially mediated the positive relationship between baseline depressive symptoms and susceptibility to smoke 18 months later (accounting for approximately 27% of the variance). Investigators suggested more effective interventions aimed at adolescent smoking prevention could target self-efficacy, especially among adolescents experiencing or at risk of depression.

Recent evidence suggests adolescent resilience plays a mixed role in health-related risk-taking behaviours (such as smoking, drinking alcohol and using illegal drugs), with some aspects being protective and others increasing the likelihood of substance use. Researchers using nationally representative US data from a longitudinal study of adolescent health identified three aspects of resilience: overall resilience, self/family resilience, and self-resilience. Overall-resilient adolescents were less likely to engage in risky behaviours; self/family-resilient adolescents were more likely to engage in risky behaviours, but consumed less; and self-resilient adolescents had a lower risk of smoking but an increased risk for being in an addictive stage of smoking if tobacco users. Similarly, research among Slovakian adolescents found that aspects of resilience ('structured style' and 'family cohesion') were associated with a lower probability of smoking and cannabis use among boys and girls, while 'social competence' increased the probability of smoking and cannabis use among both groups.

There is some evidence that ‘perceived’ addiction to tobacco among adolescents is associated with smoking behaviours and susceptibility for both smokers and non-smokers. While adolescent smokers report levels of ‘perceived’ tobacco addiction that are related to several measures of nicotine dependence, non-smoking adolescents may also report feeling addicted to tobacco. This can occur even with minimal or no prior tobacco use, suggesting some vulnerability to tobacco use. Multivariate logistic regression analyses of cross-sectional data from 5155 Canadian student non-smokers indicated that, among other demographic, social and substance use factors, perceived mental addiction but not perceived physical addiction to tobacco was significantly associated with smoking susceptibility.
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67. O’Callaghan F, O’Callaghan M, Najman J, Williams G, Bor W and Alati R. Prediction of adolescent smoking from family and social risk factors at 5 years, and maternal smoking in pregnancy


Intentions, attitudes and beliefs

Perceived benefits and disadvantages in smoking

Not surprisingly, having a positive attitude to smoking is associated with a greater likelihood of adopting smoking. Believing that smoking will confer benefits, such as enhancing popularity and social bonding, or improving mood—for example by reducing anxiety, alleviating boredom or relieving depression—increases the likelihood of taking up smoking. This was observed in a 2009 study involving Mexican Americans aged 11 to 13 years, in which it was found that adolescents who held positive outcome expectations about cigarettes (e.g. thinking that smoking would help one feel more comfortable in social situations) and perceived themselves to be lower in the school-based social hierarchy were more likely to experiment with smoking over a 12-month period than peers who had lower positive outcome expectations or peers who had a higher perceived social standing at school.

Conversely, believing that smoking offers negative social consequences (such as causing bad breath and smelling bad) and has both short- and long-term effects on health and fitness is associated with a lower risk of smoking. International studies examining reasons for not smoking among varied groups of adolescent non-smokers found health-related concerns (such as fear of cancer or addiction, prevention of cancer, and maintaining physical fitness) to be most frequently mentioned. Other frequently mentioned motives cited by non-smoking adolescents (including those who had stopped smoking) are aesthetic reasons (e.g. causes bad breath or yellow teeth), no perceived benefit (e.g. there's no point) and economic reasons (e.g. it's a waste of money).

Results of recent research examining smoking outcome expectancies among Hungarian high school students supported four dimensions of ‘core’ expectancies: negative consequences (i.e. long-term health outcomes), positive reinforcement (related to individual sensory satisfaction from smoking), negative reinforcement (related to coping and negative emotion regulation through smoking) and appetite–weight control (expectations that smoking helps to manage appetite and weight). Student smoking status was strongly associated with positive and negative reinforcement, and less strongly with appetite and weight control expectancy.

While attitudes to smoking are strongly associated with the likelihood of uptake, the relationship between adolescent smoking attitudes and actual behaviours is likely to be bidirectional. For example, a longitudinal study in The Netherlands found that while smoking attitudes (perceptions of the extent to which daily smoking is associated with e.g. harm, danger, health, being boring/exciting) among adolescents aged 13–15 years did not consistently predict smoking behaviour over three years, past smoking behaviour had a moderate impact on subsequent attitudes, suggesting that adolescents who started to smoke developed less negative attitudes towards smoking. Similarly, in a longitudinal study in the US following students (mean age 14 years at baseline) over two school years, adolescents with personal smoking experience (including all those who had ever tried a cigarette) reported decreasing perceptions of risk and increasing perceptions of benefits associated with smoking over time.

A national survey of smoking and other drug use in English secondary school students aged 11–15 years found that although most pupils were aware of the health effects of smoking, 65% of students thought that smoking helped people relax, and about 20% thought that smoking made you slimmer, gave you confidence or was not dangerous. Students who had smoked in the previous week were far more likely to regard smoking positively, especially in the younger age groups.

Beliefs among young people that most of their peers smoke and that their peer group will approve if they start smoking are also significantly associated with uptake of smoking. The English national survey also investigated pupils’ perceptions of smoking prevalence in their age group. While all respondents overestimated the prevalence of smoking in their peer groups, smokers were far more likely to do so. For example, 93% of regular smokers aged 15 thought that half or more of their age group were smokers, whereas in reality 16% of boys and 24% of girls aged 15 years smoked regularly. Recent research conducted among primary school students in Hong Kong found that
overestimation of peer smoking prevalence at baseline was associated with ever smoking, while overestimation among never smokers predicted smoking initiation within two years. Baseline never smokers who initially overestimated but correctly estimated peer smoking at follow-up had a lower risk of smoking initiation than those with persistent incorrect estimation.

Findings from a recent study analysing 2002 data from one time point of the UK Youth Tobacco Policy Survey (covering a national cross-sectional sample of 11–16 year olds) suggested that perceived peer prevalence, perceptions of the tobacco industry and perceived health risk of smoking influenced the likelihood of future smoking intentions among adolescent smokers. Among never smokers, only perceived sibling approval of smoking had an effect on future smoking intentions.

Ethnicity and related social contextual factors may influence perceived smoking prevalence. For example, recent analyses of US cross-sectional time series data from a national survey of young people aged 12–17 years found an association between perceived smoking prevalence (assessed with the question 'Out of every 10 people your age, how many do you think smoke?') and race/ethnicity, as well as with exposure to social contextual factors (e.g. parental smoking, school factors such as academic performance, and socio-economic status). The authors suggest that youth from minority groups are disproportionately exposed to social contextual factors that are correlated with high perceived smoking prevalence.

As well as the influence of perceived smoking prevalence on smoking behaviour, there is evidence from a review of studies that have investigated smokers’ risk perceptions related to smoking-induced illness suggesting that smokers persistently minimise their personal smoking-related health risks and do not believe that they are as much at risk as other smokers of becoming addicted or suffering health effects. While the review found that apparent under- or overestimation of risk depended on the way risk perceptions were assessed in each study, smokers consistently judged the size of smoking-related health risk increases to be smaller and less well established than non-smokers when risk was measured non-numerically.

As with adults, research has shown that adolescents have misconceptions about the health implications of using ‘light’ (low emission) cigarettes. A study of teenagers in California revealed they thought that light cigarettes were less likely to cause diseases, less addictive, and easier to quit smoking. The authors of this study comment that beliefs of this nature may encourage children to take up smoking and discourage them from quitting, in the misguided belief that light cigarettes offer a safer alternative to standard cigarettes.

There is also some evidence that the belief that smoking will help with weight reduction is also an influence on uptake, especially among girls. This is discussed further in Section 5.8.1.1.

5.6.2
Future intention to be a smoker or a non-smoker

Assessing an individual’s intention (whether adult or adolescent) to smoke in the future is a useful predictor of smoking behaviour. Individuals who express the conviction that they are not going to take up smoking are much less susceptible to starting smoking than those who have not made any firm decision. Assessing susceptibility in this way may be a stronger predictor of future behaviour than other important factors such as proximity to smokers in the immediate social environment. Wakefield et al showed that senior school students who expressed a firm intention not to be smoking in five years were less likely to be smoking at follow-up, regardless of their level of involvement with smoking at the commencement of the study.

Young people’s attitudes towards smoking are also influenced by the home and social environment. A US study looking at openness to future smoking among non-smoking high school students in Indiana in 2000 and 2004. Students were asked if they thought they would smoke a cigarette in the next year, and if they would smoke a cigarette offered by a best friend. Around three-quarters of students were not open to future smoking (an increase from 74% in 2000 to 77% in 2004). The proportion of students exposed to environmental tobacco smoke (ETS) in the home or in a car in 2004 decreased compared with their counterparts in 2000. Gender, grade, race/ethnicity

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1 Adult smokers may also share these misperceptions. Lower emission cigarettes have not been shown to be a less hazardous option. See also Chapter 3, Section 26 and Chapter 10, Section 10.7.6.
and exposure to anti-tobacco messages did not significantly predict openness to future smoking. However, exposure to ETS either in homes or in cars was a strong predictor for openness to future smoking in both survey years: the higher the exposure to ETS, the more open to future smoking. In the same study, adolescents’ openness to future smoking was also strongly associated with perceived benefits (such as having more friends, looking cool, feeling more comfortable in social situations, helping relaxation and keeping weight down) and peer acceptance of smoking (most people of your age think it is OK to smoke) (both asked only in 2004). Similarly, recent research among US Grade 5 students found that the implicit attitudes towards smoking (assessed using adjectives based on children’s perspectives of smokers such as popular, cool, boring) of children without family members who smoked were significantly less favourable than were the implicit attitudes of the children who had family members who smoked.

Data on Australian students’ intentions to smoke are available from the triennial Australian Secondary Students’ Alcohol and Drug Survey, conducted among a nationally representative sample of students in years 7 to 12. Participants are asked to indicate the likelihood that they will be smoking in a year. In the 2008 survey, just over three-quarters (76%) of all respondents (around 24,000 students aged 12–17 years) reported that they were ‘certain not to smoke’, while 15% were ‘very unlikely’ or ‘unlikely’ to smoke, 5% were ‘undecided’, 3% reported they were ‘likely’ or ‘very likely’ to smoke, and 1% were ‘certain’ to be smoking in 12 months. Younger students were more likely than older students to report that they did not intend to be smoking in a year: while 86% of those aged 12 years said they were certain not to smoke, this dropped to 68% by ages 16 and 17, suggesting that almost one-third of older students could still be open to experimentation with tobacco. The decrease in intention not to smoke with increasing age was greater among female students than males.

Findings from this survey for future intentions among current smokers (defined as those who had smoked in the past week) are summarised in Table 5.6.1. Almost one-fifth (19%) of current smokers reported that they were unlikely/very unlikely to be smoking in a year, while 8% were certain they would not be smoking in 12 months. Over one-quarter of current smokers (28%) were undecided about their intentions to continue smoking, while 46% of current smokers were likely or certain to be smoking in 12 months. Combining the ‘undecided’ smokers with those who reported they were ‘very unlikely or unlikely’ to be smoking in 12 months, almost half of current smokers (47%) may be considered susceptible to encouragement to quit.

### Table 5.6.1

<table>
<thead>
<tr>
<th>Intention to smoke in the next 12 months among current smokers, Australian secondary school children aged 12–17 years, 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certain not to smoke</td>
</tr>
<tr>
<td>Very unlikely/unlikely to smoke</td>
</tr>
<tr>
<td>Undecided</td>
</tr>
<tr>
<td>Likely/very likely to smoke</td>
</tr>
<tr>
<td>Certain to smoke</td>
</tr>
</tbody>
</table>

Source: White V and Smith G 2009 Derived from Table 3.12 (p32)

* Defined as having smoked in the past week

### 5.6.3 Perceived acceptability of smoking

The National Drug Strategy Household Survey (2010) provides the most recent Australian data on community opinions and perceptions of drug use, based on responses from more than 26,000 participants across Australia aged 12 years or older. While tobacco is the single most preventable cause of ill health and death in Australia, contributing to more drug-related hospitalisations and deaths than alcohol and illicit drug use combined these data indicate that similar proportions of Australians aged 12–17 years (under one-third) cite tobacco (30%) and alcohol (31%) as the leading (direct or indirect) cause of drug deaths in Australia. Recognition of tobacco as the leading cause of drug deaths in Australia was higher among all other age groups (reaching a maximum of 40% among Australians aged 50–59 years).

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1 Whether these young smokers are able to give up smoking so easily is a separate issue. There is evidence that teenage smokers are especially susceptible to addiction, and that they are likely to underestimate how difficult they will find it to quit smoking (see e.g. DiFranza et al 2009).
In contrast, tobacco smoking was reported as the form of drug use of most serious concern for the general community by a larger proportion of people aged 12–17 years (23%) than any other age group (compared with, for example, 14% of those aged 30–49 years) in 2010. As in previous surveys, excessive drinking of alcohol was the form of drug use thought by all age groups to be of greatest community concern.\textsuperscript{31}

Participants were also asked to nominate if they personally approved or disapproved of regular use of each drug by an adult. All age groups gave alcohol a far higher approval rating than tobacco. For example, 44% of young people aged 12–17 years approved of adult alcohol use; this compared with 14% of this age group indicating approval of regular adult tobacco use, around the same proportion approving of the adult use of painkillers/analgesics for non-medical purposes.\textsuperscript{31}

Survey participants were asked to nominate the first drug they think of as associated with a ‘drug problem’ in Australia. The proportion of people first nominating tobacco dropped significantly between 2007 (2.6%) and 2010 (2.2%). This was also the case for cannabis and alcohol, while the proportion nominating cocaine, hallucinogens and painkillers substantially increased. As in previous survey years, in 2010 illicit drugs (particularly heroin and cannabis) and alcohol were much more likely to be associated with a ‘drug problem’ than tobacco by all age groups.\textsuperscript{31}

Adults agree that while tobacco is a topic of concern that should be discussed with children, it is not the most important health-related subject. A Perth-based survey in 2002 showed that although the vast majority of parents (93%) felt that smoking was important, it ranked lower than sun protection, exercise, good nutrition and illegal drugs in order of concern. Only 2% of parents surveyed felt that tobacco was the single most important health issue, compared with 34% who ranked illegal drugs as most important. Most parents (94% of non-smokers and 85% of smokers) strongly agreed with the statement that they did not want their children to take up smoking.\textsuperscript{33}

\textsuperscript{1} The 2010 survey report does not provide responses by age group for this question.\textsuperscript{31}
References


The home environment

Several aspects of the home environment can potentially relate to smoking uptake, including whether or not parents or siblings themselves smoke, parenting practices and style of parenting, policies relating to smoking in the home, and the socio-economic status of the family. These are discussed in turn in the sections below.

5.7.1 Smoking behaviour of parents

Many studies (cross-sectional and longitudinal) have found that parental tobacco use is linked with higher rates of child and adolescent smoking initiation, escalation to regular smoking and smoking into adulthood. Parental tobacco use and perceived parental approval of smoking have also been associated with adolescents’ intentions to smoke. These associations may be attributable to a number of factors, including children modelling their behaviour, beliefs, expectations and attitudes on those of their parents, perceived parental approval of smoking, ready access to tobacco, and possibly some element of genetic predisposition (or the effects of maternal smoking during pregnancy—see Section 5.3.2).

Research on the relative effects of parents and peers on youth smoking is inconsistent. Some studies have suggested that parental influence appears to be stronger for younger children, whereas peer group behaviours have more influence during teenage years. One large study has suggested that parental, sibling and peer smoking behaviours have similar importance in influencing a child’s smoking behaviour.

A recent systematic review of international literature examined the magnitude of the effects of contact with other smokers, particularly those in the family, as a strong determinant of risk of smoking uptake among children and adolescents (aged 2 to 19 years). Researchers conducted meta-analyses based on 58 studies reported between 2000 and 2009, concluding that the relative odds of uptake of smoking in children were increased significantly if at least one parent smoked, with the effects of maternal smoking greater than smoking by the father. If both parents smoked, the risk of their children becoming smokers almost tripled. Sibling smoking more than doubled the risk of an adolescent smoking, and smoking by any household member also significantly increased the odds of smoking uptake. Investigators estimated that approximately 17 000 children and young people in England and Wales take up smoking by the age of 15 each year as a result of exposure to smoking by other household members.

A recent Australian study examined the influence of parents, siblings and peers on pre- and early-teen smoking through an online survey among 7314 years 6 and 8 students. Analyses controlled for clustered data at school/community levels, as well as known correlates of smoking such as alcohol use, sensation seeking, academic performance and commitment to school. Child smoking was explained by individual-level influences: both parents’ smoking status was a significant predictor, with the effect of maternal smoking stronger than that of paternal smoking. Sibling and peer smoking were more influential than parental smoking, with these differences largely accounting for the substantial smoking variation across schools and communities. Results suggested that pre- and early-teen smoking was more related to participant characteristics and their proximal influences than school and community traits.

Australian researchers examined the long-term effects of childhood smoking experimentation and exposure to parental smoking on adult smoking risk using data from a 2004–05 follow-up of young people aged 9–15 years through the 1985 Australian Schools Health and Fitness Survey. They found that any childhood smoking experimentation increased the risk of being a smoker 20 years later, especially among experimenters aged 14–15 years who had smoked more than 10 cigarettes. Parental smoking was associated with adult current smoking risk but not with childhood smoking experimentation.

The strength and nature of the association between parental smoking and adolescent uptake varies across studies. Some research suggests that smoking prevalence is two or more times greater in young people living with one or more parents who smoke, compared with teenagers who live with non-smokers. Research among high school students across six European countries has suggested that maternal smoking behaviour has more impact on
adolescent smoking behaviour than whether or not the father smokes. Results of recent research and a systematic literature review have confirmed this finding, and also provided evidence that maternal smoking (including pre- and post-natal) influences smoking behaviours of adolescent daughters more than sons. Other research has reported only a weak and inconsistent relationship between parental and adolescent smoking behaviour, a finding that could be due to methodological issues or factors that moderate or confound measurement. In a 1995 review, Tyas and Pederson reported that about twice as many of the studies reviewed showed a significant association between parental and adolescent smoking compared with those that showed no significant association. Smoking patterns of step-parents may be as likely to influence smoking behaviour as behaviour of biological parents. Evidence also suggests that the developmental trajectory of parental smoking from adolescence to adulthood has a unique effect on adolescent smoking. A multigenerational longitudinal study in the US found that the risk of smoking among adolescents was greatest if they had parents whose smoking had early onset, accelerated rapidly, was at high levels and persisted over time. These effects were regardless of current parental smoking or education level.

Victorian research found that in secondary school students aged 12–17 years, of those living in a family in which neither parent smoked, 12% were current smokers; in families with one parent who smoked, 21% were current smokers; and in families where both parents smoked, 28% were current smokers. National data from New Zealand show broadly similar findings, concluding that parental smoking status is a major, independent predictor of smoking among schoolchildren aged 14–15 years, especially those with Māori and Pacific Islands backgrounds.

Some recent research from The Netherlands has demonstrated that parental smoking may influence the way in which young children (aged 4–7 years) interact with peers during play: those who reported at least one smoking parent were more likely to initiate pretend smoking. Investigators suggested this demonstrates that parental smoking can increase vulnerability to smoking in children and also probably indirectly in children’s friends, with the modelling processes already visible at a young age. Similarly, US research has also shown how even very young children (in this case, aged 2–6 years) emulate their parents’ behaviour. Researchers asked the children to ‘shop’ at a store of miniature items, role playing as adults. Overall, about one-quarter of children ‘purchased’ cigarettes, but children whose parents smoked were four times more likely to select cigarettes than children of non-smokers. The authors observe that children’s perceptions of smoking as normative behaviour may influence their decisions regarding whether or not to smoke as they grow older.

### 5.7.1.1 Quitting

Quitting behaviour of parents also influences smoking in children. A large prospective study undertaken in the US found that in households where both parents had quit smoking, daily smoking among children was reduced by about 40%. Smoking cessation by one parent reduced the likelihood of smoking among children by 25%.

### 5.7.1.2 Parenting practices

Parenting practices both in regard to smoking and more generally also affect a child’s likelihood of smoking. Adolescents whose parents have rules about smoking and take a strong anti-smoking stance are less likely to take up smoking, even though the parents may be smokers themselves. Young people who think that their parents would react negatively were they to start smoking are only around half as likely to begin; conversely, leniency in parental attitudes to smoking correlates with increased likelihood of smoking uptake.

Degree of parental supervision is also connected with smoking behaviour during adolescence. Australian research has shown that teenagers who are regularly permitted to spend unsupervised evenings out with their friends are more likely to smoke.
Children whose parents use an ‘authoritative’ style of parenting, defined as being responsive to their children’s needs and opinions, while also setting clear limits and expectations for behaviour and monitoring compliance, are also less likely to become smokers. Children who feel supported by their parents, find it relatively easy to talk to their parents and have a high sense of family belonging are less likely to smoke. Adolescents whose parents have adopted an ‘unengaged’ parenting style, whereby the adolescent is more free to pursue his or her own wishes, are most likely to smoke.

Along with parenting style and family management techniques, features such as the nature and content of parent–child communication have been identified as one of the major groups of parenting factors associated with adolescent substance use initiation, including tobacco. Australian research describes a school-based group randomised controlled intervention trial conducted in Perth among 1201 parents of children aged 10–11 years, assessing the impact of self-help drug education materials designed to encourage parent–child discussions about smoking and drinking. Short-term outcomes associated with the home-based intervention (comprising self-help information and activity sheets describing parenting tips and the links between parenting behaviours and the likelihood of child substance use, i.e. the role of behavioural modelling and family rules, limits and expectations) included enhanced frequency and content of tobacco- and alcohol-related discussions and higher parent–child engagement during such discussions.

A range of studies have shown that growing up in an intact, two-parent family is protective against uptake of smoking in adolescents, and that children living in single-parent homes are more likely to smoke. Evidence from a longitudinal Australian study indicates that adolescents whose parents have divorced are almost twice as likely to smoke, and to smoke on a daily basis, as children in intact families. Living in an environment of marital discord is also a predictor of smoking behaviour among adolescents, as is being born to a teenage mother with a lower level of education, or to a mother with depressive illness. A range of other family factors, such as having a mother who is not married, having a mother whose partner has been in trouble with the police, and living in a household with four or more children, have also been associated with a greater risk of adolescent smoking.

5.7.2 Smoking behaviour of siblings

Many studies have found that living in a family with older brothers or sisters who smoke also influences adolescent uptake of smoking, some research suggesting that it may be a more important predictor of uptake of smoking than parental smoking status. As parental influences decline during adolescence, adolescent behaviour may be increasingly modelled on that of siblings. For example, a longitudinal study that followed Canadian students (all never smokers at baseline) throughout high school found that sibling smoking was an independent determinant of smoking initiation as well as of the onset of daily smoking, while parental smoking was associated only with smoking uptake. Studies have shown consistently that adolescents with a smoking sibling, especially of the same sex, are more likely to take up smoking, and to continue smoking into adulthood. Based on a national survey of American adolescents aged 14–18 years, Wang et al found that the likelihood of boys aged 15–18 years taking up smoking was increased three- to fourfold if their older brothers smoked, the greatest influence occurring at around the ages of 16 and 17. The same study showed that for teenage girls, while having an older sister who smoked more than trebled the likelihood of smoking in the younger sibling, those aged 15 with an older sister who smoked were almost eight times as likely to smoke.

A study examined pooled cross-sectional data of smoking participation among more than 122 000 young people aged 15–24 years from 90 000 households involved in US population surveys between 1992 and 1999. Investigators estimated that a young person’s probability of smoking was increased by 7.6% for each additional smoking sibling in the household and reduced by 3.5% for each non-smoking sibling, concluding that the pro-smoking influence of a smoking sibling has more than double the deterrent effect of a non-smoking sibling. They did not find that older siblings had more influence than younger ones. The authors describe significant consequences for public policy towards youth smoking based on asymmetric peer effects (i.e. where a sibling’s smoking has a quantitatively different influence than a sibling not smoking); for example, an information campaign...
with a constant intensity of anti-smoking messages will have a larger deterrent effect on youth smoking than an on-and-off campaign with the same total number of messages.

The probability an adolescent has smoked and used other substances such as alcohol and cannabis in the past year has been found to be markedly higher if an older sibling engaged in the corresponding behaviour when at the same age. This was based on data analysis from paired biological siblings in a study involving almost 9000 young people aged 12–16 years. The investigators also note that research in this area is difficult as it is challenging to successfully control for the range of shared characteristics affecting siblings, such as common family backgrounds, neighbourhoods, schools, and genes, which could potentially account for most of the observed correlations.

### 5.7.3 Home smoking policies

Research indicates that bans on smoking in the home influence smoking behaviours, acceptance of smoking, susceptibility to smoking, smoking beliefs, and motivation to quit smoking, with partial or no bans on smoking in the home increasing the likelihood of adolescent and young adult smoking. Teenagers, particularly younger ones, are less likely to take up smoking if they live in a home in which smoking is banned, even if the parents themselves smoke. Living in a smokefree home may also increase the likelihood of quitting among adolescent smokers.

There is evidence from Victorian and US research that home smoking bans inhibit or delay smoking initiation and experimentation in adolescents and may stop teenagers from ever smoking. Children living in a non-smoking home are less likely to smoke, even if their parents and friends are smokers, while US research has found that the majority of adolescents living in homes with smoking bans have not tried smoking, while those living in homes where smoking is allowed are much more likely to have tried smoking. A US study among over 4000 students aged 14–19 years found that those who lived in homes with smoking bans were less likely to have seen a parent smoke, to have friends who smoke, to try smoking, to smoke daily, to give in to peer pressure to smoke, and to be susceptible to smoking.

Australian research drawing on 2002 data from a statewide survey of 4125 Victorian secondary school students aged 12–17 years examined the association between home smoking bans and stage of smoking uptake among adolescents. In a classroom survey, students were asked their own and their parents' smoking status, their likelihood of smoking in a year, and how many of their five closest friends smoked (to assess peer smoking). Logistic regression analyses controlling for parental smoking and smoking among friends indicated that students living in homes with a total smoking ban were least likely to be susceptible to smoking or to have tried smoking. While the effect of home bans was strongest when neither parent smoked, results suggested that home smoking bans reduced the likelihood of an adolescent experimenting with tobacco regardless of peer smoking behaviour. Bans were not associated with a reduction in adolescent daily smoking when friends' smoking was included in analyses.

A US study assessing perceptions of smoking prevalence and attitudes about the social acceptability of smoking among young people aged 12–17 years found a household smoking ban to be associated with two factors influencing the likelihood of smoking initiation: a lower perceived prevalence of adult smoking in the community and more negative attitudes about the social acceptability of smoking. This was observed even among youth reporting parental smoking and lack of perceived parental disapproval of youth tobacco use, both of which encourage adolescent smoking initiation. More recent (2009) US research among over 4000 high school students aged 14–19 years found that those living in households with a partial or full smoking ban were more likely to have less favourable attitudes toward smoking and were less likely to be exposed to secondhand smoke in vehicles, at home, and among family and friends.

Evidence from a cross-sectional study examining stages of uptake and smoking prevalence among more than 17000 US high school students aged 14–17 years indicates that even when parents smoked, those adolescents
who smoked and lived in homes with greater restrictions on smoking (both total or partial home bans) were significantly more likely to be in an earlier stage of smoking uptake and report a significantly lower rate of current smoking. Home smoking restrictions were found to have a greater effect than bans in public places on both adolescent smoking initiation and prevalence. Analyses of cross-sectional US population survey data indicate that the likelihood of ever having smoked, being a current smoker, and smoking more than five cigarettes per day was significantly reduced among adolescents (15–18 years) and young adults (19–24 years) living in parental households with strict no-smoking policies, compared with those in households where smoking was permitted anywhere, after controlling for smoking status of other household members.

A study in Finland provides evidence that home smoking bans are associated with a reduced risk of adolescent smoking, even when parents smoke: in homes where both parents smoked with partial or no smoking bans, young people aged 12–18 years were two to three times more likely to smoke daily. Factors strongly associated with homes that did not have a complete smoking ban included adolescents living in non-intact families, lower parental educational level, parental smoking and permissive parental attitudes towards youth smoking.

A literature review to evaluate population-level government policies in Australia, New Zealand, Britain and the US, associated with evidence on increasing the prevalence of smokefree homes, concluded there is some relationship between relatively comprehensive tobacco-control programs aimed at reducing the prevalence of smoking in the total population and lower prevalence levels of smoking in homes.

Recent US research found that the presence of home smoking bans was strongly associated with the presence of a smoker in the household and also with the age of children in the household; the vast majority of non-smoking households (94%) had a smoking ban, compared with 56% of smoking households, while parents of young people aged 6–17 years were much less likely to have a no-smoking policy than those with children aged 0–5 years.

There is also evidence from a range of studies that the presence, introduction and retention of smokefree homes increase with increasing socio-economic status (SES). For example, findings from the International Tobacco Control Four Country Survey in Australia, Canada, the US and the UK, involving nationally representative samples of nearly 6000 current and former adult smokers, indicated that smokers with high SES were more likely than low-SES smokers to both have and to introduce a total ban on smoking in the home, while continuing smokers with high SES were less likely than low SES smokers to remove a total ban.

Young people from homes with a parental smoking ban are much more likely to move into smokefree accommodation when they leave home (controlling for a range of factors including smoking status, parental education level, gender and age).

The association between home smoking bans and inhibition of smoking among adolescents has been attributed to a range of factors. Standards set in the home may influence smoking norms for adolescents who live there, through for example reducing exposure to (visible) smoking behaviours of significant others such as parents and friends and possibly counteracting the influence these behaviours may have on them; thus, the adolescent is less likely to initiate smoking or to believe smoking is a desirable behaviour. Household smoking bans have been described as a potentially powerful aspect of ‘anti-tobacco socialisation’ through which adolescents are given an unequivocal message that smoking is not acceptable. In addition, parental home smoking and subsequent child exposure to environmental tobacco smoke may increase tolerance for tobacco smoke and reduce a potential deterrent to teenagers taking up active smoking.

### 5.7.4 Socio-economic aspects of uptake

*Smoking and disadvantage is discussed in detail in Chapter 9.*

It is well established that the prevalence of smoking is higher among groups with lower socio-economic status (SES). The disparity in smoking rates between Australia’s most and least advantaged populations has been apparent for many years (see Chapter 9, Section 2). Analysis of smoking prevalence over time in Australian males has shown that the gap in smoking prevalence between highest and lowest SES groups has increased because higher SES men
have become much less likely to take up smoking. Among women, the difference between smoking prevalence in the highest and lowest SES groups has remained fairly static.\(^5\)

According to a review of the international literature on SES and health behaviours in adolescents (aged 10–21 years), most of the peer-reviewed published research between 1970 and 2007 concluded that lower SES in adolescence is associated with an increased likelihood of smoking, particularly during the early teenage years.\(^5\) The authors of this review observe that this may be because lower SES adolescents are modelling the behaviour and attitudes of lower SES adults, who are more likely to be smokers, and also because they may be more likely to experience stress and negative life events.\(^5\) It may also be that low parental SES acts as a barometer for other influences likely to affect youth smoking rates, such as local community factors (including prevailing beliefs and attitudes, smoking policies, availability of tobacco, and quality of health education) and a perceived lack of opportunity for advancement.\(^5\) Reduced investment in and accessibility of effective smoking cessation programs may also be a factor.\(^5\)

A longitudinal study among Finnish youth followed from ages 13 to 28 years (1978 to 1993) examined the effects of parental and own SES on the changes in smoking status from adolescence to adulthood.\(^5\) Own SES (particularly education) at ages 21 and 28 was strongly related to smoking, while social mobility (the difference between parental and own education) was not significantly associated with smoking. Researchers attributed the association of smoking and own SES variables to factors not covered in the study. Parental SES was significantly associated with participant smoking only at ages 15 and 16 when children of blue collar workers smoked more than children of white collar or farm workers; researchers concluded that the data could not establish a causal chain from parental SES to own SES (because the majority of students started smoking before own SES could be measured), and that low parental SES (where smoking is more prevalent) does not necessarily mean that adolescents from that group would follow a similar life course.\(^5\)

Research from Scotland examining SES and smoking behaviour in young teenagers found that students with a lower SES tended to have a greater amount of personal disposable income than children from higher SES households.\(^5\) This study also found that students from a higher SES background were more sensitive to pricing of tobacco products. West et al suggest that this may be because of differences in ease of access: adolescents from more disadvantaged backgrounds are more likely to have family and friends who are smokers, and to have access to informal sources of tobacco. By contrast, teenagers in higher SES areas wanting to obtain cigarettes may be restricted to buying cigarettes at full retail price.\(^5\)

Aside from family SES, studies have consistently shown that young people with more money are more likely to smoke.\(^23,27,34,61\) Young teenagers commonly have access to money from a number of sources, including pocket money, lunch money and borrowings from friends and family, which allows them to buy cigarettes from retailers or via their social networks.\(^62\) There is also evidence of a relationship between working for pay and adolescent tobacco use such as smoking uptake, including a positive association between smoking behaviours and the amount of time young people spend working for pay. Such associations may be attributed to several factors: adolescents who have part-time jobs may be more likely to be developmentally precocious, or seeking to emulate an adult lifestyle (through work and through tobacco use), or work could be a risk factor for smoking via exposure to workmates’ smoking behaviour in the workplace.\(^5\) For young student workers, smoking may serve as an excuse for a break from work duties, wages may provide access to commercial sources of cigarettes, or smoking may occur in order to deal with the pressure of balancing work and study.\(^5\)

For discussion on how affordability of cigarettes affects uptake of smoking in children, see Section 5.12. Pricing policy as a means of tobacco control is discussed briefly in Section 5.30, and in greater detail in Chapter 13, Section 13.1.4.
References


The smoking behaviour of peers, and peer attitudes and norms

Smoking during adolescence is primarily a social activity, and research has consistently identified peer group influences as a significant factor in uptake of smoking. Peer influence has been identified as important in future smoking intentions among adolescent smokers and non-smokers, as well as in the development of nicotine dependence in adolescent smokers. Peer groups may variously be defined as best friendships, romantic attachments, small social ‘networks’ and larger social ‘crowds’. Each of these types of peer group may influence the decision to smoke or not to smoke.

A recent review of peer group influences on adolescent smoking based on longitudinal studies published from 1999 explored the extent to which peer smoking predicts adolescent smoking. The authors identified 40 prospective studies linking peer group smoking or measures of substance use, including smoking, to future adolescent use. All but one of the studies reported positive associations between peer use at baseline and adolescent smoking at follow-up. The review also highlighted the variation of peer influence on adolescent smoking by socio-demographic characteristics, including gender differences (said to be well established, with girls more strongly influenced by peer smoking than boys; see Section 5.8.1), and less clear effects of age group and ethnicity. Social bonds (e.g. with school and family) and individual characteristics such as genetics and personal attributes were also found to moderate peer smoking.

Peer pressure is one aspect of peer socialisation, in which adolescents are influenced by their friends. Just how influential it is remains a matter of some debate. Some commentators have argued that the importance of peer influence has been overestimated, and that the clustering of smoking behaviour within peer groups could be because adolescents seek out friendships with individuals who share similar interests, of which smoking may be just one signifier, (i.e. ‘selection’). In a review of peer influence and smoking behaviour, Michell concluded that the effect of peer pressure as an influence on adolescent health behaviour is not proven, and is in practice very complex to decipher. It is important to understand that young people are not a homogeneous group, and that there are distinct peer clusters who smoke and do so for different reasons. It is probable that peer influences both interact with and are compounded by a host of other predictive factors: selection and socialisation processes can operate independently, but may also have reciprocal effects. Studies have found support for an important role of either and/or both processes, but their relative importance is strongly debated. Based on a review of 13 studies, Simons-Morton and colleagues concluded that while both socialisation and selection processes contribute to peer group homogeneity in terms of smoking behaviour, evidence from studies using more advanced research designs suggested the influence of selection was somewhat greater.

It is likely that the nature of peer influences on smoking changes over time and across social and cultural groupings. While some research suggests that peer influences may vary in importance at differing points along the adolescent continuum, with the influence of close friends’ smoking having most impact in earlier adolescence, there is evidence (2009) suggesting that parental and sibling smoking behaviour may be more important earlier. Recent research among New Zealand high school students found that the influence of smoking by parents and best friend varied with stage of adolescent tobacco smoking, progressively increasing with smoking frequency. There is also some evidence that peer influence on smoking behaviour or intentions may vary with adolescents’ previous smoking experience.

Some features of adolescent social networks may have long-lasting associations with longer term smoking behaviour. A recent longitudinal analysis based on a nationally representative sample of US adolescents followed for eight years from high school into adulthood attempted to empirically quantify the role of peer social networks in explaining smoking behaviour. Investigators controlled for potential biases in the data: parental characteristics (such as parent smoking status and education) and other socio-demographic factors (e.g. age, grade level, gender, access to cigarettes at home). They estimated that a 10% increase in the proportion of classmates who smoke will increase the likelihood of smoking by more than 3%, while an increase in smoking rates of 10% among

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1. The tobacco industry’s use of ‘viral’ and ‘buzz’ marketing capitalises on the effectiveness of peer ‘crowds.’ See Chapter 11, Section 11.7.
an individual’s close friends will increase the likelihood of smoking by 5%. They concluded that peer effects are significant determinants of smoking, which persist into adulthood.23 Similarly, recent Australian analyses examined peer effects in smoking for 75 000 adolescents aged 15–16 years across 26 European countries.24 Based on international school survey data—which is highly comparable across countries due to common sampling frames, methods and questionnaires—statistically significant and large peer effects were observed in almost all cases. It was estimated that, on average across countries, a one percentage point increase in the proportion of smoking classmates is associated with an increase of 0.31 to 0.38% in the probability that a ‘typical’ adolescent smokes, a range that varied between countries.22

The common perception that ‘peer group pressure’ equates to open coercion is not necessarily the case: most of the evidence indicates that socialisation is mainly a normative process and not one of overt peer pressure.21 Initiating smoking may arise as a response to more subtle influences, such as being a means of facilitating acceptance and bonding, and avoiding exclusion from peer groups.23 Qualitative research from Western Australia found that some adolescent experimenters and smokers saw trying a cigarette in the spirit of ‘joining in’ or ‘giving it a go’. However, the same research found that young people of Indigenous or lower socio-economic status background were much more likely to describe overt peer pressure or inducement to try smoking.21,24

Socialising processes that facilitate smoking can also discourage use.21 For example, being ‘cool’ is important to teenagers,26 although what is deemed to be cool also changes across time, peer groups and social contexts. Smoking has traditionally been viewed as one of the badges of ‘coolness’ among teenagers.26 While ‘coolness’ is still identified by young people as one of the reasons why some of their peers smoke,27 research undertaken in Western Australia for the Smarter than Smoking project suggests that the inverse is increasingly true, with those who smoke often regarded as ‘losers’ or ‘trying too hard to be cool’.28 Refusing an offer of cigarettes or declaring that ‘I don’t smoke’ is increasingly socially acceptable and normative among many youth cohorts.24 Among groups with a negative prevailing attitude to smoking, peer influence may of course deter uptake of smoking.21,22

British research has found that forming romantic attachments (‘dating’) at an earlier age is a predictor for becoming a smoker later, independent of other possible confounding factors. The authors speculate that dating and smoking behaviours may be connected by a desire to appear to be more grown up,29 which is consistent with tobacco industry advertising linking its products with sex appeal and popularity.23 Research also suggests that young people who are lesbian, gay or bisexual (LGB) have a higher risk of taking up smoking.20,31 Reasons for this could be that LGB teenagers may be at greater risk of experiencing loneliness, isolation, harassment and depression. The LGB population has also been specifically targeted in tobacco advertising.30

Social norms need only to be perceived to influence behaviour:31 young smokers tend to congregate together, and also to overestimate the extent of smoking in their own age group, giving them a distorted sense of what is normal behaviour.32,33 The National Drug Strategy Household Survey for 200434 found that about two-thirds (64%) of recent smokers aged 12–15 said that ‘all or most’ of their friends and acquaintances were smokers as well. A further 20% said that ‘about half’ of their peer group were smokers. Only 1% of smokers in this age group said that none of their friends and acquaintances smoked. The effect declined with increasing age, with 28% of smokers aged 20 years or older reporting that ‘all or most’ of their friends and acquaintances were smokers, 32% saying ‘around half were’, and 39% saying only a few of their peer group smoked. Adolescents who think that smoking is normative and that most of their peers smoke are more likely to start smoking.34

5.8.1
Influence of gender

A large number of studies have examined whether boys and girls are similarly affected by the various factors that influence smoking behaviour. In a major review of the literature, the US Surgeon General’s report for 2001 (Women and Smoking) concluded that ‘Most risk factors for smoking initiation appear to be similar among girls and boys’ (p477, 23). However the review did find that girls may be more likely to be influenced by positive images of smoking, perceptions about smoking and weight control, and improvement of mood. There was also some evidence that girls are more likely to smoke than boys out of rebelliousness, rejection of conventional values, lack of religious conviction, poor self-esteem and emotional distress. Recent Dutch research based on a national cross-sectional survey among young people aged 9–13 years found gender differences in the association between pre-adolescent
smoking initiation and emotional or behavioural problems, with relationships between smoking and problem behaviour (attention problems, thought problems and delinquent behaviour) observed in girls, but not in boys.\textsuperscript{35}

Other research has proposed that males are more likely to smoke as a result of ‘psychosocial’ factors (such as risk taking, rebelliousness, self-esteem and coping ability), whereas girls tended more to be influenced by ‘environmental’ factors such as parental smoking habits, peer group attitudes and behaviours.\textsuperscript{36} A social network analysis of adolescent smoking in Finland, however, found that both male and female smokers were influenced by parental smoking behaviour and tended to select other smokers as friends, while only females were influenced to smoke by their peer group.\textsuperscript{17} The strength of the relative influence of psychosocial and environmental factors is likely to change during teenage years.\textsuperscript{36} Koval and colleagues found that psychosocial factors are more closely associated with smoking in young teenage girls than in older girls, who are more influenced by attitude variables (including beliefs about smoking), while younger boys are less susceptible to the influences of both psychosocial factors and environmental variables than older males.

Australian studies have reported that uptake of smoking in adolescent girls is strongly related to a desire to adopt and reinforce their reputation among a specific peer group,\textsuperscript{38} and that strength of self-concept in girls (defined as how an individual perceives her physical presentation and appearance to others) is more closely connected with increased likelihood of smoking than in boys.\textsuperscript{39} The authors of this study speculate that environmental pressures on adolescent girls to be self-confident, socially aggressive and sexually precocious may lead to cigarette smoking, in an effort to boost physical self-concept.\textsuperscript{39}

5.8.1.1

Do concerns about body weight influence the uptake of smoking?

The perception that smoking depresses appetite, hence assisting with weight control, has long been considered a possible enticement for smoking, especially among females.\textsuperscript{32} Over many decades the tobacco industry has overtly targeted the female market with brands and imagery connecting cigarettes with a slim and shapely female form.\textsuperscript{32,40,41}

A large number of studies have investigated the relationship between adolescent smoking and body weight. A review by Potter and colleagues\textsuperscript{42} analyses 55 studies published between 1980–2003. Taking into account the wide variation in study methodologies, this review concluded that there was some evidence that:

- young smokers were more likely to perceive that they were overweight
- some adolescents smoked because they thought it would help with weight control
- adolescent smokers were more likely to have engaged in dieting, the evidence being strongest for girls.

Research from Western Australia\textsuperscript{24} has shown that young people (both smokers and non-smokers) cite ‘to be thin’ as a reason for smoking. Recent evidence links smoking among young females with body shape concerns and eating disorder symptoms,\textsuperscript{43,44} including extreme dieting (e.g. fasting or use of laxatives or diet pills).\textsuperscript{45} There are several recently published US studies linking increased smoking over time with weight issues among young females. For example, research found increases in smoking prevalence over four years of high school among adolescent girls to be associated with self-perceptions of overweight,\textsuperscript{46} while a twins study found both underweight and overweight/obesity to be positively associated with the transition from experimentation to regular smoking among females aged 18–29 years.\textsuperscript{47} Analyses of data from a large longitudinal US adolescent survey suggest that for females aged 11–23 years, being overweight—based on measured body mass index (BMI) in 1996—was associated with frequent/heavy smoking five years later.\textsuperscript{48}

Other research links body weight, dietary behaviours and smoking among young males and females. For example, a Canadian study found that girls who perceived themselves to be overweight and boys with higher self-reported BMI at two time points during high school were more likely to be smokers as young adults.\textsuperscript{49}

Extreme dieting among nationally representative samples of US adolescents in grades 9–12 between 1999 and 2007 has been linked with current smoking regardless of gender and weight status;\textsuperscript{45} extreme dieters showed a

\textsuperscript{1} Although smokers weigh, on average, less than people who have quit smoking and who have never smoked, the effect is modest and accrues over decades of smoking. Taking up smoking does not appear to be associated with weight loss.\textsuperscript{32}
significantly higher current smoking rate than their peers, and higher variability of current smoking rate. Trends in this data also suggest that the belief in the link between smoking and weight control may be becoming more pervasive: while some of the extreme dieting behaviours were not associated with current smoking in the years 1999–2003, all of the extreme behaviours were associated with adolescents’ current smoking from 2005, regardless of gender and weight. While the magnitude of the association between smoking and extreme dieting became smaller among adolescents in later survey years, it remained unchanged among non-overweight girls over that same time period. The authors speculate that this might reflect the stubborn nature of smoking behaviour in this group and therefore that it would be more difficult to implement smoking cessation intervention for female extreme dieters than for other groups. They also suggest that as extreme dieters showed greater variability in smoking rates than non-extreme dieters, extreme dieters are more heterogeneous in smoking behaviour, and therefore interventions against adolescent smoking among this group may need to be more varied than among non-extreme dieters.

In a 2009 Dutch study, depressive symptoms were related to smoking among adolescent boys and girls similarly, but the effect for depression became non-significant only for girls when controlling for the effect of weight concerns and dieting. Researchers therefore proposed that smoking prevention programs for depressed girls might be enhanced by challenging the idea of smoking as a diet strategy and incorporating a focus on healthy weight regulation.

The relationship between smoking uptake and mental health problems such as depressive symptoms is explored further in Section 5.5.2.
References


The educational environment: achievements, aspirations and ‘school connectedness’

Smoking in adolescence has been consistently associated with lesser academic achievement.\(^1\) Students who do well at school, are in support of school-based values and report higher levels of school involvement are less likely to smoke.\(^1\) Having higher academic aspirations is also a protective factor against smoking.\(^1\) For those who have tried smoking by the start of high school, good academic achievement during the secondary years is protective against future smoking and other problem behaviour.\(^1\)

Conversely, students who smoke are more likely to feel more negatively towards school, to miss school more often, to perform less well academically, to engage in early school misbehaviour, and to drop out of school at an earlier age than non-smokers.\(^4\) National data from England on secondary school pupils aged 11–15 years has shown that children who played truant or were excluded (suspended or expelled) from school were more than twice as likely to be smokers.\(^4\) Other English research has found that schools which reported lower levels of truancy and achieved better than expected examination results on the basis of their socio-demographic profile had a lower student smoking prevalence. The authors of this study propose that higher degrees of school connectedness may have the potential to break the link between smoking and disadvantage.\(^7\)

Similarly, Scottish research found that the social environment of schools, including a focus on caring and inclusiveness and the quality of teacher–student relationships (based on both student and teacher reports) can influence student smoking rates. For boys, school-level characteristics such as affluence had a greater effect than for girls.\(^8\) The potentially protective effect of student–teacher relationships on adolescent smoking behaviour was also observed recently in a large longitudinal study in Northern Ireland, with students aged 15–16 years who reported a positive relationship with teachers almost half as likely to report daily smoking as those who reported a negative relationship.\(^9\)

Researchers analysed the association between school and community tobacco-control policies and other variables with student smoking behaviour, based on data from 82 Canadian secondary schools with a total of 24 000 students from grades 10 and 11. School and community characteristics included the degree to which smoking bans were in place and were enforced, the extent of tobacco advertising and promotion, and the local price of a pack of cigarettes. School factors associated with a statistically lower proportion of smoking included a school focus on prevention and stronger policies restricting tobacco use, while community price per cigarette was inversely related to students’ smoking.\(^10\) Cross-sectional data from students and principals at 40 German schools also indicated that school smoking bans and prevention activities were associated with reduced smoking prevalence, while individual student characteristics such as school engagement and peer smoking did not appear to mediate the effects of school policy.\(^11\) See Section 5.29 for further discussion of school smoking policies and adolescent smoking behaviours.

Bryant and colleagues summarise three research theories that could explain the correlation between smoking, student aspiration and school involvement. The first is that smoking occurs as a direct result of school-based problems, and is used as a personal coping or compensatory strategy. The second proposes that poor school experiences are a direct result of drug use, which they comment is perhaps more likely to be the case with substances of abuse other than tobacco. The third theory argues that some adolescents have a tendency towards deviancy or problem behaviour, and that both smoking and poor school experience are the result of common underlying social and psychological processes.\(^3\) Based on their own research, Bryant and colleagues propose that students who engage in school misbehaviour from an early age are more likely to have reduced school bonding and academic achievement, and a higher likelihood of smoking. Continued alienation from the school environment is likely to lead to further behavioural issues and academic failure.\(^4\) As well as being associated with a greater likelihood of smoking, this negative school trajectory is linked with social, psychological and employment problems in adulthood.\(^12,13\)

Australian research into smoking among young people aged 14 years has shown that whether assessed by self-report or external standardised measures, smokers have lower levels of achievement than non-smokers. The association appears stronger for boys than for girls.\(^14\) Research from New South Wales has also shown that having
a negative attitude to school, measured by student perception of school environment and teacher support, is associated with higher levels of smoking. Victorian secondary school children aged between 12 and 15 years who do not intend to complete Year 12 of their education are about seven times more likely to be committed smokers than students who do expect to complete their schooling.
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References


5.10 Cultural background

5.10.1 Uptake of smoking among children from culturally and linguistically diverse environments

Australian research has shown consistently that young people living in households where English is spoken are more likely to smoke than those living in households where a language other than English is the first language. Although some groups of adult males speaking a language other than English (LOTE) at home may have a higher prevalence of smoking than English-speaking adult males (see Chapter 1, Section 1.8), these patterns are not (or not yet) apparent in the early years of secondary school (years 7 and 8). Rissel and colleagues found that in a group of year 10 and 11 pupils (aged approximately 15–17 years) in Sydney, students from an English-speaking background were much more likely to be current regular smokers (27%) than teenagers from Arabic (16%), Vietnamese or Southeast Asian backgrounds (8%). Teenagers from Vietnamese, Southeast Asian and Chinese backgrounds were also more likely to report that their families had rules at home about smoking, that they were usually supervised, and that they had lesser amounts of pocket money than other ethnic groups. Each of these factors independently correlates with a lower uptake of smoking (see Sections 5.12 and 5.14).

An earlier Sydney-based study by Tang and colleagues also showed that young adolescents (aged 12–13) who spoke a LOTE at home were much less likely to smoke than children from an English-speaking background. This study found that the factor of greatest influence in smoking uptake among children speaking a LOTE at home was whether their close friends smoked. The authors speculate that these lower rates may be due to stricter cultural attitudes opposing smoking among adolescents; students may be more likely to socialise with other children speaking the same LOTE at home and sharing the same cultural attitude, hence reducing the likelihood of peer smoking pressures; and/or that tobacco advertising had failed to reach these groups.

Prevention programs targeted for culturally and linguistically diverse populations in Australia are discussed in Chapter 7, Section 7.19.7.

There is some evidence that acculturation (a process in which migrants adopt mainstream values and behaviours of their new location while retaining elements of their own cultural practices) is associated with increased smoking rates among young people from Asian backgrounds living in Western countries. Acculturation may influence patterns of family socialisation and parenting practices. However, research from New Zealand among a nationally representative sample of secondary students aged 12–18 years found strong family influences in relation to the risk of regular smoking among participants from an Asian background: spending time with parents, having parents who did not smoke, and having parents who disapproved of the student smoking were associated with significantly lower risks of adolescent smoking. It was found that indicators of acculturation (such as self-identified ethnicity, country of birth, length of time living in New Zealand, main language at home and participation in New Zealand European traditional activities) did not weaken this relationship between protective family factors and significantly reduced risks of regular smoking among Asian youth.

5.10.2 Uptake of smoking among Aboriginal peoples and Torres Strait Islanders

The prevalence of smoking among Aboriginal peoples and Torres Strait Islanders is more than twice that of the total Australian population. As well as taking up smoking at a greater rate than non-Indigenous children, there is evidence that Aboriginal and Torres Strait Islander children begin smoking at an earlier age.
Young Indigenous children report similar influences on uptake of smoking to children everywhere. Being part of a peer group that smokes, smoking among other family members and parents, and having a positive attitude towards smoking are strong indicators of smoking behaviour, which are shared by Indigenous and non-Indigenous children.\textsuperscript{3,9} Research from Western Australia shows that young Indigenous people are more likely to describe overt peer pressure in relation to taking up smoking, and to report smoking as a more normal occurrence among their peers.\textsuperscript{10,11} Smoking may also be an expression of rebellion, a way of risk taking, a means of offsetting boredom, or used to achieve stress relief among young Indigenous people.\textsuperscript{12,13} Australian research suggests experimentation with other substances such as alcohol and cannabis also correlates with the adoption of smoking among Indigenous and non-Indigenous primary schoolchildren.\textsuperscript{9}

The higher prevalence of smoking in Aboriginal and Torres Strait Islander adults means that many young Indigenous people live in settings in which smoking is the norm. It is also likely that factors such as poorer school connectedness and other socio-demographic issues connected with disadvantage contribute to higher rates of uptake.\textsuperscript{13} Smoking among Aboriginal and Torres Strait Islander children and teenagers, including influences on smoking behaviour, is discussed in greater detail in Chapter 8, Section 4.
References


Chapter 5: Influences on the uptake and prevention of smoking

5.11 Accessibility of tobacco products to young smokers

Adolescent access to cigarettes contributes to initiation of smoking.\textsuperscript{1–4}

There is some evidence that children of smokers are more likely to begin smoking at an early age, that they are most likely to procure their cigarettes from home (with or without parental knowledge), and that this group helps to ‘seed’ smoking among their peers.\textsuperscript{5,6} Whoever supplies their early cigarettes, once smoking is initiated, young smokers adapt their means of access to fit the prevailing social and legislative environment.\textsuperscript{7}

Data from the Australian Secondary School Students’ Alcohol and Drug Survey in 2008 showed that the most common ways for adolescents to access cigarettes was through friends (45% of current smokers) and asking someone else to buy them (17% of current smokers).\textsuperscript{4} Although it is illegal to sell tobacco products to children under the age of 18 years in all states and territories of Australia, overall, 20% of current smokers aged 12–17 years in 2008 reported that they bought their last cigarette (compared with 23% in 2005). Some jurisdictions have reported lower rates of children purchasing tobacco compared to the national data. For example, in New South Wales in 2008, fewer than 1 in 10 students (8.7%) aged 12–17 years purchased their last cigarette (compared with 22% in 2002 and 20% Australia wide). In South Australia 15% of students aged 12–17 years purchased their last cigarette in 2008 (compared with 19% in 2002). In general, the likelihood of having made a personal purchase increases with age, and with frequency of smoking behaviour.

In 2008, 19% of all students thought it would be ‘very easy’ or ‘easy’ for them to purchase cigarettes. The proportion believing this increased with age and peaked among boys aged 17 years at 39%.\textsuperscript{8} Almost half (49%) of all students thought it would be easy or very easy to get someone else to buy cigarettes for them and this belief increased with age. Among current smokers aged 12–17 years, 49% of male and 38% of female students thought it would be easy or very easy for them to buy cigarettes themselves. The majority of current smokers (81%) thought it would be easy or very easy to get others to buy cigarettes for them.

Consistent with efforts by states and territories to strengthen and enforce legislation to reduce illegal sale of tobacco to children, trend data show that there has been a large decrease over time in the proportion of current smokers purchasing their cigarettes. In 1987 more than half of students aged 12–17 years purchased their last cigarette compared with 20% in 2008—see Section 5.21 for further details.

Data from the National Drug Strategy Household Survey (2010) also confirm that the majority of young people generally obtain cigarettes from friends and relatives. In 2010, 60% of young people aged 12–17 years surveyed obtained their cigarettes from a friend, acquaintance or relative and 31% purchased cigarettes from a retailer or through the Internet. About 9% obtained cigarettes through other sources (including stealing).\textsuperscript{6}

Research from New Zealand shows that students with both parents smoking were much more likely to obtain cigarettes from family than students with neither parent smoking. Socio-economic status and living in highly populated areas were also factors significantly associated with purchase of tobacco.\textsuperscript{6}

For a small number of young smokers, problems of availability and affordability of tobacco may be in part ameliorated by use of unbranded, untaxed loose tobacco, commonly known as ‘chop-chop’. The 2007 National Drug Strategy Household Survey\textsuperscript{10} reports that of young people aged 14–19, 32.6% were aware of chop-chop, and 4.5% had used it. Note however that fewer than 0.1% (+/−0.05%) report using it ‘half the time or more’.\textsuperscript{10} Analysis of the 2007 data set by Cancer Council Victoria showed that no young people aged 14 years were current users. The report on the 2010 survey\textsuperscript{9} does not include data by age. Analysis of the 2010 data set by Cancer Council Victoria showed that 7% of smokers under 18 years of age were using chop-chop. Once again only about 1% of smokers were using it half the time or more. None of respondents aged 14 years interviewed had ever used chop-chop (personal communication on selected findings from the dataset of the 2010 National Drug Strategy Household Survey to M Scollo, Cancer Council Victoria, from M Zacher, 2011).

Some studies have suggested that adolescent smoking may also be influenced by the density of tobacco retail outlets. A California study found that the prevalence of current smoking was three percentage points higher at schools in neighbourhoods with a high density of retail outlets (more than five tobacco outlets) compared with neighbourhoods without tobacco outlets.\textsuperscript{11} For discussion about prevention initiatives focused on tobacco access and supply, see Section 5.21.
References


5.12 Affordability of tobacco products

As noted in Section 5.11, many young smokers do not purchase their own cigarettes directly, but obtain them through their social network and from other informal sources. Australian research indicates that in 2008, the two most common ways to access cigarettes among high school current smokers were through their friends and by asking someone else to buy them. It is likely that tobacco pricing is not a major concern for those young smokers, who may only be experimenting with smoking in a one-off or occasional way. However, as smoking behaviour becomes more established and adolescents increasingly finance their own tobacco purchases, affordability of cigarettes becomes a far more important consideration.

A substantial body of evidence demonstrates that youth smokers are particularly sensitive to rises in tobacco prices. For example, it has been estimated that a 10% increase in cigarette prices reduces purchases by 4% among all smokers (based on US figures), while the equivalent estimate for young people is a 7% reduction in cigarette purchases. Higher cigarette prices are associated with a reduced probability of youth smoking, including reduced current prevalence and consumption. Research also suggests that cigarette price rises may foster cessation-related behaviours among high school smokers.

There is some US research suggesting that the influence of price increases has become more important to young smokers in recent years (that is, during the 1990s, when prices increased sharply). This research was based on time-series analyses of data collected between 1976 and 2002 from US high school students. In seeking to explain this trend, the authors suggest that it may be because only when cigarette prices reach a certain threshold does the cost to young people become significant enough to influence their smoking.

Young people's price sensitivity to cigarette pricing can work in two directions—while they are particularly sensitive to price increases, it has also been suggested that a decrease in cigarette prices would have a detrimental effect on smoking prevalence among young people, and of a greater magnitude of impact on prevalence than an equivalent increase in price would reduce smoking. This research finding was based on a US study involving a pooled cross-sectional analysis of smoking among more than 122,000 young people aged 15–24 years from 90,000 households (1992–1999). This is alarming in light of the growing number of cheap imported cigarettes in packs of 20 that are substantially cheaper than the most popular brands in Australia—see Chapter 13, Section 13.3 for further details. In the UK, packs of 14, introduced in five brands, have been promoted extensively to the ‘price conscious’ smoker at a low recommended retail price (e.g. £3.82 or €4.34/USD$6.25).

Fiscal policy and pricing of cigarettes is an integral component of comprehensive tobacco-control policy for reducing prevalence and encouraging cessation among adults, and as discussed in this section, just as important for youth smoking prevention efforts. The effects of tax increases on consumption are discussed briefly in Section 5.22 and in detail in Chapter 13, Section 13.1.5 (MS to check when finalise Ch 13).
References


5.13 Products and packaging created to appeal to new users

5.13.1 Confectionery cigarettes

Chocolate, sugar and bubblegum sticks made to look like cigarettes and cigars have been sold for many decades, often in packaging closely resembling that of real tobacco products.\(^1\) Probably the most widely recognised Australian confectionery cigarettes were 'Fags': white sugar sticks with one tip dyed red to simulate a lit cigarette.

Having young children accustomed to playing with the cigarette-like lollies in facsimile brand packaging provides obvious benefits for tobacco manufacturers.\(^1\) Although the tobacco companies publicly distanced themselves from confectionery cigarettes from the 1960s, they have also not been quick to pursue trademark infringements by confectionary companies.\(^1\)

Research from the US in the 1990s found that children who bought confectionery cigarettes were almost four times more likely to have tried real cigarettes. This effect remained significant after parental smoking status was taken into consideration. Children liked confectionery cigarettes and tended to see them as illicit or mature pleasures, and to use them as props to imitate smoking behaviour.\(^1\) More recent (2007) research\(^3\) from the US has shown that adults who had used confectionery cigarettes in childhood were about twice as likely to take up smoking as adults who did not have the lollies. Greater use of confectionery cigarettes was associated with a higher likelihood of becoming a smoker, irrespective of potential socio-demographic confounding factors.\(^3\)

Confectionery cigarettes remain available in some parts of the world\(^4\) but are no longer legally sold in most states and territories in Australia. Interestingly however, the cigarette-shaped lollies sold as Fags in Australia continue to be sold but with a rebranding of the name from 'Fags' to 'Fads'.

5.13.2 Flavoured cigarettes

In the US, flavoured cigarettes have proliferated, ranging from fruity and sweet (e.g. strawberry flavoured) to spicy and cocktail- or liquor-flavoured, such as margarita or cognac.\(^5\)

The role of added cigarette flavourings in fostering smoking initiation was highlighted recently in partial guidelines adopted by the WHO Framework Convention on Tobacco Control (WHO FCTC) Conference of the Parties in November 2010.\(^6\) Analysis of tobacco industry documents suggests that companies have used flavourings to mask the harshness of tobacco smoke and improving the palatability of tobacco products. This is particularly important for new tobacco users.\(^6\) For further discussion see Chapter 10, Section 10.7.1.

The recent proliferation of flavoured brands has been attributed to the tobacco industry’s need to attract and retain young smokers in an increasingly challenging regulatory environment.\(^7,8\) Examination of tobacco industry documents reveals how tobacco companies have analysed the concomitant effect of controlling menthol levels and increasing brand sales among specific groups.\(^8\) While adult menthol users prefer stronger levels of menthol sensation, brands with milder levels of menthol are also available and these appear to be more attractive to adolescent and young adult smokers.\(^9\) Investigators conducted independent laboratory tests on menthol brands.
and analysed data on menthol brand use from a nationally representative US health survey. They found evidence that the industry manipulated cigarette menthol levels and introduced new menthol brands to gain market share, especially among young people. US magazine advertising expenditures for menthol brands increased substantially between 1998 and 2005, occurring in conjunction with the rapid introduction of new menthol brands in spite of the 1998 signing of the Master Settlement Agreement between the tobacco industry and US state governments. Studies on the popularity of mainstream flavoured brands in the US (such as those produced by the major tobacco companies RJ Reynolds and Brown & Williamson) have shown that they are used primarily by younger people, and that college-age non-smokers, experimenters and smokers are more likely to have positive expectancies of flavoured variants of cigarettes compared with regular cigarettes. This confirms what the tobacco industry has long understood: that younger novice smokers are much more likely to be attracted to novelty flavoured tobacco products than older or established smokers. Flavoured products may also be more appealing to certain groups of young people: for example, a 2009 study among US high school students identified higher-sensation-seeking adolescents as more susceptible to the use of flavour and associated descriptions on cigarette packaging; among this group, exposure to cigarette packaging with sweet flavour descriptors led to more favourable brand impressions than did exposure to packages with traditional descriptors.

A small number of imported flavoured cigarettes are available in Australia, but their sales have been banned or otherwise restricted in some states and territories. See Section 5.27. Flavoured tobacco products are discussed in greater detail in Chapter 10, Section 7.1.

5.13.3 Packaging

Packaging is a vital component of brand imagery, especially in countries such as Australia where traditional forms of tobacco advertising are restricted (see Chapter 11, Section 11.10). The importance of colour and brand imagery in product appeal to consumers is clearly demonstrated in industry documents, with evidence that consumer perceptions of products and health risks associated with smoking are influenced by features such as colours and product descriptors. Since most smokers become addicted at an early age, it is not surprising that packaging for some brands appears to have been designed with an eye to appealing to youth. The tobacco industry has consistently denied that packaging influences the uptake of smoking among young people; however, industry document analyses as well as public health research indicates otherwise. For example, in a 2009 UK study, children aged as young as 11 years reported misperceptions of health risk based on pack design and wording, with those brands considered to be less dangerous also perceived as more appealing and chosen as the preferred brand if trying smoking.

Packaging is a highly effective form of advertising. Smokers and non-smokers are frequently exposed to tobacco packaging, due to the nature of the product; often packs are prominent when being used and also highly visible between use. Industry documents show that, through detailed market research, tobacco companies have been preoccupied with developing all aspects of packaging to be ‘new’, ‘innovative’ and ‘fashionable’. Heavy investment in continuous pack design developments (such as innovations in pack shape, method of opening and pack material, as well as colouring and logos) are aimed at packaging appeal to particular target groups, including young people, and at reinforcing desired brand image. Such design changes have been associated with increasing limitations on traditional tobacco advertising. Research demonstrates that innovations such as new shapes and sizes of packs may heighten the attractiveness of cigarette brands, particularly to young people.

Packaging has also been designed to particularly appeal to women. A recent study among young Canadian women (female smokers and non-smokers aged 18–25 years), for example, shows that female-oriented branded cigarette packaging (i.e. featuring descriptors such as ‘extra slims’, narrow packaging and traditional female-oriented colour schemes) were associated with more positive attributes including glamour, slimness and attractiveness, particularly among younger women. Results also demonstrated empirically a link between packaging characteristics, smoking and weight control beliefs—an important predictor of tobacco use among girls. Similarly, a recent US study among female smokers and non-smokers aged 18–19 years found that brands with novel package designs such as narrow packs shaped like perfume containers were perceived as less harmful than those using more conventional packaging.
The progressive introduction of health warnings on tobacco packets in Australia and overseas has been strongly opposed by the tobacco industry on the basis that they ruin pack design and infringe trademarks.\textsuperscript{22} There is evidence that packaging design and format has been used by the industry to undermine the effectiveness of graphic health warnings and to distract attention from them.\textsuperscript{12} For example, some novel pack shapes and sizes lead to distorted warning pictures or small text size.\textsuperscript{15}

Packaging has also been altered to accommodate different quantities of cigarettes, smaller packs being of particular appeal to young people because they are easier to conceal, as well as less expensive to purchase. For example, in 1985 and early 1986 Philip Morris launched its popular brands Alpine and Peter Jackson in packs of 15. Dubbed ‘kiddie packs’ by health advocates, the cost of small packs was around half the price of other larger pack sizes at the time. South Australian research conducted soon after their introduction showed that the smaller packets were especially popular among young teenage smokers.\textsuperscript{21} While smaller packs of cigarettes were subsequently banned, ‘splittable’ packs, whereby a packet of 20 cigarettes could be separated along a perforated line to make two smaller packs, similar in dimensions to an ‘iPod’, were launched by British American Tobacco Australia in 2006\textsuperscript{24} (see Chapter 11, Section 11.10).

Legislation specifying minimum numbers of cigarettes per package and elements of pack design are intended to counter packaging that appeals in particular to young users (see Section 5.23). Health warnings on tobacco packaging are discussed in Chapter 12 Attachment A12.
References

22. 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):iii13–22. Available from: http://tobaccocontrol.bmj.com/cgi/reprint/12/suppl_3/iii13
5.14

Opportunity to smoke

While smoking was once commonplace in the working environment, in shopping centres, on public transport, in restaurants and elsewhere, public health concerns about exposure to secondhand smoke have led to the introduction of ‘clean air’ acts and other smoking restrictions at the national, state/territory and local government levels. Most workplaces and other public places are now smokefree, and increasing numbers of Australian households have chosen to ban smoking in their homes1 (see Chapter 4, Section 4.4). Smokefree homes appear to be particularly important in influencing smoking behaviour among teenagers.2 For further detail on the effects of home smoking policies on adolescent smoking behaviours, see Section 5.7.3. Schools in Australia are also now all smokefree environments. In past decades in Australia, and difficult to imagine now, schools were one of the settings where smoking experimentation often occurred among adolescents, often stereotyped as surreptitiously taking place ‘behind the school shed,’ 'out on the oval' or in the school toilets.

5.14.1

Influence of smoking restrictions in schools on youth smoking

In some countries, smoking is not so universally prohibited on school grounds. Canadian research investigated how this is perceived by students—at the time of the study, around one-third of school districts in the province of British Columbia did not ban smoking outright on school grounds, and smoking was permitted in designated areas in some schools.3 Focus groups were conducted with high school students (14–18 years) attending schools with smoking areas regarding their perceptions of school smoking policies. The researchers reported that students expressed surprise and concern that smoking was permitted on school property, and felt that it encouraged the perception that neither the school nor staff took student smoking seriously. Some students also noted that the presence of a readily accessible smoking area hampered their own cessation attempts.3

It has been argued that one of the most inexpensive actions a school can take to reduce smoking is to introduce and enforce a no-smoking policy.4,5 A number of studies have investigated the effectiveness of school tobacco policies in reducing student smoking, and overall, the evidence is somewhat mixed: some studies finding a more comprehensive policy associated with decreased smoking6-8 and others finding no effect.9, 10 A study comparing the impact of school tobacco policies on student smoking in the US state of Washington and in Victoria, Australia (investigated as part of the International Youth Development Study) found little evidence of an association between likelihood of smoking and comprehensive smoking bans.9

Other research has suggested that the consistency with which schools enforce policy responses (regardless of the type of sanction imposed) is a crucial component of policy effectiveness:11 student perceptions of policy and behaviours are influenced largely by school actions in response to policy violations rather than the mere existence of policies.5, 11 An analysis of smoking and policy at 55 schools demonstrated an association between policy strength, policy enforcement and the prevalence of smoking among pupils.13

What a school does beyond just smoking bans is also important. As discussed in Section 5.20, school-based youth smoking prevention efforts are most effective when comprehensive and multi-modal.14 Hence smoking bans in schools are ideally complemented by a range of other strategies within the school, and even more ideally, within the broader community. This is evident in a study by Lovato and colleagues, which found that students were less likely to smoke if they attended a school with a focus on tobacco prevention, stronger policies prohibiting tobacco use and fewer students smoking on the peripheries than in schools without these characteristics.15
### 5.14.2

**Influence of smoking restrictions in other settings on youth smoking**

US longitudinal research among teenagers aged 12–16 years has identified greater perceived difficulty of smoking in public places and home smoking bans as associated with a lower likelihood of smoking. Participants rated how difficult it is for someone under the age of 18 to smoke in a variety of public places on a four-point scale from ‘very hard’ to ‘not at all hard’. Perceived difficulty of finding a place to smoke had a similarly powerful effect on both the prevention of and a reduction in adolescent smoking. The researchers found reduced odds of adolescents being on a smoking trajectory (e.g. non-smoker to occasional or established smoker) for each unit increase in perceptions of difficulty in public smoking. The magnitude of the effect of perceived public smoking difficulty was almost sufficient to offset (and for more advanced levels of smoking did counteract) the influence of pro-smoking factors such as parental smoking.

There is some evidence—from a US study following young people aged 12–17 years over four years—that living in a town where legislation bans smoking in restaurants is associated with a significantly reduced likelihood of progressing from experimental to established smoking. This research also found that adolescents in a household with no smoking ban, whether living with a smoker or with non-smokers, were more likely to perceive high rates of adult smoking. Those who lived with non-smokers in a household with no smoking ban were more likely than those with a home ban to experiment with smoking at an early age.

As well as physically reducing the places where smoking may occur, reducing opportunities to smoke and making it more difficult to smoke helps to challenge perceptions that smoking is normal behaviour and reduce the social acceptability of smoking. As discussed further in Section 5.24, young people are greatly influenced by their sense of what is normal and attractive. One Canadian study found that the more frequently young people observe smoking occurring in a range of settings, the more likely they are to have the view that smoking is both socially acceptable and normal. Hence bans on smoking in restaurants and other public places can help to reduce the ‘normalcy’ of seeing people smoking, thereby helping to reshape community norms and perceived social acceptability regarding smoking. Publicity supporting bans on smoking in cars in Australia is likely to strengthen this view.

For further discussion see Section 5.29 and Chapter 15, Section 5.16.4.
References


Tobacco advertising and promotion targeted at young people

For more detailed discussion concerning the influence of tobacco advertising on children and teenagers, and the effects of advertising bans, refer to Chapter 11, Tobacco advertising and promotion.

Since more than 50% of Australians who have ever smoked have quit,¹ and since about half of all regular tobacco users die prematurely due to smoking,² the tobacco industry will not remain viable unless it recruits new smokers. In the US, the Centers for Disease Control estimated that in the late 1990s, a typical teenager would have been exposed to almost $20 billion worth of advertising promoting tobacco products.³ The study, published in 1999, found that children bought the most heavily advertised tobacco brands and were estimated to be three times more affected by advertising expenditures than adults.³

Major scientific reviews of decades of published research have concluded that tobacco advertising and promotion have directly influenced the uptake of smoking by young people.⁴⁻⁸

A recent systematic review examined articles quantitatively assessing the relationship between media exposure and substance use behaviour (including tobacco, alcohol and illicit drug use) among children and adolescents from 1980 to January 2008. 'Media' covered television, cinema, the Internet, electronic/video games, magazines and music (advertising was excluded). The review identified 42 studies, most based on television or film media, including 24 which examined tobacco use. The majority (88%) of the 24 studies (including 10 longitudinal studies) examining tobacco use reported a statistically significant relationship between increased media exposure and an increase in child and adolescent smoking behaviour (typically ever having tried smoking or age of uptake). Reviewers noted that the evidence supporting the relationship between media and tobacco use was stronger than that for alcohol and illicit drug use.⁹

In a major review drawing on research published between 1966 and 2005, Di Franza and colleagues concluded that the evidence satisfies all six standard statistical criteria for determining that there is a causal relationship between exposure to tobacco advertising and the uptake of smoking in children.¹⁰ These criteria are:

- **temporality**—children are exposed to tobacco promotion prior to taking up smoking
- **exposure**—being exposed to advertising increases the risk of smoking over the non-exposed
- **dose-response**—the more exposed the population to advertising, the greater the likelihood of taking up smoking
- **robust and consistent findings**—observed across a large number of studies and populations, and controlled for confounding factors
- **causality is theoretically and scientifically plausible**
- **no explanation other than causality fits the factual evidence.**

Conversely, while tobacco advertising has been shown to influence youth smoking uptake and prevalence, banning or restricting tobacco advertising and marketing does seem to reduce youth smoking. Research from the UK, for example, examined adolescent smoking intentions and tobacco marketing before and after the implementation of restrictions on advertising through the UK’s Tobacco Advertising and Promotion Act between 2003 and 2005.¹¹ The Act included advertising bans on billboards, cinemas and in print media, prohibition of domestic tobacco sponsorship, direct mail and on-pack promotions, and restricted point-of-sale advertising. The authors concluded that restrictions on tobacco advertising can significantly reduce adolescents’ smoking intentions by signifying smoking to be less normative and to be socially unacceptable.¹¹

Most forms of tobacco advertising and promotion in Australian states and territories have been incrementally banned since 1973 by federal and state legislation.¹² Over this period, tobacco manufacturers have adapted to restrictions by increasing activity in those areas where promotion was still allowed to occur, most notably during

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¹ These criteria are also applied to disease causality. See Chapter 3, Section 3.0.1 for a further discussion of defining causality and the criteria used to infer the likelihood of causality.

² Refer to Chapter 11, Sections 11.0 (Background), 11.3 (federal legislation) and 11.4 (state/territory legislation) for a description of the history of tobacco advertising restrictions in Australia and current situation.
5.15.1  
**Point of sale displays**

Cigarettes are the most widely available of all consumer products in Australia, including milk and bread.\(^\text{35}\) It is evident that the tobacco industry responded to restrictions on advertising at point of sale and elsewhere by attempting to maximise visual impact of products on display.\(^\text{16}\) 'Tobacco 'powerwalls', common in the early 2000s, were typically eye catching and brightly lit, forming bold blocks of colour. Australian tobacco companies actively engaged in ensuring that their products received prominence in the retail setting by offering financial and other incentives to retailers\(^\text{17}\) (see also Chapter 10, Section 10.20.8).

While they may have been intended to encourage existing smokers to select different brands, it is also likely that such displays provided reassurance to current smokers and attracted the attention of potential new young smokers, who are frequent visitors to supermarkets and to milk bars and other convenience stores.\(^\text{16}\) Australian evidence shows that such displays served as a cue to buy tobacco products and appeared to undermine attempts to quit smoking.\(^\text{18}\) Australian research has also found that point of sale display advertising may have increased the perception among schoolchildren that cigarettes were easy to obtain, and also influenced students’ recall of particular brands.\(^\text{19}\) In contrast, the vast majority of adult smokers do not appear to make their brand selection at the point of sale.\(^\text{20}\)

A recent US longitudinal survey assessed the smoking behaviour of over 1600 young people aged 11–14 years following baseline measures of exposure to point-of-sale retail tobacco advertising (including pack displays).\(^\text{21}\) After 12 months, the odds of smoking initiation were significantly higher for adolescents who visited the types of stores containing the most cigarette advertising (such as convenience, liquor and small grocery stores) with at least moderate frequency, and more than doubled for those who visited such stores more frequently. Similar results were seen for adolescents who visited stores where tobacco advertising and displays were assessed through researcher observation, and persisted at the 30-month follow-up.\(^\text{21}\)

See Chapter 11, Section 11.9.2 for details on action in Australia to limit promotion at point of sale.

5.15.2  
**Event marketing**

In Australia\(^\text{12}\) and overseas,\(^\text{22,23}\) the tobacco industry has targeted young adults by sponsoring a range of events such as fashion shows, dance parties and music events, often staged in bars and nightclubs. Young adults are of key importance to the industry, providing a pool of experimenters and uncommitted smokers.

Harper and Martin identify several ways in which event marketing is strategically important to the tobacco industry:\(^\text{12}\)

- such events promote brand loyalty
- they may tip the balance between being an experimenter and becoming an addict
- they provide a positive social context in which smoking can occur, serving to reinforce smoking as well as encourage new smokers
- co-sponsorship of events by other youth-oriented brands (such as sports drinks) normalises smoking behaviour

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\(^i\) Products and packaging designed with the younger smoker in mind are discussed in Section 5.16.3. Packaging as an integral component of advertising is discussed in Chapter 11, Section 11.6.3.
they actively encourage participants (by offering incentives) to spread the word about the events and bring along more people, thereby extending the industry’s reach.

Philip Morris Australia promoted its brand Alpine through young designer fashion shows and dance parties between 2000 and 2002; these events were themed in Alpine colours and included roving cigarette sellers dressed in the Alpine colour way. Other events have featured accessories bearing brand logos, new packaging and ‘special edition’ product configurations, free drinks and discounts on cigarettes. The events have encouraged participants to sign on to an email database, providing the organisers with client contact details and profiles as well as facilitating publicity about future events.

Although exposure to promotions of this kind predominantly reaches young adults in the first instance, their influence can also be expected to trickle down to younger adolescents, who are keen to emulate adult behaviour.

For further discussion of these kinds of promotional events, see Chapter 11, Section 11.7.

5.15.3

Internet promotions

The global and largely unregulated nature of the Internet provides vast opportunities for the promotion of tobacco use in general, as well as for specific tobacco products. International pro-smoking websites celebrating a smoking culture and lifestyle are easily accessed by young people and feature glamorous and sometimes titillating content. US research (2009) tracking home internet usage by young people aged 14–17 years for a month to examine exposure to tobacco- and smoking-related content concluded that many adolescents are consistently exposed to tobacco content on the Internet (both pro-and anti-tobacco as well as unclear/mixed). Over half the pages on which tobacco content was found were social networking sites. Australian research has found that pro-smoking imagery is easily accessed on the popular video-sharing website ‘YouTube’. The authors of this study comment that given the ability for material to be posted anonymously, it is quite conceivable that the tobacco industry could exploit this medium for its own purposes as a way of evading advertising bans. For further discussion, refer to Chapter 11, Section 11.6.5.

In Australia, the Internet has been used to promote events sponsored by tobacco companies (see Section 5.15.2 above), a primary goal being to establish an email database in order to initiate direct marketing.

Tobacco products can also be bought online from several Australian-based companies. In May 2007 the Ministerial Council on Drug Strategy announced its intention to work towards restricting the advertising and sales of tobacco products over the Internet and banning sales to people aged under 18. In 2009, the Australian National Preventative Health Taskforce recommended a ban on internet sales of tobacco products as one of a raft of proposed legislative reforms to address current deficiencies in tobacco regulation included in the National Preventative Health Strategy. The Minister for Health and Ageing released the Government’s response to the Preventative Health Strategy in 2010, announcing that the Government would legislate to restrict Australian internet advertising of tobacco products. This legislation had passed the Australian Senate at the time of writing. For further detail please refer to Chapter 11, Section 11.12.

5.15.4

Anti-smoking advertising by the tobacco industry

Youth smoking prevention activities have been adopted by the tobacco industry internationally, in response to criticism that the industry has an interest in and has actively encouraged young people to smoke. In many countries these activities have taken the form of anti-smoking advertising, placed mainly on television and in magazines.

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i For example, http://www.tobacco.net.au/

ii See http://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;adv=yes;orderby=priority;title=page;25;query=Dataset__Phrase%3A%22billhome%22%2DParliament%Number%3A%2243%22&rec=2;resCount=Default&sched
There is strong evidence that these advertisements have provided a useful public relations service for the tobacco industry, promoting a positive corporate image without threatening its livelihood by reducing intention to smoke.\textsuperscript{28,29} Analysis of transcripts from US tobacco litigation cases between 1992 and 2002 reveals that while the industry has invested heavily financially in anti-tobacco advertising and other programs, there has only been weak associated industry evaluation of program effectiveness; the focus has tended to be on aspects such as program reach and uptake rather than on any demonstrable effects on youth smoking.\textsuperscript{30} In fact, industry anti-tobacco advertising may have fostered a more positive attitude towards the tobacco companies among young people,\textsuperscript{31,32} and may have influenced teenagers in their senior high school years to take up smoking.\textsuperscript{30} There is also evidence that youth smoking prevention initiatives have been used to bolster the defence strategies of the tobacco industry in the face of increasing tobacco litigation in the US.\textsuperscript{30} Industry anti-tobacco advertising campaigns are discussed in greater detail in Chapter 10, Section 10.13.3.
References


5.16

Smoking in movies, TV and other popular culture/media

Seeing cigarettes in the hands of actors and actresses, on and off the screen, must have greatly contributed over the decades to the association of smoking with glamour, sexual appeal and romance, rebelliousness, independence and machismo. Smoking depicted in films rarely features real consequences of tobacco use, such as addiction, illness and death.\(^1\)

Viewing a movie was once a transient experience in the cinema, but in the twenty-first century films now have an indefinite shelf life and can be viewed repeatedly on broadcast or subscriber television or through rentals or downloads. Movies that portray some of the world’s most famous and admired celebrities using tobacco products in a kaleidoscope of situations and settings are therefore likely to continue to evoke positive feelings about smoking for many decades to come.

This section summarises research that has attempted to quantify the extent of portrayals of smoking in popular culture, and the impact of such portrayals on attitudes to smoking and even to smoking uptake. Section 5.26 covers the various policies that have been proposed to address the powerful effects of smoking in movies and other forms of culture and entertainment.

5.16.1

Quantifying smoking imagery in movies and other popular media

5.16.1.1

Movies (films)

While advertisements for cigarettes can no longer be shown in cinemas before movies, audiences are often exposed to pro-smoking imagery during the movie. The smoking by a lead character in the popular (and PG-rated) film Avatar is just one recent example that has generated concern among tobacco-control advocates and the wider public.\(^1\)

Numerous studies have attempted to quantify the incidence of smoking in movies.\(^2,4–8\) The most common methodology used in these studies involves analysis of content over a particular period of time. Nearly all of these studies report a decline in smoking in movies over time, although the degree of observed decline is somewhat inconsistent due to differences in sampling densities, inter-coder reliability and time period covered.\(^7\) In a 2010 study that attempted to control for numerous methodological problems, tobacco content in movies was found to have declined considerably since 1950. While total tobacco-related content peaked around 1961, a decline in smoking portrayal among main characters was already underway by 1950.\(^7\) A UK study also found a significant drop in smoking depictions in movies over a 20-year period from 1989 to 2008.\(^9\)

The most recent studies tend to report a continuing downward trend, but it has been argued that the depiction of smoking has declined more modestly in recent times,\(^6,4\) and not necessarily reflecting the degree of decline observed in actual population smoking prevalence. In a study of US movies, for example, one-third were found to represent adult tobacco use as more prevalent than it actually was in the US at the time of the films’ release.\(^9\) It has also been noted that the degree of decline varies considerably by film rating classification, and by motion picture rating.\(^4,6\)

\(^1\) For up to date information on smoking in recent release movies and additional discussion, refer to www.smokefreemovies.ucsf.edu/about.html

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Section: 5.16.1.1

Date of last update: 10 April 2012
A decline in the number of onscreen tobacco incidents in youth-rated (G, PG or PG-13) top grossing movies was reported by the Thumbs Up! Thumbs Down! project, decreasing by 71.6% from 2093 incidents monitored in 2005 to 595 in 2010. By contrast, in an analysis of popular films released by the Motion Picture Association of America between 2007 and 2009, the prevalence varied markedly depending on film classification, with tobacco found to be present in 80% of the R (restricted) rated films reviewed, as compared to 64% of films rated as PG (parental guidance)-13 and 22% of films rated as G (general) or PG. Movies rate ‘R’ (by US rating) tend to be the films most popular among older teenage audiences. It should be noted that, in the US, an R rating means that viewers aged under 17 may only see the movie if accompanied by a parent or other adult guardian. The Australian MA rating is similar to the US R rating. Teenagers between the age of 15 and 18 are permitted to view MA-rated movies provided they are accompanied by a parent or guardian.

An alternative methodology for assessing smoking prevalence in movies and its relationship to adolescent smoking relies instead on young people’s own reported perceptions of tobacco in movies. It is argued that one advantage of this is that it potentially captures exposure to movies or films that may not have fallen within the category analysed by content analysis studies (for instance movies that are not top grossing).

5.16.1.2 Television

There is far less research on the amount of smoking imagery on television, although as a pervasive medium through which movies are also screened and viewed, much of the concern about smoking in movies also applies to television. Young people are exposed to smoking images through DVD and video rentals of both current and historical movie releases. Moreover, exposure can occur via movie trailers promoted on television, regardless of whether children and adolescents proceed to see the movie itself. In a US study examining the level of youth exposure to televised movie trailers that contained smoking imagery between August 2001 and July 2002, 14.4% of televised trailers were found to include images of tobacco use. When analysed by film classification, tobacco use was portrayed in 24% of the trailers for (US) R-rated movies and 7.5% of the trailers for PG-13 and PG-rated movies. Overall, the authors concluded that 95% of US youth aged 12–17 years saw at least one movie trailer depicting tobacco use on television during the study period, and nearly 90% at least three or more times.

Not only is the presence or amount of tobacco use portrayed on television a concern per se, but so too is the extent to which such portrayals may convey smoking in a positive or non-negative light. A New Zealand study of prime time television content found that one in four programs contained tobacco imagery, most of which might be regarded as ‘neutral or positive’. This equated to two smoking scenes for every hour of programming. In an Australian content analysis of smoking portrayal in The Simpsons television series (first 18 episodes), 35% of the depicted instances of smoking (n=275) reflected smoking in a negative way; 63% in a neutral way (n=504) and 16.2% in a positive way (n=127). While the positive portrayals formed the minority, 16% is not insubstantial, and as the authors note, The Simpsons is an iconic and extremely popular show with children and adolescents, and has spawned a proliferation of merchandise that is directed at children. However they also noted that children and adolescent characters were far more likely to be involved in negative portrayals of smoking compared with adult characters.

While not documented in the literature, smoking content of TV or film can be influenced by current trends in movie genres, with the recent global popularity of the Mad Men series set in the 1960s and depicting most of the main characters almost continuously smoking a pertinent example.

5.16.1.3 Magazines

Magazines also expose young people to considerable pro-smoking imagery. While tobacco advertisements in Australian magazines were banned by federal legislation in 1992 (see Chapter 11, Section 11.3), research...
undertaken in Australia after this ban came into effect found that smoking imagery increased in magazines following the advertising ban.20 Incidental smoking imagery that can be found in magazines where overt advertising has been banned includes portrayals of smoking by celebrities in photographs, smoking in fashion spreads and photo shoots, and the presence of smoking in photographed images of events or everyday life.21

5.16.1.4 Smoking imagery in other forms of popular media

Internet

While not as extensively researched as smoking in movies, smoking imagery is widespread in other mediums, particularly on the Internet (including websites, video and music clips, Facebook and other social media). Pro-smoking imagery seen by young people via the Internet has been investigated in a number of studies.22,23 A US study showed that youth exposure to pro-tobacco messages on the Internet increased over the period 2000–04, while decreasing on channels such as television, retail advertising and magazines. Internet exposure to pro-tobacco imagery was investigated objectively in a more recent study that installed internet tracking devices (with permission) on the home computers of 246 study participants.24 In the analysis of web pages accessed by participants, 43% of youth in Internet-using households were exposed on average to 13 pages of pro-tobacco tobacco per month, with social networking sites (e.g. MySpace, Xanga) representing 53% of the pages on which tobacco content was found. The study also found that a significant proportion of social networking pages (89%) included a profile identifying smoking status, with the authors noting that the very designation of smoking status in an interactive environment may potentially contribute to the promotion of smoking as a cultural norm.24

The difficulty of regulating the content of websites, the rapid rate at which new materials are uploaded to and disseminated via the Internet, and the increasingly participatory and consumer-generated content on the web raises some unique challenges from a tobacco-control perspective.21,25 Another complexity is that the Internet can be a medium for both pro- and anti-tobacco materials.21 For example, in a study looking at smoking-related content on YouTube videos,25 while pro-smoking imagery was more common in the sample of videos viewed, the anti-smoking-related videos had been viewed more (although this was attributed to a large extent to the popularity of a particular dark humour ad about smokers). As noted by the authors of this study, the Internet clearly presents new opportunities for the tobacco industry to use mediums such as YouTube as a covert form of tobacco promotion. The implications of this are at least two-fold for the tobacco-control field, the first being the need to consider and evaluate whether measures to restrict or ‘rate’ tobacco imagery on internet videos and other content are warranted, and second, for tobacco control itself to more strategically embrace and utilise YouTube and other such mediums as a vehicle for discouraging smoking.25

While of less direct relevance to Australia, where smokeless tobacco is banned, a US study of YouTube portrayals of smokeless tobacco use found a concerning preponderance of positive references to smokeless tobacco including its sensory attributes and social interaction.26 This study also found evidence of minors posting videos of smokeless tobacco use, with no evidence of age restrictions imposed on any of the video clips sampled. In another study of smokeless tobacco portrayals on YouTube videos undertaken in 2010,27 the researchers found that the majority of videos referring to smokeless tobacco were ‘pro-smokeless tobacco’ (74.4%) while only 15.4% were classified as ‘against’.27

Concerns have also been raised about the potential for other forms of covert tobacco marketing via the Internet, including marketing techniques not necessarily covered by legislation, such as viral marketing, which can utilise the Internet (including social network sites) or mobile phones as a form of ‘word of mouth’ promotion.21 There has even been a suggestion that social network mediums are being used by employees within the tobacco industry for this purpose, with a recent paper by Freeman and Chapman28 finding that some employees of British American Tobacco (BAT) had promoted BAT and BAT brands on Facebook, including the posting of photographs of BAT events, products and promotional items.

i http://www.youtube.com/watch?v=-ivk8so57_wc
Music video clips

Smoking is also featured in music videos made with the youth market in mind. A 1997 study found that music channels MTV, CMT, BET and VH1 featured tobacco use in between 11.9% and 25.7% of music videos with notable differences between music genres. Subsequent research by the US Office of National Drug Control Policy found that 21% of music videos portrayed tobacco use, with 18% of this explicit. Variation was again noted across the different channels BET (32%), VH1 (16%) and MTV (11%) and a further 6% of music videos featured smoke that might be attributed to tobacco or marijuana. In another study tobacco products were present in only 10% of the video clips sampled, with 80% of these depicting explicit use. These depictions also varied across the music genres rap/hip hop (13%), rock (14%), pop (10%) and rhythm and blues (0%).

A recent study found that early exposure to music channels is associated with later increases in smoking and association with smoking peers, even after controlling for demographic, dispositional and parent behaviour variables. The researchers argue that music channels also influence youth smoking behaviour via the development of social identity, rather than solely through social cognitive processes.

5.16.2 Has the promotion of smoking in movies been purposeful?

Directors of movies and TV productions often use smoking to denote particular characteristics—rebellious, risk-taking, or, in more recent times, working class or less well educated. While they may have the effect of promoting smoking, if no person involved with the film or production received any payment or other inducement to use a particular product then it is unlikely to constitute purposeful promotion of smoking and is certainly not a form of commercial promotion.

Despite publicly asserting that it has not and does not pay for product placement (paying a fee for a product to appear on screen) in movies, a study of internal tobacco industry documents does reveal a history of paid promotion. Examples include:

- $350,000 to have Lark cigarettes appear in the James Bond movie License to Kill
- $42,000 to place Marlboro cigarettes in Superman II
- $30,000 to place Eve cigarettes in Supergirl
- $5,000 to have Lucky Strike appear in Beverly Hills Cop
- an agreement to pay a $500,000 fee to actor, Sylvester Stallone, to use Brown and Williamson products in five feature films.

Product placement of tobacco products in movies is illegal in Australia under provisions of the Tobacco Advertising Prohibition Act 1992. In the US, where most motion pictures viewed in Australia are made, the 1998 Master Settlement Agreement prohibited tobacco manufacturers from paying to have their products shown in movies, television shows, music videos and video games.

In November 2006, Philip Morris USA issued a press release announcing that the company was asking that its brands no longer be displayed on screen and urged the movie industry to no longer use any tobacco products in films aimed at a youth audience. This campaign has been criticised as being an industry ’PR campaign’ one aim of which may be to assist the company to skirt meaningful regulation.

Many of the studies cited in this section have been undertaken post-Agreement, demonstrating that portrayal of smoking in movies remains common. However we are aware of no evidence of industry funding of product placement in Australia since the passage of the Tobacco Advertising Prohibition Act 1992, or in the US since the finalisation of the Master Settlement Agreement.
Does portrayal of smoking in movies and other forms of popular media influence smoking uptake?

5.16.3.1 What is the evidence that exposure to the portrayal of smoking in popular media contributes to uptake?

An accumulating body of research suggests that watching movies that portray smoking is a factor in initiation of smoking among young people, even after controlling for other variables known to influence the uptake of smoking behaviour. The depiction of tobacco and its use in entertainment media is recognised as a form of tobacco advertising in the WHO Framework Convention on Tobacco Control (WHO FCTC), and as noted in the implementation guidelines for Article 13 (tobacco advertising) of the WHO FCTC, 'the depiction of tobacco in entertainment media products, such as films, theatre and games, can strongly influence tobacco use, particularly among young people.'

One of the most recently published studies analysed data from a large (n=5166) cohort study of UK adolescents aged 15 years. Higher exposure to smoking in films was associated with an increased risk of smoking initiation after adjustment for a variety of potential confounding factors (including social, family and behavioural factors), with risk increasing as degree of exposure to smoking in films increased.

Several review articles have considered the evidence pertaining to the association between seeing smoking depictions in movies and adolescent smoking, all of which have concluded that there is an association with increases in smoking initiation. In a 2006 meta-analysis of 51 studies, exposure to tobacco use in films, television and videos was grouped with other forms of pro-tobacco marketing and media (tobacco advertising, promotions, samples), which were collectively found to be associated with increased odds of youth having positive attitudes toward tobacco use, and double the likelihood of smoking. These effects held for different time periods, different countries, different study designs and differing measures of exposure and outcome.

A number of studies have attempted to quantify whether there is a dose–response relationship between exposure to smoking in movies and smoking initiation. In the most recent UK study, for example, adolescents in the highest exposure quartile were 1.73 times more likely to initiate smoking than those in the lowest quartile. Dose–effect findings have been reported in a number of countries, including the US, Germany and the UK. A cross-country study of six European countries found that the exposure-related increase in the odds of smoking among adolescents exposed to smoking in films held across different cultural contexts and despite country variations in other tobacco-control measures.

It has been argued that the type of movie being viewed matters. Several studies have investigated R-rated movies, which have been shown in several studies to be more likely to depict smoking. In a large sample of Year 10 students in New Zealand, those who had or hadn’t viewed (US) R-rated films were compared, and a clear dose–response relationship was observed between R-rated films and susceptibility to smoking among non-smokers, and with past experimentation and recent smoking, even controlling for other factors such as age, gender, ethnicity, peer smoking, parental smoking, socio-economic status, pocket money and household smoking rules.

Several longitudinal or prospective studies have investigated what appears to be a potential lag effect, in which seeing smoking in movies in early childhood may influence later uptake. In a US prospective study, a cohort of young people aged 10–14 years who were identified at baseline as non-smokers were followed up 13–26 months later. Of those followed up, 52.2% of smoking initiation was attributed by the authors to exposure to smoking in movies. Further follow-up after seven years of the same cohort attributed 34.9% of established smoking to exposure to movie smoking, after controlling for baseline characteristics.

These kinds of studies and findings are not without criticism in the literature. In particular there are concerns that smoking may in fact be just one of a constellation of movie characteristics that have broad appeal to children.
attracted to such films. In other words, smoking depictions may not be independently predictive of smoking among youth.

While the majority of studies have focused on the impact on children or younger adolescents, several studies have sought to look at the impact on older adolescents or young adults. The findings are more mixed. For example, a Scottish study of smoking prevalence at 19 years of age found smoking status not to be associated with exposure to smoking in movies. A Scottish study with young people aged 15–16 years involving a number of the same researchers did report a significant association. The diminishing impact with age is supported by the findings of a recently published study by Choi and colleagues, which investigated the prospective effect of perceived prevalence of smoking in movies on smoking status among a large sample of young people aged 12–18 years in Minnesota. This study found that perceived prevalence of smoking in movies was most likely to predict subsequent smoking status for adolescents aged between 13.5 and 15.5 years, diminishing thereafter.

Some tobacco-control advocates have used such evidence to support calls for restricted ratings on movies with tobacco content; however there is some contention regarding the appropriateness of this even within the tobacco-control literature. (See Section 5.16.3 below and Section 5.26.4 for further discussion.)

5.16.3.2

What is the mechanism through which movies may link to smoking?

In a review examining the effects of depictions of smoking in the media (including smoking occurring in movies, television programming and news coverage, as well as traditional direct forms of tobacco advertising and promotion and pro-health messages) on young people, Wakefield and colleagues identify a number of ways in which it may influence smoking behaviour (or the decision not to smoke):

- by shaping and reflecting social values about smoking
- by communicating new information about smoking
- through offering models of behaviour
- by directly reinforcing smoking (or non-smoking) behaviour
- by prompting discussion and debate about smoking
- by influencing other ‘intervening’ factors that help shape the decision to smoke or not to smoke (for example by making older smokers less willing to give cigarettes to young people)
- by shaping societal attitudes and influencing the broader regulatory climate.

Although smoking behaviour has become more commonly associated with the antagonists (‘bad guys’) in US movies, this does not necessarily make smoking unappealing. It is not even necessarily important that lead characters be shown smoking, since ‘background’ smoking still teaches adolescents about how, when and where to smoke. Even though specific brands may not be identified, it has been argued that positive imagery associated with smoking can potentially be even more powerful than explicit tobacco advertising, and can help reinforce a smoker’s identity. Imagery does not have to be overtly pro-smoking to have an influence on young people—for instance in a Western Australian study, school students were shown a range of smoking imagery in print and other media, and were found to identify with the social and stress-relieving aspects of smoking despite being aware of its harmful effects. And in an Australian randomised controlled trial assessing the impact of smoking images in magazines on smokers and non-smokers aged 14–17 years, it was found that that seeing the imagery acted as a prompt to smoke and as a reinforcement of smoking behaviour.

Smoking in movies may also influence social norms and normative beliefs about smoking. For instance, a study by Sargent and colleagues found that among young children in particular (9–15 years), higher exposure to smoking in movies was associated with higher perceived prevalence of adult smoking in the community. Similarly, a 2005 systematic review of the relationship between smoking in movies and adolescent smoking also noted that the depiction of smoking in movies can increase perceptions of smoking prevalence, and rarely shows the negative health consequences associated with smoking.

Most of the research and advocacy to date has been couched in terms of the depiction of smoking in movies per se; however there is also a potential ripple effect associated with the portrayal of smoking by popular movie stars. For
example, one study found that teenagers whose favourite stars smoked on the big screen were three times more likely to smoke than those whose favourite stars do not smoke.\textsuperscript{41} In another study, adolescents who smoked were more likely to find smoking characters in films attractive.\textsuperscript{45}

Other contextual factors related to movie or TV viewing have also been implicated in the association between on-screen portrayals of tobacco and adolescent smoking uptake or attitudes. Environmental factors include factors associated with the home environment, such as having an unsupervised television in the bedroom, which have been shown to be significant predictors of smoking uptake in white adolescents.\textsuperscript{52} Also related to the home environment, it has been found that adolescents who report parental rules about TV/film watching were less likely to smoke than those who did not, while those who mainly watched films with friends had higher exposure to film smoking and were more likely to smoke.\textsuperscript{50}

\section*{How robust is the evidence?}

While the general consensus from published evidence reviews and individual studies supports the association between smoking in movies and adolescent smoking, some criticism has emerged even within the tobacco-control field regarding inferences of explicit causality and the tendency for many studies to oversimplify the relationship by not taking into account other interrelated factors.\textsuperscript{55, 56} As argued by Chapman and Farrelly in a recent paper, the relationship is more ‘muddy’ than many studies acknowledge, as ‘smokers in movies never just smoke. And movies showing smoking have a lot more in them that might appeal to youth at risk of smoking than just smoking’ (p156, p 1) For instance, young people who choose or are allowed to watch movies containing smoking but also other adult content (such as violence, nudity and swearing) may differ from those who don’t, and this may be associated in differences in smoking initiation.\textsuperscript{66}

The difficulty of disentangling such potential influences was demonstrated in a US study that examined exposure in top-grossing films to smoking and three other types of adult content (sex/nudity, violence/gore, profanity) in a sample of youth aged 13–16 years. The study found that although exposure to smoking in movies was correlated with both smoking initiation and susceptibility, there was also a very high correlation between exposure to smoking in the movies and other adult content, rendering it impossible to disentangle their separate influence.\textsuperscript{66} More recent studies have tended to be more comprehensive in this regard, and in some instances it does alter the significance of findings. For example, in Waylen and colleagues’ study of British teens, smoking initiation was associated with exposure to depiction of smoking in films, but the association with current smoking attenuated after the researches adjusted also for behavioural factors.\textsuperscript{42}

Suggestions for future studies to address some of these limitations include greater consideration of the type of movies viewed by those more at risk of smoking\textsuperscript{56} and more research to disentangle the independent influence on smoking separate to other correlated content.\textsuperscript{66}

There may also be a more subtle and difficult-to-measure constellation of other influencing factors in movies depicting smoking that may resonate with young people more at risk of smoking (including hard to quantify variables such as attitude conveyed by characters, notions of fashion, irreverence and other rebellious behaviours engaged in or endorsed). These factors are rarely, if ever, considered in studies to date,\textsuperscript{56} and while complex to measure or analyse, should at least be acknowledged in study limitations.

Another concern raised by Chapman and Farrelly\textsuperscript{56} about some of the studies relating to smoking in movies to date, is the reductionist approach to extrapolating the number of youth smoking initiations that could be prevented, or lives saved, if smoking was removed from movies. Given the many factors that influence youth smoking, and the variety of other day-to-day contexts in which young people may witness smoking or smoking imagery (family, public settings, by peers, Internet, etc.), they argue that it is misleading to try to isolate the relative influence of smoking in movies as though operating in isolation.\textsuperscript{56}

In extrapolating findings from other countries to Australia it is important to consider contextual issues, such as international variations in the way films are classified. For instance, a UK study found that British youths were exposed to 28% more smoking impressions in UK youth-rated movies than US youth-rated movies, because 79% of movies rated for adults in the US are classified as suitable for youths in the UK, reflecting the less conservative
nature of film classification in the UK. In Australia the rating system is different again, with an M (mature) rating, which falls between the ratings of PG and MA15+. The M rating category in Australia actually captures many of the movies popular with young people, and which may receive an R rating in the US, where there is no equivalent 'M' category. Blade Runner and The King's Speech are two examples of films released as M in Australia but as R in the US. It is likely that parents in Australia, while happy to allow young teenagers to watch M-rated movies, are more careful about their exposure to movies rated MA. If the Australian rating system has more credibility with parents than the system in the US (where just about every teen movie is rated R), then it is possible that the average age of viewers exposed to smoking portrayals in movies is somewhat higher in Australia than it is in the US—see Table 5.16.2.

### Table 5.16.2
Comparison of motion picture rating systems in English-speaking countries

<table>
<thead>
<tr>
<th>Australia</th>
<th>Australian Classification Board</th>
<th>Canadian Home Video Rating System, a voluntary system operated by the Motion Picture Association of Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The Classification Board and Classification Review Board are government-funded organisations which classifies all films that are released for public exhibition.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>PG</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Office of Film and Literature Classification</td>
<td>British Columbia Film Classification Office <a href="http://www.bcfilm.net">http://www.bcfilm.net</a>/film-classification-boards</td>
</tr>
<tr>
<td></td>
<td>The Films, Videos, and Publications Classification Act 1993 gives the Office of Film and Literature Classification (New Zealand) the power to classify publications into three categories: unrestricted, restricted, or “objectionable.” With a few exceptions, films, videos, DVDs and restricted computer games must carry a label before being offered for supply or exhibited to the public.</td>
<td>In Quebec, La Régie du Cinema <a href="http://www.rcq.gouv.qc.ca">http://www.rcq.gouv.qc.ca</a>, La Régie du cinéma du Québec in Nova Scotia, New Brunswick and Prince Edward Island, the Maritime Film Classification Board.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Movie ratings in Canada are a provincial responsibility, and each province has its own legislation, rules and regulations regarding rating, exhibition and admission. Ratings are required for theatrical showings of movies, but are not required for home video. Film festivals which show unrated films (because they are independent films or foreign films not submitted for ratings) are treated as private showings by selling memberships to the festival, which circumvents the theatrical rating requirement. There are currently six film classification offices rating movies in Canada, each an agency of a provincial government: in British Columbia, Saskatchewan and the Yukon, the British Columbia Film Classification Office; in Alberta, the Northwest Territories and Nunavut, Alberta Film Ratings; in Manitoba, the Manitoba Film Classification Board; in Ontario, the Ontario Film Review Board; in Quebec, La Régie du cinéma du Québec in Nova Scotia, New Brunswick and Prince Edward Island, the Maritime Film Classification Board.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The province of Newfoundland and Labrador has not legislated on film ratings and does not have a dedicated agency; some theatres use the ratings of the Maritime Film Classification Board.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In New Zealand, the Classification Act 1993 defines the 'six film classification categories: unrestricted, restricted, or “objectionable.” With a few exceptions, films, videos, DVDs and restricted computer games must carry a label before being offered for supply or exhibited to the public.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All ages may watch a G title, but parents are advised that the content is more suitable for mature people 16 years and over. Nobody under the given age can legally see an R rated film, although sometimes an RP rating is provided meaning that those under the given age must watch under adult supervision.</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>PG</td>
</tr>
</tbody>
</table>

In Australia the rating system is different again, with an M (mature) rating, which falls between the ratings of PG and MA15+. The M rating category in Australia actually captures many of the movies popular with young people, and which may receive an R rating in the US, where there is no equivalent 'M' category. Blade Runner and The King's Speech are two examples of films released as M in Australia but as R in the US. It is likely that parents in Australia, while happy to allow young teenagers to watch M-rated movies, are more careful about their exposure to movies rated MA. If the Australian rating system has more credibility with parents than the system in the US (where just about every teen movie is rated R), then it is possible that the average age of viewers exposed to smoking portrayals in movies is somewhat higher in Australia than it is in the US—see Table 5.16.2.
### United Kingdom

**British Board of Film Classification**

The British Board of Film Classification (BBFC) rates both motion pictures and videos (and an increasing number of video games). The rating system was introduced in 1913 and, as of 1985, also rates videos. County authorities are ultimately responsible for film ratings for cinema showings in their area. County Councils often ignore the BBFC advised rating and rate films with another BBFC certificate in their county only, e.g.: the BBFC rates a film as 15 but the County council gives the film a 12A rating in their county. Rating certificates from the BBFC are not legally binding whereas those for videos are. British cinemas generally stick closely to the policy of ratings and a young person may often be asked for proof of age if deemed younger than the rating.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | Adult | Other | Notes |
| U | PG | 12A/12 | 15 | 18/R18 | Rejected |

12A legally requires parental supervision for those under 12. 15 does not allow people below that age to be admitted, supervised or otherwise. R18 is usually reserved for pornographic content only, but, on rare cases, the cert has been given out to programs with extreme graphic violence/gore. Films marked “Rejected” are banned.

### Ireland

**Irish Film Classification Office**

Irish Film Classification Office administers the CENSORSHIP OF FILMS ACT, 1923.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | Adult | Other | Notes |
| G | 12/12A | 15/15A/16 | 18 | N/A |

The categories 12A, 15A and 16 only exist for cinema. Video releases of movies with these ratings usually get, if they are rated 12A, they are rated 12, if they are rated 15A, they are rated 15, and if rated 16, they are rated 18.

### United States

**Motion Picture Association of America**

In the United States, the Motion Picture Association of America (MPAA), through the Classification and Rating Administration (CARA), issues ratings for movies. The system was instituted in November 1968 and is voluntary; however, most movie theater chains will not show unrated domestic films and most major studios have agreed to submit all titles for rating prior to theatrical release.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | Adult | Other | Notes |
| G | PG | PG-13 | R | NC-17 | NR (not rated) | Unrated |

NC-17 means those who are 17 or under are not allowed in, thus one must be 18 or over for admittance. NR and Unrated cannot be viewed in theaters, however, can be broadcasted on Television and/or released on Home Video.

Sources: Wikipedia and websites of Australian Classification Board, New Zealand Office of Film and Literature Classification, Motion Picture Association of Canada’s Home Video Rating System, British Board of Film Classification, Irish Film Classification Board and the Classification and Rating Administration of the Motion Picture Association of America.

Section 5.26 covers the various educational initiatives and regulatory measures that have been proposed to address the problem of smoking in movies.


41. Tickle J, Sargent JD, Dalton MA, Beach ML and Heatherton TF. Favourite movie stars, their tobacco use in contemporary movies, and its association with adolescent smoking. Tobacco Control 2001;10(1):16-22. Available from: http://tobaccocontrol.bmj.com/cgi/content/abstract/10/1/16


Chapter 5: Influences on the uptake and prevention of smoking

Section: 5.16.3.3

Date of last update: 10 April 2012


Factors influencing uptake of smoking later in life

Although most smoking behaviour is ‘seeded’ during the early teenage years, some individuals begin smoking after this period.

The later teenage years are associated with major life changes such as finishing school, leaving home, gaining greater mobility and independence through learning to drive, travelling, changing peer groups, entering the workforce, and starting higher education. For some young adults, significant changes such as these also signify a period of vulnerability, where feelings of stress, insecurity and uncertainty may surface, along with new social pressures. These transitions mark a period of major influence on smoking behaviour. The susceptible teenage non-smoker may start to experiment with cigarettes; occasional smokers may become established smokers; and established smokers may increase their daily consumption levels.

Australian research from the early 1990s found that just over one-third of smokers began regular smoking at school (35%), followed by in their first job (27%), and between leaving school and starting work or going to post-secondary education (14%). Research has variously estimated that around 10% to 20% of US college students who smoke commence smoking at college, while results of Canadian research suggest that between 27% and 30% of smokers in post-secondary education programs begin smoking at around the time they enter university or college.

Research drawing on data from the Australian Longitudinal Study of Women’s Health has examined changes in smoking behaviour among a large sample of young women over 10 years, from an initial age of 18–23 years in 1996. Analyses over four time points found uptake of smoking to be associated with leaving home, binge drinking and use of illicit drugs. Marriage or being in a committed relationship was associated with a lower likelihood of taking up smoking or continuing to smoke and a greater chance of quitting and of remaining an ex-smoker.

Other risk factors identified for uptake of smoking in young adults include going to bars and clubs where smoking is permitted, not living in a smokefree home, and being at the younger end of the cohort age group. Recent research has found varying levels of alcohol consumption to be associated with smoking uptake among college students in Japan and in the US, and among young Australian women. Exposure to trauma (such as interpersonal violence or unwanted sexual contact) in early adulthood is also associated with the uptake of smoking.

Smoking initiation after leaving secondary school is also more likely to occur among students who have prior smoking experience, who have expressed an intention to smoke, and who have performed less well at school. In the tertiary education setting, smokers are more likely to rate social activities over academic or sporting achievement and to have achieved lower academic grades, and are less likely to follow religious beliefs. Taking up employment in an area with a strong culture of smoking, such as the military, is also associated with smoking uptake.

There is some evidence that moderate to high physical activity is a protective factor against the adoption of smoking among young adults such as never smoking Japanese college students and against relapse among young Australian female ex-smokers (for those aged in their late 20s to early 30s).

Studies of smoking patterns have generally shown that young adults have the highest rates of smoking in Australia (see Chapter 1, Section 1.4). The 2010 National Drug Strategy Household Survey shows that those aged 18–19 years are much more likely than other teenagers (aged 12–17 years) to smoke daily (13.0% vs. 2.5%), while in the next oldest cohort, aged 20–29 years, almost 1 in 5 people (18%) smoke daily. In the same survey, almost 6% of men and women aged 20–29 years were occasional smokers (using tobacco weekly, or less often than weekly), a higher rate than in any other age group. This suggests a likely connection between smoking behaviour and specific social settings, and also signals a pool of the population more susceptible to smoking.

The strategic importance of this target group to the tobacco industry makes it a logical and critical focus of attention; internal industry documents highlight the industry need for young smokers to renew the market for tobacco and the crucial role of young smokers’ brand loyalty compared with older smokers. As teenagers regard
young adults as role models, it is likely that advertising to young adults helps to maintain adolescent interest in smoking.\textsuperscript{9} In Australia, there has been increased channelling of tobacco promotions into nightclubs, events and media significant to young adults.\textsuperscript{20} The tobacco industry’s focus on targeting young adults has been extensively examined in research undertaken in the US.\textsuperscript{21–23} For further discussion, refer to Section 5.15.2, and Chapter 11, Sections 11.1.2 and 11.6.
References


5.18 Uptake: a concluding note

Nearly all smokers start before the age of 18 years and one-third of people who have ever tried smoking go on to become daily smokers. Smoking prevalence escalates rapidly during adolescence, and earlier onset of smoking is associated with a greater likelihood of being an adult smoker and with higher levels of consumption. Young smokers can become addicted to smoking very rapidly, even at low levels of consumption, and at significantly lower nicotine levels than adults. The prevention of tobacco use among young people is therefore likely to reduce both the duration and intensity of total tobacco use, with subsequent positive impacts on long-term health consequences.

The preceding sections provide a framework for understanding the many and varied factors that influence an individual’s behaviour in relation to smoking. Individual variables such as personal physiology and personality traits interact with the family environment, social milieu and broader societal expectations and contexts. The strength of influence of each determinant can be expected to fluctuate in importance, depending on individual trajectory of age and life experience. It is within the context of this complex cultural mix that children make decisions. With this in mind, further research is warranted, focusing on the interactions of factors influencing smoking initiation. Better understanding of the factors that underlie uptake as well as being able to identify those that may be amenable to change are both essential in the development of effective youth smoking interventions.
References


Prevention: an introductory note

Described as one of the core aims of tobacco control, the term ‘prevention’ is generally used in tobacco control to refer to any interventions or efforts to deter smoking. It includes within its spectrum the following when applied to youth smoking in particular.

Adolescents may be at any point along this prevention spectrum. It is important to recognise and understand these nuances in the youth smoking trajectory, as they have significant implications for the appropriateness and efficacy of programs and interventions. Moreover, the predictors that precipitate smoking initiation or ‘first try’ are not necessarily the same drivers associated with progression to more regular smoking. Thus some of the factors discussed in preceding sections of this chapter are highly predictive of a first try (such as having family members who smoke), while others play more of a role in facilitating continuation (like ease of access) or deterring it (e.g. an unpleasant first experience).

As evident in the continuum above, the conventional distinction between smoker and non-smoker is also more of a grey area in relation to adolescents; not only are there varying definitions of what degree of smoking constitutes a ‘smoker’, research also suggests that some young people who smoke only intermittently or socially do not regard themselves as smokers. This has implications for youth smoking interventions and the way in which messages are framed.

Vardavas describes a ‘tobacco control funnel’ depicting three groups of policies through which adolescent smoking can be prevented and reduced at the population level. As illustrated in Figure 5.19.1, the three key avenues are restrictions to denormalise smoking (e.g. through price increases, bans on sales to minors and restrictions on areas where smoking is permitted), education to increase awareness (e.g. at school and through mass media campaigns) and ‘disruption’ to de-glamorise smoking (such as through the use of graphic warning labels and tobacco advertising bans).

As almost all smokers start young, preventing children and young people from smoking initiation is crucial in achieving significant long-term reductions in smoking prevalence. In addition, since young people who live with adult smokers are much more likely to start smoking than those who live in smokefree homes, decreasing adult smoking prevalence is essential. Indeed, due to difficulties encountered in smoking prevention, it has been recommended that the focus should be on adult smoking programs ahead of prevention in adolescents.

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**Table 5.19.1**

<table>
<thead>
<tr>
<th>Prevention as it applies to youth smoking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preventing those who have never smoked from trying it or starting</td>
</tr>
<tr>
<td>Discouraging those who have tried smoking once or twice from continuing</td>
</tr>
<tr>
<td>Deterring continuation among those who have ‘taken up’ smoking</td>
</tr>
<tr>
<td>Encouraging and assisting young smokers to quit</td>
</tr>
</tbody>
</table>

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**Figure 5.19.1**

Tobacco control funnel

Source: Reproduced with permission, Vardavas C 2010
5.19.1 Preventing ‘just trying it’

Traditionally, youth smoking strategies have concentrated on keeping young people from trying their first cigarette; however, some of the drivers of the ‘first try’ are difficult to prevent. Curiosity, for example, is a natural part of growing up and a normal part of the teenage trajectory. Curiosity was one of the predominant reasons given for trying smoking (even among non-smokers) in two qualitative studies conducted among young Australians. ‘Seeing what it is like’ is perceived by young people as part of making an ‘informed choice’; hence even ardent non-smokers accept ‘just having a try’ in the context of curiosity and life experiences, and don’t see experimentation as a ‘big deal’ per se. Moreover, among the adolescents interviewed in the Western Australian research undertaken for the Smarter than Smoking project, there was very little perceived risk of trial leading to regular smoking, or becoming addicted, even though the risks of smoking were well known and accepted among this group.

In the broader drug education field, there is debate around the extent to which interventions and programs should focus on preventing ever or first use of a substance, or whether it is more realistic to acknowledge that some experimentation and use will occur, and the emphasis shifted more to reducing harm and levels of use. Within tobacco control, there has typically been considerable resistance to harm minimisation approaches, in part because there is no safe level of use even for adults (which differs from alcohol), and due to concern that harm minimisation programs may lead to increased experimentation among non-users due to perceived weakened social norms. To date there has not been much research to help refute or confirm these concerns. An exception is Western Australian research that provides some evidence for the potential effectiveness of a harm minimisation intervention tackling adolescent smoking. The two-year school-based study compared the results of a harm reduction intervention (involving classroom, school nurse and parental harm reduction intervention materials and training) with a more conventional abstinence-oriented program. Among student participants who were never-smokers at baseline (age 14–15 years), those in the harm reduction group were less likely to experiment and less likely to smoke heavily, while there was no significant difference in smoking uptake between the groups.

5.19.2 Preventing progression to continuation

There is a relative research and intervention void in the published literature relating to experimental smoking and the progression to regular smoking. Figure 5.19.2 depicts some of the factors influencing whether young people who have tried cigarettes continue to smoke, as identified in Western Australian qualitative research with young people aged 13–15 years.

A number of the factors depicted above present opportunities to ‘intercept’ young people between experimentation and continuation. For instance, predisposing attitudes towards or against smoking are factors that influence continuation, and are amenable to intervention. Enjoyment of the initial smoking experience also influences continuation but is less amenable to intervention (other than through product taste regulation: see Chapter 12, Section 12.8 for information on flavours added to cigarettes in the Australian market).

For some youth from Indigenous and lower socio-economic status (SES) backgrounds, stresses and troubles in life also appear to influence smoking experimentation and continuation, mirroring recognised barriers to cessation among Indigenous adults and disadvantaged population groups. While current generations of young people place a high value on individual choice, there may be opportunities to further challenge the sense and consequences (for self and others) of choosing to smoke tobacco. The standard adult dichotomy between smoker and non-smoker is somewhat less clear in the youth smoking area: adolescents’ definitions of what constitutes a smoker and what constitutes smoking often differ from clinical or research definitions. Intermittent patterns of smoking and lower consumption are more typical in younger smokers. Moreover, qualitative research from Western Australia found that young people who smoke ‘socially’ or intermittently often do not regard themselves as smokers or have any intention of becoming a regular smoker. There is also some evidence that adolescent cigarette smokers may have more daily variability in their
smoking patterns than adults, such as significantly more weekend than weekday smoking. These findings have implications for assessing adolescent smoking patterns as well as maximising the effectiveness of youth-centred smoking prevention and cessation initiatives; for example, prevention messages need to avoid simplistically cataloguing young people as either smokers or non-smokers.

5.19.3 Regular smoking and addiction

While youth smoking campaigns and programs have not traditionally focused on issues of addiction or cessation, there is a cohort of young people who smoke with some regularity, and a subset of these who are actually addicted. Addiction in young smokers has been poorly researched and understood until recently, but there is accumulating evidence of nicotine addiction in adolescent smokers and an emerging imperative to address this within a comprehensive approach to tobacco control. Qualitative studies with young people provide further evidence of the validity of addiction experiences in young, regular and irregular smokers.

Research suggests that children’s ideas and expectations of addiction influence their predisposition and likelihood to smoke. There are marked differences in perceptions of the addictive nature of smoking between adolescents who have smoked or intend to smoke and those who are resolved not to try it.

However, young people’s understanding of addiction (including its likelihood, processes and consequences) is poor. Adolescents generally do not recognise or comprehend the addictiveness of smoking for people their age, and tend not to see addiction as a likely outcome of ‘just trying it’ or experimenting. Notions of what it takes to become addicted seem primarily based on opinion or observation, rather than ‘known facts’ and research with young smokers indicates that addiction is an unanticipated consequence. Young people often believe that they can smoke during adolescence without becoming addicted and that they can easily give up at any time. Addiction and cessation tend to be viewed by teenagers as issues only for adult smokers.

While addiction and cessation might be seen by some to sit at or outside the margins of smoking prevention, recent Australian studies with young people highlight the importance of addressing understanding of addiction within primary prevention interventions. Traditionally addiction has not often been explicitly addressed within the rubric of youth tobacco-control programs, but there is growing recognition of the validity of addiction experiences in young smokers, even among those who smoke irregularly. This supports the need therefore to include issues of addiction as part of the youth prevention remit. Issues of addiction can for example be incorporated into school-based programs, information on websites and youth resources and woven into mass media messages, as they have been in the ‘Bus Stop’ advertisement developed by the Western Australian campaign
Smarter than Smoking with the tag line ‘Wouldn’t it better to quit before you started?’ which has been used in several states and territories.

There are few effective or well-evaluated youth cessation interventions in the literature.\textsuperscript{30,31} An Australian exception (mentioned in Section 5.19.1)\textsuperscript{1} entails a whole-of-school approach utilising school nurses in the delivery of cessation strategies.\textsuperscript{32,33} While the presence of withdrawal symptoms among adolescents who are trying to quit smoking supports the appropriateness of using nicotine replacement therapy,\textsuperscript{34} some debate surrounds the acceptability of this, and ethical issues preclude controlled pharmacological trials with adolescent smokers.\textsuperscript{31}

For further information on young people and addiction, refer to Chapter 5, Section 5.3 and Chapter 6, Section 6.7. The following sections (Sections 5.20–5.32) examine some of the ways in which programs and strategies for intervention have been developed and discuss their efficacy.

\textsuperscript{1} Ad can be seen via http://www.oxygen.org.au/resources/media-materials
References


Approaches to youth smoking prevention

Under the broader rubric of ‘prevention’ as described in Section 5.19, reviews of the literature consistently concur that effective youth smoking prevention requires a comprehensive multifaceted approach, involving a range of well-researched, coordinated and complementary strategies that reinforce each other. As in tobacco control generally, the impact of each strategy when used or considered in isolation is likely to lead to an underestimate of the impact of several strategies in combination, due no doubt to the importance of synergistic effects. One-off or single-focus interventions targeting young people are unlikely to produce lasting effects.

A comprehensive review of the effectiveness of multi-component community (locally) based interventions in influencing smoking behaviour, including preventing the uptake of smoking in young people, incorporated 25 studies and was published in August 2010. The authors concluded that there is some evidence that coordinated, widespread, multi-component programs can be successful in influencing smoking behaviour and reducing the uptake of smoking in young people. Community members often play a role in design and implementation of such programs, which may include mass media, school and family-based components. The reviewers also note, however, that the evidence is not robust and contains a number of methodological flaws such as risk of various types of bias, incomplete or selective reporting of outcome data, and unclear comparability between baseline intervention and control characteristics.

An earlier review of studies involving effective tobacco prevention strategies among young people similarly found strongest support for multi-component interventions. Specifically, researchers found that the strongest and most sustained impacts were achieved through multi-component, community-based interventions of at least three years duration, especially those involving school-based strategies with supportive parent, media, and community. Identified components of effective tobacco prevention programs included a focus on counteracting social factors that influence tobacco, through for example resistance and assertiveness skills training for young people, and being theory-based, with an emphasis on personal (attitudes and norms), social (e.g. group behaviour), and/or environmental (e.g. communications) level theories.

Another review examined the long-term effectiveness of behavioural interventions in the prevention of cigarette use among young people, and compared school-based, community-based and multisectoral intervention strategies. Based on meta-analyses where possible, the review included 35 randomised controlled trials published in English or German between 2001 and 2006, targeting adolescents up to 18 years of age. Some positive long-term effects (12 months to 10 years) for behavioural smoking prevention programs were observed in the majority of studies, with modest reported decreases in smoking. Results suggested stronger evidence for the effectiveness of community-based (outside school) and multisector interventions (defined as comprising both school- and community-based components), while the evidence for school-based programs alone was inconclusive. The reviewers recommended that school-based prevention programs should be implemented in conjunction with community- and family-based interventions, at the same time as maintaining and strengthening population-wide and environmental smoking prevention strategies. While the inconclusive finding for school-based interventions stands in contrast to several other systematic reviews that have concluded that these can be effective in the long term, it concurs with the findings of a 2006 Cochrane review that found no convincing evidence for the long-term effectiveness of school-based interventions.

The timing of prevention approaches in terms of developmental ages and different levels of nicotine dependence is an important consideration in comprehensive interventions. For example, the implementation of preventive measures well before an age at which smoking experimentation begins to occur is recommended in order to influence young people’s attitudes towards smoking early. In addition, an understanding of changes in the relative influence of factors in adolescent smoking (e.g. a decrease in the importance of peer behaviours, attitudes and norms over time and a rise in the role of psychopharmacological effects of nicotine) has been described as fundamental in improving the prevention of adolescent progression to more advanced stages of smoking.

Walsh and Tzelepsis describe two areas offering potential improvements in adolescent smoking control efforts. One is expanding demonstrably effective educational programs such as evidence-based tobacco prevention curricula and national guidelines, in conjunction with relatively intensive engagement of influential community...
resources including parents and mass media.\textsuperscript{11} The other involves enhanced research to evaluate youth tobacco initiation and cessation interventions, particularly in non-school settings.\textsuperscript{14}

Identifying best practice evidence-based youth smoking prevention strategies is hindered to some extent by the fact that only a small proportion of prevention interventions implemented in Australia and overseas have been rigorously evaluated, if they are evaluated at all.\textsuperscript{16} Guidance for effective prevention thus needs to be drawn both from understanding of the factors influencing uptake, as well as the efficacy of prevention efforts that have been evaluated or bear some evidence of positive effect. Comprehensive reviews recommend further research using methodologically high-quality studies to identify specific crucial components of effective prevention programs, examine their cost-effectiveness and evaluate key factors in the promotion, adoption and implementation of effective programs in schools and communities.\textsuperscript{13, 15, 19}

The duration, funding and sustainability of interventions are also important. The imperative for sustained effort and funding has been highlighted in some states in the US, where the initial successes of large-scale and comprehensive campaigns and intense tobacco-control activity of the 1990s has diminished, reflected in the halted decline of teenage smoking.\textsuperscript{17} The efficacy and acceptability of programs targeting young people is also enhanced by their involvement in intervention planning and development,\textsuperscript{14} an approach supported by the United Nations’ Convention on the Rights of the Child.\textsuperscript{20} In the tobacco-control literature, youth participation in intervention design is not often explicitly discussed, and as noted by Williams and colleagues, there is a lack of controlled studies measuring the impact of youth involvement.\textsuperscript{2}

Table 5.20.1 maps some of the key uptake factors identified earlier in this chapter that are amenable to intervention, as identified from the literature.

<table>
<thead>
<tr>
<th>Influences to smoke</th>
<th>Intervention approaches that can address this</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family environment (see Section 5.7)</td>
<td>Adult campaigns (see Chapter 14) and cessation interventions (see Chapter 7)</td>
</tr>
<tr>
<td>Smoking behaviour of peers, and peer attitudes and norms (see Section 5.8)</td>
<td>Mass media campaigns targeted at young people (see Section 5.25) and flow-on effects of adult campaigns</td>
</tr>
<tr>
<td>Intentions, attitudes and beliefs (see Section 5.6)</td>
<td>Youth-directed mass media campaigns (see Section 5.25)</td>
</tr>
<tr>
<td>Educational environment (see Section 5.9)</td>
<td>School-based programs (see Section 5.29)</td>
</tr>
<tr>
<td>Accessibility to and availability of tobacco products (see Section 5.11)</td>
<td>Regulatory of display of stock at point of sale (see Chapter 11, Section 11.4)</td>
</tr>
<tr>
<td>Cost (see Section 5.12)</td>
<td>Sales to minors interventions (see Section 5.21)</td>
</tr>
<tr>
<td>Tobacco advertising and promotion targeted at young people, including portrayal of smoking in the popular media (see section 5.15 and 5.17)</td>
<td>Advertising and promotion bans</td>
</tr>
<tr>
<td>Tobacco products created to appeal to new users (see Section 5.16)</td>
<td>Regulation of packaging and of flavourings that appeal to young people (see Chapter 12, Section 12.7)</td>
</tr>
</tbody>
</table>
References


5.21

Reducing tobacco access and supply

Reducing access to tobacco is regarded as a component of effective programs to reduce smoking among young people, although there is some debate in the literature as to the extent of its importance and effectiveness as a means of reducing uptake.

5.21.1

Prevalence of various forms of supply

National data (2008) showed that the most common ways for adolescents to access cigarettes was through friends (45% of current smokers) and asking someone else to buy them (17% of current smokers).

However, 20% of current smokers aged 12–17 years bought their last cigarette in 2008 (compared with 23% in 2005). Around 12% of smokers aged 12–15 years had bought their own cigarettes, and 20% of teenagers aged 16–17 years had made their own purchases. Male smokers were more likely to buy cigarettes for themselves than female smokers. In general, the likelihood of having made a personal purchase increases with age, and with frequency of smoking behaviour. The proportion of children buying their cigarettes varies across jurisdictions. For example, in New South Wales in 2008, fewer than 1 in 10 students (8.7%) aged 12–17 years purchased their last cigarette.
In South Australia 15% of students aged 12–17 years purchased their last cigarette in 2008 (compared with 19% in 2002).\(^1\) The same survey showed that among current smokers aged 12–17, 49% of males and 38% of female students thought it would be easy (or very easy) to buy their own cigarettes, and 81% believed it would be easy (or very easy) to get someone else to buy cigarettes for them.\(^3\) However, the overall proportion of current smokers aged 12–17 years buying their own cigarettes has declined substantially over time. In 1987 more than half of students aged 12–17 years purchased their last cigarette compared with 20% in 2008.

The proportion of current smokers aged between 12 and 15 years buying their cigarettes decreased between 1987 and 2002, increased slightly between 2002 and 2005 and then decreased between 2005 and 2008.

Among older current smokers buying their own cigarettes, the decrease in the proportion that commenced between 1990 and 1993 continued to 2005 and stabilised in 2008.

The proportion of younger current smokers getting others to buy cigarettes for them in 2008 was similar to the proportion found in 2005. There was a slight increase in the proportion of older current smokers getting others to buy cigarettes for them between 2005 and 2008.

### 5.21.2 Monitoring and enforcing sales to minors laws in Australia

It is illegal to sell tobacco products to children under the age of 18 years in all states and territories of Australia. Efforts to more vigorously enforce laws banning the sale of tobacco to minors began in some states in the early 1990s—notably in Western Australia and New South Wales. These efforts focused on monitoring compliance with the legislation, retailer education, issuing warning notices and where necessary, prosecution of offenders. Compliance monitoring and enforcement efforts generally utilised ‘controlled purchase activities’ where children attempt to purchase tobacco under the supervision of an adult.

In 2011 the majority of states and territories—New South Wales, Western Australia, Victoria, South Australia, Tasmania, the Australian Capital Territory and the Northern Territory—conduct random compliance monitoring activities as described above. Queensland employs covert surveillance operations both opportunistically, and in response to complaints to monitor and enforce the legislation.

Most states and territories have introduced strict proof-of-age requirements for the sale of tobacco, requiring the seller to request and sight approved photo ID to determine the age of a person attempting to purchase tobacco. Acceptable forms of photo ID generally include drivers licence, passport or an official ‘proof of age’ card. Some jurisdictions prosecute retailers caught selling tobacco, while others have introduced an expiation system for these offences.

### 5.21.3 Effectiveness of initiatives to reduce sales to minors

As noted in Section 5.11, many adolescents obtain their cigarettes through informal social sources, which are very difficult to control. This, and the fact that interventions aimed at reducing sales of tobacco to minors have had mixed results on reducing tobacco use, has led to questions about the usefulness of access restrictions.\(^1\) However the ‘symbolic’ imperative of targeting access and supply is sometimes overlooked in this debate. After all, widespread availability and ready access to tobacco products can send young people mixed messages about the social acceptability and dangers of smoking.\(^1\) A counter argument to this is that tighter controls on access may, in fact, make tobacco more appealing to young people (as ‘forbidden fruit’),\(^1\) although this premise is not supported by data that have shown continued declines in smoking prevalence in young people during a sustained period of enforcement of this legislation.\(^1\) Research also shows that perceived availability increases the risk for smoking among young people and has a stronger effect among those with smoking peers.\(^1\)
There are reports in the literature of some sales to minors programs (particularly early programs) that have had little impact on youth smoking rates or little influence on retailer selling habits.\(^{15}\)

In general, programs with weak legislative restrictions and ineffective enforcement are less likely to be effective both in influencing retailer behaviour, and therefore unlikely to impact on smoking rates.\(^{6,7}\) Studies have demonstrated that strong enforcement programs have reduced illegal sales and can contribute to reductions in youth smoking rates.\(^{13,18}\)

To be effective, legislative measures to reduce access need to:\(^{6,19}\)
- be regularly enforced, in order to ensure high compliance rates
- involve a penalty that is not so low that it will not act as a deterrent, but not so high that it is not supported by community attitudes
- be uniform so that minors cannot avoid them by shopping elsewhere.

A systematic review conducted in 2009 on the effectiveness of interventions to reduce access to tobacco found that access restriction interventions may produce significant reductions in the rate of illegal tobacco sales to youth. However, lack of enforcement and the ability of youth to acquire cigarettes from social sources can undermine the effectiveness of these interventions.\(^{7}\)

A US study explored the association between state-level tobacco-control policies and youth smoking cessation behaviours from 1991 to 2006. The study found that the strength of sales to minors laws was associated with lower progression to continued smoking among young people in grades 10 and 12.\(^{20}\)

A study of over 13,000 students in the US showed those students living in states with no or minimal restrictions were more likely to be daily smokers than students living in states with strict regulations. These effects were somewhat reduced when logistic regressions were adjusted for socio-demographic characteristics and cigarette price, suggesting that higher cigarette prices may discourage youth to access and consume cigarettes independent of other tobacco-control measures.\(^{8}\)

A further US study found that higher retailer compliance in the period 1997–2003 predicted lower levels of current daily smoking among adolescents. The odds ratio for daily smoking was reduced by 2% for each 1% increase in merchant compliance. After controlling for price changes, media campaigns and smoking restrictions, a 21% reduction in the odds of smoking among students in Grade 10 in 2003 was attributed to the observed improvement in retailer compliance between 1997 and 2003. This study concluded that enforcement efforts by states to prevent the sale of tobacco to minors appear to have made an important contribution to the observed decline in smoking among youth in the US.\(^{17}\)

An Australian study by Tutt and Bauer and colleagues in 2009 examined the impact of sustained and vigorous enforcement of sales to minors legislation. The study compared the New South Wales Central Coast intervention area to the rest of New South Wales and Australia. The proportion of youth who made recent purchase attempts declined by almost three-quarters (74%) between 1993 and 2002, providing evidence that young people had felt the impact of the enforcement program. Among smokers, the proportion who had made purchase attempts declined from 83% to 45%. Between 1993 and 1996 the prevalence of smoking declined in the Central Coast intervention area, while remaining unchanged in New South Wales as a whole and nationally. Between 1993 and 2002, the prevalence of current smoking in the intervention area was reduced by half. This study found that effective enforcement of an age-restricted tobacco sales law was accompanied by a substantial reduction in attempted purchases of tobacco and of smoking by youth. The impact of the intervention was not only sustained but also increased with time.\(^{6}\)

A 2008 study examined the impact of tobacco-control policies, cigarette price and tobacco-control program funding on Australian adolescents’ smoking over a 15-year period.\(^{21}\) The study found that stricter controls on youth access to cigarettes were associated with lower smoking prevalence in unadjusted analyses but this policy area was not associated with smoking after adjusting for other policies, demographics and survey year. However, as noted by the authors the policy measure did not include an indicator of the strength of regulation enforcement, as these data were not available. As enforcement is important in determining the effectiveness of youth access policies, this may have influenced the results.
5.21.4 Legislative restrictions for possession, use, or purchase of tobacco by minors

In the US, state legislation restricting sale of tobacco to minors often includes legislative restrictions for possession, use or purchase of tobacco by minors; however these laws (sometimes referred to as 'PUP laws') appear to have little impact on reducing smoking prevalence. One study found no difference in smoking rates between the control and experimental group but did report more young people in the control group smoking more than 20 cigarettes per day.\textsuperscript{22,23} Many tobacco-control experts in Australia have recommended caution in regard to this policy approach, arguing that rather than placing the onus on the seller, such laws criminalise purchases by young people, which may have other negative unforeseen consequences.

5.21.5 Licensing of tobacco retailers

Licensing of tobacco retailers has been advocated as a means of further regulating the availability of tobacco and curbing sales to minors. This can allow for a graduated system of penalties, with infringements ranging from warnings and fines to an ultimate loss of licence.\textsuperscript{19} All states and territories except Victoria and Queensland have introduced some form of tobacco licensing system. Some jurisdictions have a positive licensing system that requires retailers to apply for and annually renew their license with an associated licensing fee. Other jurisdictions have implemented what is commonly referred to as a 'negative licence scheme' where retailers may be prohibited from selling tobacco products if found guilty of selling these to young people. A negative licensing system may also be complemented by a notification system such as the one in place in New South Wales, where retailers are required to notify a government agency that they will be selling tobacco.

The tobacco industry in Australia and overseas has championed programs aimed at educating tobacco retailers and the general public about sales to minors regulations (see Chapter 10, Section 10.13.1), initiatives thought by critics to be more likely to serve industry ends than to improve public health.\textsuperscript{24}
References


Section: 5.21.5
Date of last update: 10 April 2012
Taxation and pricing of tobacco products

As discussed in Section 5.12 (Affordability of tobacco), raising the price of tobacco products, particularly through manipulation of taxes or other imposts, is a key plank of a comprehensive tobacco-control policy, and is known to reduce smoking rates among younger smokers,\textsuperscript{1–3} based on the finding that young people are particularly responsive to changes in cigarette prices given their relatively low disposable income.\textsuperscript{3,4} Making tobacco more expensive may not necessarily affect rates of experimentation among adolescents, or indeed, among any age group, however, since experimenters tend not to buy their own cigarettes, but to acquire them from home, friends, or other disparate sources.\textsuperscript{5} Responsiveness to price among adolescents increases with intensity of smoking, since more committed smokers are more likely to purchase their own cigarettes. It is therefore likely that higher cigarette prices have their greatest impact among younger smokers when they are poised between experimentation and regular smoking.\textsuperscript{6}

Jamrozik’s ‘ten point plan’ for tobacco control includes advocating regular price increases on tobacco products based on convincing evidence that this can reduce consumption, especially among adolescents.\textsuperscript{7} Effective taxation policy needs to ensure, however, that increases in the price of tobacco are ‘real’ (that is, not offset by increases in earning capacity, or pocket money in the case of children) in order to maintain effect.\textsuperscript{8}

The effects of pricing on consumption among young people and other smokers are discussed in greater detail in Chapter 13.
References


Reducing product appeal

Cigarettes can have appeal to children in both real and fake forms. As discussed in Section 5.13.1, use of confectionery cigarettes in childhood has been associated with later uptake of smoking. Confectionery explicitly resembling cigarettes (such as the 'Fags', popular with Australian children in the 1970s and 1980s) or cigars is now banned by state/territory legislation.

In 2005, flavoured tobacco cigarettes appeared on the market in some Australian states and territories. Flavour and scent options in the DJ Mix brand included strawberry and green apple, with complementary packaging in shades of 'strawberry' pink and 'apple' green. The resemblance in flavour, smell and name to bubblegum and other products popular with children seems difficult to deny, as evidenced in an observed online chat room dialogue on an Australian website among young people comparing flavours of cigarettes they have tried and preferred. A US study among college students found that flavoured cigarettes elicited higher positive expectancies and fewer negatives than non-flavoured cigarettes among both smokers and non-smokers. Negative or non-pleasurable experiences of a first cigarette can deter or delay further experimentation and are a potentially powerful tool for prevention, adding weight to the imperative to monitor and regulate the palatability of cigarettes available in Australian (and overseas) markets.

As highlighted in a number of press releases issued by tobacco-control and health organisations around Australia when fruit brands first appeared in the Australian market, the argument that sweet or fruit flavoured cigarettes are targeted at long-term brand-loyal adult smokers lacks any credibility. Australian health ministers agreed to ban the sale and investigate banning the importation of flavoured cigarettes across Australia in 2008, citing concerns over the appeal to young people of flavoured cigarettes. While all states and territories have acted (or have plans to act) by banning overtly 'fruity or lolly' flavoured cigarettes, no ban has been introduced on menthol cigarettes or the long list of flavours added to almost all cigarettes/cigars on the market. Novel flavoured cigarettes are discussed further in Chapter 10, Section 7.1. Their regulation and control is detailed in Chapter 12, Section 8.

The way cigarettes are packaged can also enhance their appeal to children and young people. In the late 1980s and 1990s, Australian state legislation sought to address the appealing size and price of 'kiddie' packs (still marketed in the UK and many other countries) and banned the sale of cigarettes in packets of fewer than 20. Deterring the visual appeal of tobacco to children has also been one of the strong precipitants for health warning labelling and graphic health warnings (see Chapter 12, Attachment 12.1) and most recently in Australia, in advocacy and legislative moves towards generic (plain) packaging (see Chapter 11, Section 11.10).
References


The profound effects of the denormalisation of smoking

Young people in particular are greatly influenced by their sense of what is normal and attractive, which is in turn influenced by the imagery and social meaning attached to different behaviours. Indeed it is the exaggerated ‘normalisation’ of smoking that underlies much of the advocacy against tobacco depictions in movies and other popular media. ‘Denormalisation of smoking’ is a phrase used in tobacco control to refer essentially to the erosion of community acceptance and tolerance for smoking. While there have been significant declines in the prevalence and advertising of smoking over the last few decades, and a diminishing number of places in which smoking is permitted, there are still many instances where smoking takes place in the community or is portrayed in media and youth culture.

The tendency for young people to often overestimate the prevalence of smoking in the population also suggests that normative perceptions about smoking may lag behind the reality. For example, research undertaken for the Smarter than Smoking project in Western Australia in 2004 found that teenagers significantly overestimated the prevalence of smoking both among adults and among other teenagers, and were more likely to overestimate prevalence if they were from a lower socio-economic status (SES) or Indigenous background. While the prevalence of smoking is in fact higher among people of lower SES or Indigenous background, this did not seem to fully explain the extent to which young people from these population groups overestimated smoking, hence supporting the hypothesis that smoking remains not just more common but also more normal and acceptable among such priority population groups.

Normative beliefs about smoking were deconstructed further in a quantitative experimental study by Wakefield and colleagues as part of a broader study into the effects of tobacco point-of-sale advertising on children. Perceived prevalence of smoking was assessed in this study by asking participants how many out of 100 a) classmates in their year level, b) high school students, and c) adults, they thought smoked cigarettes at least once a week. Other normative measures include questions to gauge perceived approval of smoking (by asking students how much they agreed or disagreed with various attributes to describe smokers (e.g. ‘A teenager who smokes cigarettes seems … cool, successful, smart, healthy, athletic, and popular’), and an item relating to perceived approval (extent to which they agreed or disagreed that most high school/their age students ‘think it’s ok to smoke cigarettes once in a while’). The study found that, on average, students thought about 30% of students their age smoked at least once a week (an overestimate), with those exposed to cigarette advertising or display as part of the experimental study estimating a higher proportion of smoking among both high school students and adults, compared to those not exposed.

Factors identified in the literature as contributing to children’s mis-estimation of smoking prevalence include age (younger more likely to overestimate), sex (female), number of friends who smoke, exposure to levels of smoking in the home, and their own smoking status. In an interesting prospective study undertaken in The Netherlands, overestimation of smoking prevalence across three time points was predicted by having a predominantly smoking peer group, a best friend who smokes, and by having at least one parent who smokes. Overestimation of smoking prevalence was also associated with smoking status (i.e. regular smoking) at the third time point.

Australian research undertaken in 2005 found that young people who smoked or who had tried cigarettes were more likely to overestimate smoking prevalence among both peers and in the broader community. In particular, the study found that females aged 12–24 years who smoked tended to estimate that at least 50% of people their age smoked, and some (school years 7 to 10) smokers thought that between half to three-quarters of adults in Australia smoked. In a cross-sectional study undertaken across 64 schools in Hong Kong, overestimation of peer smoking prevalence was commonly observed in male and female students, but was only associated with current and ever
smoking in boys. In another Hong Kong study, overestimation of smoking was also shown to be predictive of smoking initiation, with those overestimating smoking prevalence among peers more likely to have smoked at the two-year follow-up of the student cohort.

While quantitative studies have tended to empirically examine factors associated with overestimates of smoking prevalence, qualitative research undertaken in Western Australia for the Smarter than Smoking project asked young people to estimate adult and peer smoking relevance and then asked them what they based their estimates on. Participants in the focus groups indicated they based their prevalence estimates either on who they knew/ mixed with (this included sphere of family contacts), or what they observed around them in the community. Ironically, smoking has in some ways become more visible in the community as a consequence of tightening bans on indoor or on-premise smoking.

5.24.2
What forces are likely to further denormalise smoking?

Youth smoking prevention efforts are likely to be enhanced and reinforced by strategies that denormalise the way in which smoking is portrayed or occurs in the broader community. Evidence documenting student tendencies to overestimate smoking prevalence supports calls for the inclusion of strategies to redress unrealistic perceptions of smoking prevalence in youth smoking education. As articulated in a British Medical Association report into the influences of smoking on young people, efforts to denormalise tobacco use should emphasise the fact that smoking is very much a minority pursuit, and that even among smokers, most are ambivalent about their habit (p29.) The report also suggests that reinforcing this message may be particularly warranted in lower income communities where higher smoking prevalence rates can create false impressions about the normalcy of smoking.

An evaluated and published example of this was a 'social norms' campaign conducted in Montana in 2000–01 targeting 12–17 year olds. The campaign was framed around the normative message 'Most of Us are Tobacco Free', with post-intervention data indicating that only 10% of teens in the counties exposed to the campaign reported first time cigarette use, compared to 17% of teens in the control areas.

Interventions to denormalise adolescent misperceptions of smoking prevalence may not be similarly effective with all young people, with a recent Chinese study finding that a program aimed at correcting perceptions of peer smoking prevalence was less effective among adolescents with higher levels of depressive symptoms.

Advocacy efforts to expose and counter the disproportionate portrayal of smoking in movies are another example of an approach to the denormalisation of smoking. As noted in Section 5.16, both the over-representation in movies of smoking relative to real-life prevalence, and the juxtaposition of smoking with other desirable attributes or characters, can promulgate a misleadingly positive conception of tobacco use.

More broadly, many of the key strategies in tobacco control can contribute directly or indirectly to further denormalisation of smoking. For instance, a Canadian study found that the more frequently young people observe smoking occurring in a range of settings, the more likely they are to have the view that smoking is both socially acceptable and normal. Hence bans on smoking in restaurants and other public places can help to reduce the 'normalcy' of seeing people smoking, thereby helping to reshape community norms and perceived social acceptability regarding smoking.

Restrictions or bans on smoking also physically decrease the opportunities for children and young people to be in the presence of smoking.

The diminishing number of places in which smoking can occur in Australia, and the negative symbolism of the types of areas smokers often now have to move to in order to smoke (e.g. alleyways, outside office doors, parking lots), means that smoking is no longer an integral and ‘normal’ part of everyday life. Further restrictions emerging in Australia (e.g. bans on smoking at public beaches and in outdoor public venues) would no doubt further increase this denormalisation (see Chapter 15, Section 15.5). The tobacco industry itself recognises the power of smoking restrictions to denormalise smoking, as evidenced in the efforts of tobacco companies around the world to oppose bans and restrictions on smoking in public places.
A paper by Chapman and Freeman identifies a number of more subtle societal changes and cultural cues signalling the declining social acceptability of smoking in the community. Examples range from the replacement of cigarette lighters as a ‘routine’ fixture of new vehicles, implementation of differential insurance premiums for smokers, exclusion of tobacco in ethical investment portfolios, specification of non-smokers in ‘lonely hearts’ advertisements, and many other examples which indicate an erosion of smoking as a marker of what is socially ‘cool’. As Chapman and Freeman argue, these changes may be more subtle in their effect than the conventional core planks of tobacco control (taxation, policy, advertising bans, etc.), but collectively they contribute to the cultural denormalisation of smoking.

Two areas working against the denormalisation of smoking have been the widespread availability of tobacco from a variety of retail outlets, and the visible display of tobacco products at point of sale, both of which can fuel deceptive perceptions about the normalcy and acceptability of smoking in the community. Exposure to retail cigarette advertising has been linked, for example, in two experimental studies with adolescents to increased perceived smoking prevalence among high school students and adults. Reducing the perceived acceptability of smoking is one of the arguments made for prohibiting point-of-sale advertising in countries where this still occurs, and for treating tobacco as an ‘under-the-counter’ product.
References

5.25

Media campaigns and young people

Young people get a great deal of information about the world from mass media such as television and radio and, increasingly, online media, not just through the traditional desktop computer but also through a variety of publicly accessible and portable electronic devices.

5.25.1

Mass media campaigns

The Smarter than Smoking campaign is a Western Australian smoking prevention project funded by Healthway since 1996. This comprehensive program has a mass media component, with several media bursts annually targeting 10–15-year-olds. Western Australia is the only state in Australia to have consistently targeted young people through youth-specific media campaigns.

See Chapter 14, Section 14.4 for a detailed discussion of the impact of general and targeted campaigns on young people in Australia.

5.25.2

Interactive media

In marketing parlance, ‘new’ or emerging technologies include media such as the Internet and web-based programs, interactive web-based mediums such as Facebook, mobile phone communications and electronic games. Terms such as ‘e-health’, ‘e-marketing’ and ‘m-marketing’ (the sending of marketing messages to mobile phones) have now entered our lexicon and teenagers are at the forefront—‘digital natives’ of an increasingly ‘wired’ world. Meaningful supervision of young people’s now ubiquitous use of new media becomes ever more unrealistic. The pace of technological change has been incredibly rapid, and many of the technologies commonly used by young people, such as instant messaging, social networking websites, chat rooms, twitter and new forms of portable digital music players, barely existed a decade ago.

Interactive or emerging technologies present a potential and unique opportunity for new and innovative ways to influence and engage young people in health promotion, including in smoking cessation. For example, it has been estimated that for every hour that young people use media, they are exposed to 1.25 hours of media content due to multitasking. Although there is limited literature concerning the use of interactive technologies in youth smoking prevention to date, the potential benefits identified in Table 5.24.1 still apply.

While different forms of new media and technologies are emerging at a rapid pace, two that have received some attention in the tobacco-control literature published to date are mobile phones and the Internet.
Mobile phones

For young people, mobile phones are much more than a technological gadget: they are aspirational and symbolise freedom, growing up and having fun, and have spawned a new mode of interaction among friends. A review of the social impact of mobile phones in Australia denotes them as ‘must haves’ for teenagers wanting to keep up and achieve social acceptance. Over 90% of 17-year-old Australians and more than three quarters of Australian teenagers 12–14 years used a mobile phone in 2007.

Mobile phones are of potential interest to youth smoking prevention for two quite different reasons: first, as a potential channel of communication for smoking prevention strategies, and second, as a type of smoking ‘substitute’.

Mobile phones as a prevention strategy

Factors in the potential utility of mobile phone short message service (SMS) to deliver health behaviour change interventions include that the service has wide population reach, can be individually tailored, and allows instant delivery with asynchronous receipt. In addition, mobile phone programs have some advantages over current treatment services for smoking cessation, which may appeal to certain groups such as young people, including that they can be delivered anywhere, at appropriate times, confidentially and straight to the participant with minimal direct contact. Text messaging interventions have been used with teenagers on a number of specific health issues, such as diabetes management, as well as more broadly, as in the UK program that enabled teenagers to text a community nurse with questions or health concerns regarding issues such as sexual health or puberty.

In a recent content analysis of 47 smartphone applications (commonly referred to as ‘apps’) available for smoking cessation in June 2009, the researchers concluded that the apps had low levels of adherence to established, evidence-based clinical practice guidelines for smoking cessation. Those that were more frequently downloaded had the lowest adherence scores. Few apps referred the user to a recommended treatment; for example, few, if any, recommended or linked the user to proven treatments such as pharmacotherapy, counselling and/or a quit line.

Mobile phone-based interventions specifically targeting adolescents or children are sparse in the published tobacco-control literature. A 2009 Cochrane review of interventions for smoking cessation in any age group was based on four randomised or quasi-randomised trials reported in five papers (including two trials involving only text messages and two involving web/email and mobile phone components). The review found the mobile phone programs to be effective in the short term (six weeks), while a combined internet–mobile phone program was effective for up to 12 months. There was no effect of mobile phone-based smoking cessation interventions on long-term outcome. The authors conclude that further evidence based on more rigorous research is required to determine if programs delivered over mobile phones can help people to stop smoking.

One of the reviewed studies was a randomised control trial in New Zealand exploring the use of mobile phones as a delivery medium for smoking cessation programs for young adults (36% of the sample aged 16–19 years). Cessation rates among those receiving the text message intervention were around double those of the control group at six-week follow-up, and reported quit rates at six months remained high, although the Cochrane reviewers found there were a range of issues with this trial such as problems with misclassification of long-term outcomes. In Western Australia, Smarter than Smoking piloted messaging 10,000 young people, inviting them to participate in a quiz-based competition. At 34 cents per delivery, evaluation of the pilot study concluded that it was both a cost-effective and an acceptable means of communicating with young people.

A 2009 review by Australian researchers identified 14 studies published between 1990 and 2008 examining the use of mobile telephones in delivering health behaviour change interventions via text messages. Four of the studies used SMS for preventive health behaviours (including two targeting smoking cessation, one among adults and one among US college students), while the remainder examined clinical care such as diabetes self-management. Positive behaviour change outcomes were observed in 13 of the 14 reviewed studies, including both smoking cessation studies; however, the improvements in quitting in only one of these studies (among adult smokers) was significant statistically, and this effect was observed during the first half of the trial and not maintained to the end.
Chapter 5: Influences on the uptake and prevention of smoking

Section 5.25.2.1

Date of last update: 10 April 2012

While the reviewers acknowledged the limited number of high-quality SMS intervention studies undertaken to date, they also identified several important features of SMS-delivered interventions: the method of intervention initiation (e.g., by researcher or participant), whether the participant or the researcher initiated SMS dialogue, tailoring of SMS content and the level of interactivity with participants.

### Relationship between mobile phones and smoking

There has been some interesting debate in the literature around the relationship between mobile phones and smoking among young people. In a letter to the *British Medical Journal* in 2000, it was hypothesised that observed declines in teen smoking in the UK might be attributable in part to the rising uptake of the mobile phone. The authors contended that mobile phones are an effective competitor in the teen market for products that offer ‘grown-up’ style, individuality, rebellion, bonding with peers, sociability and adult aspiration. Researchers in Japan concurred that smoking prevalence had declined as mobile phone ownership and usage increased. However, later studies failed to find evidence to support the hypothesised protective effect of mobile phone ownership on smoking uptake. In fact, Steggles concluded that:

> 'We found a positive association between the extent of smoking experience and the likelihood of owning a mobile … Rather than competing, mobile phone ownership appears to be a complementary behaviour to smoking, possibly reinforcing a young person’s image of himself or herself as an aspiring adult.'

### Internet and web-based strategies

Young people are typically among early adopters of new media and represent a key target for much of the material on the Internet. As noted in a review by Ribisl, the Internet can, and is, being used both to encourage (overtly or covertly) and discourage youth smoking. At the ‘enticing’ end of the spectrum, the Internet provides opportunities for young people to access and purchase tobacco products without scrutiny of age, and has spawned pro-smoking genre in the ‘home-movie’ type offerings on websites such as YouTube. Indeed young people are increasingly engaged in creating their own user generated content and placing this on the web, and this poses some unique challenges for monitoring or regulation of content to which youth may be exposed.

There are also websites abounding with content or chat rooms that glamorise smoking lifestyle and culture. While not based in Australia, the cyber world is global, and there are US-based websites, for example, that feature pictures of celebrity smokers, provide information about smoking in movies, and provide smoking advice to teen smokers. The tobacco industry has also harnessed the Internet to communicate with young customers (see also Section 5.15.4 and Chapter 11, Section 6.5).

At the other end of the spectrum, the Internet is used by those in tobacco control to try to engage young people. This includes websites exposing tobacco industry tactics, such as the ‘tobacco industry exposed’ section on the Australian OxyGen website. The web is also being used in youth tobacco prevention to encourage grassroots advocacy and as a delivery vehicle for youth cessation programs.

A recent Cochrane review examined the effectiveness of internet-based interventions for smoking cessation. Of 20 studies reviewed, four were among young people (university students and adolescents). One trial with college students found no effect on sustained abstinence, although increased short-term abstinence was observed. Among three relatively small trials involving adolescents, two trials found no effect on cessation compared to control. A third trial detected a marginally significant benefit of a web-based adjunct to a group program; however, the independent effect of the web component was uncertain as participants also received counselling phone calls. The studies suggested that tailored websites are more popular among young people. Other elements of youth smoking prevention websites include embedding information and messages on tobacco in games, quizzes, simulations, fact sheets and self-assessments, and in personalised feedback and peer discussion groups.

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i See: [www.youtube.com/](http://www.youtube.com/)

The Internet is also being increasingly used as a medium for conducting research, including health promotion research. A recent study comparing three types of web-based recruitment of people aged 18–25 years for a survey on tobacco and other substance use concluded that using several approaches (such as internet advertisements and email invitations) is most likely to generate a broad participant sample.33

The Internet also seems to present new opportunities to tailor information and strategies to particular population groups. For example, some evidence from the US illustrates the potential utility of adapting web-based, youth-focused tobacco-control programs to be culturally appropriate and engaging for young people at high risk of smoking, such as young American Indian/Alaskan natives.34

Key factors in the success of interventions such as web-based smoking prevention programs include having wide reach and efficacy, appealing to both teachers and students, and being readily implemented and adapted to individual needs.35 Canadian research evaluated a classroom-based, web-assisted smoking prevention and cessation intervention among 1402 male and female adolescents (aged 13–15 years) through a randomised controlled trial.35 Participants were assigned to a tailored web-based tobacco intervention or an interactive control condition task. The intervention comprised an interactive website combining quizzes and self-assessments with tailored feedback aimed at fostering resistance to pressures to smoke and promoting self-efficacy, as part of a program also including a paper-based journal, small group motivational interviewing, and tailored emails (based on participants’ readiness, confidence and reported intention to change) sent to participants for six months following implementation. The intervention was associated with significant reductions in the likelihood of high intentions to smoke among smokers and of heavy smoking uptake by non-smokers during the study period, as well as an increase in the likelihood of high resistance to continued cigarette use among smokers up to six months later.35

In Australia, www.OxyGen.org.au is a tobacco education website that aims to inform young people about smoking. It is a tri-state initiative of Quit Victoria, Quit South Australia (Smarter than Smoking Project in South Australia) and the Smarter than Smoking Project in Western Australia. The OxyGen website provides information on industry tactics, facts and figures about smoking and tobacco products, interactive educational activities, and updates on tobacco issues and events around Australia. In 2011, the average unique visits to OxyGen was 8,300 per month.

One of the challenges for health related websites is that they are ‘competing’ with other fascinating high-tech websites that appeal to youth, including sites providing pure entertainment and fun as opposed to an underlying health agenda. OxyGen also has to avoid becoming dated and disengaging for young people, but without the marketing budgets of corporate websites. Since its conception in 1999, the website has been redeveloped twice to incorporate latest web technologies, web formats and fresh graphic design concepts with another upgrade planned shortly to cater for the rapidly growing web technologies. The most recent version of the website was launched in April 2009.

One of the challenges for health-related websites is that they are ‘competing’ in a crowded market with other fascinating high-tech websites that appeal to youth, including sites providing pure entertainment and fun as opposed to an underlying health agenda. OxyGen also has to avoid becoming dated and disengaging for young people, but without the marketing budgets of corporate websites. To this end, OxyGen has upgraded its website a number of times in an effort to remain current and engaging for its target audience.
References


5.26

What might be appropriate policy responses to the problem of smoking and movies?

While the effects may be overstated, there is little doubt that portrayal of smoking in movies can be a powerful influence on young people—see Section 5.16 for a review of the evidence.

Studies demonstrating an association between smoking in movies and adolescent smoking typically conclude that more should be done to reduce or eliminate teenage exposure to smoking or tobacco imagery in movies (see e.g. Choi et al 2011). A number of recommended responses to this issue have been offered in the literature, and more recently synthesised in a report by the World Health Organization titled Smoke-free Movies: from Evidence to Action. Possible measures for governments included in guidelines for Article 13 of the World Health Organization Framework Convention on Tobacco Control include:

- banning product placement and requiring certification that no payoffs from tobacco companies were accepted
- prohibiting tobacco brand identification or tobacco brand imagery (e.g. billboards) in any movie scene
- requiring strong anti-smoking advertisements or warnings to be displayed at the beginning of any entertainment media depicting tobacco products or smoking
- requiring adult ratings for movies with tobacco imagery.

However there is not universal agreement on the best way of controlling the promotion of smoking in movies or indeed whether it should be controlled at all. It has been argued that important questions of limiting freedom of speech and censoring artistic expression arise in instances where there is no evidence that smoking imagery has been sponsored by the industry. Additionally, portrayals of smoking in movies can vary from overtly glamorous to neutral to remarkably negative; removal of all tobacco imagery could remove an important means by which young people become aware of social, economic and legal issues surrounding the marketing and use of tobacco. For example, an Australian study of viewer reactions to the movie, The Insider, a movie containing varied smoking images, found participants held more negative views of the business conduct of the tobacco industry than those who saw an equivalent control film.

A further option that acknowledges these concerns, and which has been discussed in Australia, is to simply take tobacco use into account in the rating of movies but without mandatory application of adult ratings.

Educational approaches have also been explored in Australia and elsewhere, both with the industry—raising awareness about the effects of smoking and exploring alternative directorial ideas for denoting mood, class characteristics and the like—and with children, with the development in several states of resources to help children better understand and resist the effects of portrayals of smoking in movies.

A final option that has been canvassed in Australia and the US is restricting taxpayer subsidies to movies that do not portray smoking.

Each of these options is described briefly below.

5.26.1

Bans on portrayal of smoking in movies

While banning smoking portrayals in movies (or at least movies most likely to be seen by children and adolescents) is sometimes advocated and is now supported as an option by the World Health Organization (WHO), in practice it has been rarely attempted and the proposition has generated controversy within the tobacco-control field. For instance, Chapman argues that advocacy for the total banning of the depiction of smoking in movies

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1 The Young Directors Festival run by Smarter than Smoking in Western Australian is one such initiative, aiming to raise awareness about the impact of portrayal of smoking in movies among the next generation of local filmmakers. For further details see [http://www.smarterthansmoking.org.au/news_and_events/12-03-13/smarter_than_smoking_young_directors_festival_2012.aspx](http://www.smarterthansmoking.org.au/news_and_events/12-03-13/smarter_than_smoking_young_directors_festival_2012.aspx)
may potentially generate a negative backlash for tobacco-control efforts resulting from what some would see as promotion of censorship that goes too far.\(^6\)\(^,\)\(^1\)

To date, India is the only country to have attempted a wide-scale ban of this nature, but this was not effective and has since been overturned. A total ban on smoking and tobacco product imagery in all Indian films was announced by India’s Health Minister in May 2005,\(^1\)\(^2\) but the Indian film industry volunteered to control the amount of smoking in Bollywood films instead of accepting an outright ban. Despite these film industry promises to self-regulate tobacco promotion on screen, research conducted by the Burning Brain Society in India found that tobacco brands appeared in more than 40% of Indian films released since 2004.\(^1\)\(^3\)\(^,\)\(^1\)\(^4\) In January 2009 the Delhi High Court overturned the ban, citing that such a ban restricted the right to freedom of speech and creative expression.\(^1\)\(^2\) Thailand has banned smoking scenes on all local television channels since 2000. Any image of an actor smoking or a tobacco product is ‘pixilated’ or blurred out. No published data are available on the effectiveness of this policy in contributing to discouraging smoking among young people, and it is unclear how such a measure would be regarded in Western countries, including Australia.

5.26.2

**Banning product placement, payments from tobacco companies and/or brand-specific imagery**

Although brand-specific images of tobacco products in movies are less common now than in past decades (see Section 5.16.2), these can still occur, and there have been calls from the WHO\(^2\) and the US Smoke Free Movies group\(^1\)\(^4\) for explicitly banning product placement, and requiring certification that no payments of any sort from tobacco companies were accepted by movie companies/producers. The Smoke Free Movies group advocate that producers should post a certificate in the closing credits specifically declaring that nobody on the production received anything of value (cash money, free cigarettes or other gifts, free publicity, interest-free loans or anything else) from anyone in exchange for using or displaying tobacco. Another of the recommendations of the Smoke Free Movies group is that any identification of tobacco brands in movies be banned, including tobacco brand identification or imagery such as billboards that may appear in the background of a movie scene.\(^1\)\(^4\)

5.26.3

**Counter-advertising screened before movies**

The WHO has recommended that strong anti-smoking advertisements or warnings be displayed at the beginning of any entertainment media depicting tobacco products or smoking.\(^2\)\(^,\)\(^3\) This is also advocated by the US Smoke Free Movies group, which recommends that studios and theatres should require a genuinely strong anti-smoking advertisement (not one produced by a tobacco company) to run before any film with any tobacco presence, in any distribution channel, regardless of its Motion Picture Association of America (MPAA) rating.\(^9\)

There is some evidence to suggest that showing an anti-smoking counter-advertisement before films that glamorise smoking negates positive associations. An Australian study with adolescent females showed that viewing a counter-advertisement increased the number of non-smokers who disapproved of the smoking scenes in the movie and increased the number of smokers who believed they would not be smoking within the next year.\(^9\) A similarly designed study with American adolescents found that those who viewed the counter-advertising prior to a film showing characters smoking held more negative opinions about the smoking actors.\(^8\)

A second Australian study with youth cinema patrons found that while placing an anti-smoking advertisement before movies containing smoking scenes can help to ‘immunise’ non-smokers against the influences of film stars’ smoking, caution must be exercised in the type of advertisement screened.\(^2\)\(^,\)\(^7\) Some types of advertising were found to actually reinforce smokers’ intentions to smoke.

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\(^i\) [http://smokefreemovies.ucsf.edu/solution/nopayoff.html](http://smokefreemovies.ucsf.edu/solution/nopayoff.html)

\(^ii\) [http://smokefreemovies.ucsf.edu/solution/index.html](http://smokefreemovies.ucsf.edu/solution/index.html)
In the US, this is one area in which there has been some attempt by the film industry to be 'responsive' to tobacco-control advocacy. For example in January 2007, the New York-based independent producer and distributor The Weinstein Company announced it would be featuring American Legacy anti-smoking truth spots on all DVDs portraying smoking. The following year Time Warner followed suit and Disney agreed to similarly feature anti-smoking public service announcements in all DVDs depicting smoking. Disney further pledged to exclude smoking from Disney labelled films and announced its approval of anti-tobacco spots in cinemas before films featuring smoking. A number of individual directors have also taken a stand against smoking. These include David Frankel (Devil Wears Prada) and Martin Campbell (Casino Royale).

Advertisements played before movies in cinemas tend to promote glamorous products and to have very high production values (computer-generated special effects, international locations, some of the world’s most beautiful models, etc.). Experienced Quit campaigners advise that the beneficial effect of anti-smoking advertisements before movies would likely depend on the quality, longevity and frequency of turnover of the advertisements used.

### 5.26.4 Restrictive rating of movies depicting smoking

A growing number of bodies internationally are calling for restrictive ratings of movies with smoking imagery. The WHO report Smoke Free Movies: from Evidence to Action recommends that movies with tobacco imagery should be given an ‘adult rating’, hence restricting their viewing by minors, and it is similarly supported by the WHO Framework Convention on Tobacco Control (WHO FCTC). Other peak bodies that have recommended this approach include the US Centers for Disease Control and Prevention and the Ontario Ministry of Health Promotion. Restrictive ratings have also been advocated in some of the more recently published studies on the association between smoking depictions in movies and smoking initiation.

Waylen and colleagues for example argue that the dose–response relationship observed in their large-scale study of a cohort of British adolescents supports introduction of an ‘adult/18’ rating to movies depicting smoking, suggesting that ‘films ought to be rated by exposure to smoking in the same way that they are currently rated by level of violence’.

An automatic R rating of films depicting smoking has been previously recommended by the Smoke Free Movies group based at the University of California, San Francisco, as one of four policy actions to reduce smoking depictions in films. Specifically, the recommendation is that:

> any film that shows or implies tobacco use should be rated R. The only exceptions should be when the presentation of tobacco clearly and unambiguously reflects the dangers and consequences of tobacco use or is necessary to represent the smoking of a real historical figure.

Although restricted ratings are now advocated by the WHO, there is some contention around this measure even within tobacco control. For example, it has been argued that mandating ‘adults-only’ rating classifications for movies with smoking imagery may fuel a potentially negative backlash for tobacco control from what some may see as censorship going too far.

Moreover, even an R rating for all movies with smoking content will by no means prevent all young people from viewing such films, given that (US) R-rated movies are still watched by a sizeable proportion of adolescents. A US paper published in 2007 reported for example that 84% of young people aged 10–14 years reported watching R-rated films with parental permission. Similarly, in a New Zealand study of data collected from Year 10 students between 2002 and 2004, 81.2% of males and 75.6% of females watched an R-rated film at least once a month. Moreover, in the Jackson and colleagues study, adolescents who were more likely to watch R-rated movies (i.e. who had a higher relative exposure to R-rated movies) were more likely to have initiated smoking in the follow-up phase of the study.

However, others have argued that the primary drive for recommending adult content rating policies for movies with smoking content is not just about restricting young people’s viewing of such films. Rather, Millet and colleagues contend that an important aim is to create an economic incentive for film makers and producers to omit

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smoking from films that they hope to target at the very lucrative youth market. Given the far higher return on investment for movie makers for youth versus R-rated movies, it is hoped that R-rated restrictions would provide an economic incentive to reduce smoking content.

5.26.5

Inclusion of smoking as a criteria in movie ratings

In the US, there have been some (albeit feeble) attempts at self-regulation by the film industry in response to calls for restricted ratings on films with smoking content, with the MPAA announcing in May 2007 that it would ‘consider smoking’—alongside sex, violence and ‘adult’ language—when it was deciding what rating to assign films. Films that glamourised smoking could receive a higher rating. However, the MPAA ruled out giving all films containing scenes with smoking an R or restricted rating, and indicated that it would not be bound to taking any particular action after reviewing films with smoking. Research undertaken by Polansky and colleagues two years later concluded that the MPAA announcement that it would consider smoking in movie ratings had not resulted in any tightening of restrictions for movies with tobacco, and reported that of the ‘top ten’ box office ranked movies released by MPAA over that two-year period, tobacco was still present in 22% of G/PG-rated films, 64% of PG-13 movies and 80% of R-rated movies.

It should be noted that film classification in the US is conducted by an industry body whereas the Australian Classification Board and Classification Review Board are government-funded organisations.

5.26.6

Decoding of tobacco promotion and media literacy

Media literacy typically refers to the skills to deconstruct media messages to better understand the persuasive or other techniques that may have been used by the marketers or producers of media material. Media literacy training has been applied to several other issues relevant to adolescence including sexualisation in the media and alcohol and tobacco advertising. It has been argued that media literacy training to help adolescents understand the use of smoking images in movies as a tobacco marketing tactic could diminish the influence of such imagery.

While media literacy has grown in popularity as a tool for health promotion, it is unfortunately often not well evaluated. There are only a handful of published evaluations of media literacy initiative targeting smoking and adolescence, but these do show some promise. Beltramini and Bridge for example found that in school, media literacy interventions can help students understand the role of tobacco advertising in encouraging tobacco and marketing strategies employed by tobacco companies. Similarly, a more recent program evaluation found that skilling young adolescents for better understanding, discernment and reflective thinking about smoking imagery can improve their ability and motivation to resist smoking related influences. This study included a control group, with a greater effect noted in the intervention group among students who had never smoked and those who had experimented. It has been argued that media literacy training may be particularly critical for younger adolescents (e.g. aged 13–15 years), who may be less resistant to the influences of exposure to smoking in movies.

Schools are an obvious setting for targeting media literacy relating to tobacco, as they provide ready access to young people. Moreover, if media literacy can be embedded into classroom lessons or curriculum, there is the added benefit of potential sustainability. As noted by Bier, programs can be strategically designed for easy integration into existing school curriculum, which helps to bring educators on board with program implementation, and contains the costs of program delivery. Compared to some of the more ‘traditional content’ of tobacco education, media literacy initiatives can be framed around the popular media and culture, which enhances the engagement of both students and teachers.

In Australia, media literacy relating to smoking in movies has been incorporated into youth smoking prevention resources developed in Victoria in the early 1990s and more recently in South Australia and in Western Australia.

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i [http://www.smokefreemovies.ucsf.edu/whoswho/mpaa.html](http://www.smokefreemovies.ucsf.edu/whoswho/mpaa.html) 2003
In South Australia, ‘The Truth is Out There’ is a resource for middle school teachers that has been mapped to the South Australian Curriculum Framework, and which includes some lesson ideas relating to smoking in movies and television in its section on ‘Why people choose to smoke’. For example, it suggests that students could identify a television program they watch regularly and keep a log of whether smoking occurs (and if so by whom and in what context), and then discuss and analyse this as a class. Other suggested activities include having students discuss qualities of characters who smoke or don’t smoke, decode ways smoking is portrayed or discuss the merits of assigning an R rating to movies that contain smoking.

In Western Australia, Keeping Ahead of the Pack is a cross-curriculum resource for lower secondary school students (DVD and activity/lesson ideas) that is linked to the WA Curriculum Framework. For example, one of the lesson activity ideas for English is about reviewing the media and includes information and activity suggestions relating to product placement and smoking on the big screen. Another lesson idea links to the Society and Environment curriculum area and as part of a lesson about creating laws, encourages students to debate the idea of assigning an M or Rated classification to movies depicting smoking. The complete resource can be ordered through Smarter than Smoking, or alternatively the teacher booklet is downloadable from the Smarter than Smoking or OxyGen websites.

Although not focused on smoking in movies per se, The Critics’ Choice is an educational competition run in all states and territories each year that helps builds media literacy skills by encouraging students to watch, critique, discuss and vote on 12 anti-smoking television advertisements from all over the world. The West Australian ‘Future is in your Hands’ initiative also encourages young people to comment on anti-smoking advertising.

In the US, there are also a number of web-based resources and initiatives that seek to educate and stimulate advocacy around smoking in movies, and these can also serve as a media literacy tool for use with young people by teachers or parents/guardians. Scene Smoking and Smoke Free movies are two examples. In Australia, the Oxygen website provides a link from its home page to a tobacco industry exposed section that includes information, tips and movie clips about smoking in movies.

### 5.26.7 Ending taxpayer subsidy of movies that portray smoking

Stan Glantz, a long-time advocate of smokefree movies, and campaigner Jonathan Polansky have recently called for an end to taxpayer subsidies of movies that depict smoking. The state of California provided a total of $374 million in film and television subsidies for the period between mid-2009 and the end of 2011. This included 27 feature films seen widely over 2010 and 2011, which received a total of $128 million. Of these 27 films, 16 films, receiving a total of $75 million, included tobacco imagery. These 16 films grossed $1.1 billion in box office sales. As pointed out by the authors:

‘More than two-thirds ($51 million) of California tax credits approved for top-grossing films with tobacco imagery went to PG-13 films. Nearly 80 percent (2 billion/2.5 billion) of in-theater tobacco impressions delivered in the US and Canada by California-subsidized, top-grossing films came from films rated PG-13. (The rest came from R-rated films.’ (p2)\(^3\)

Glantz and Polansky have argued that public monies should be used to advance public goals. They have called on the Government of California to amend the California tax credit program statute, adding the following to the existing list of productions disqualified from eligibility for subsidy:

‘… any production that depicts or refers to any tobacco product or non-pharmaceutical nicotine delivery device or its use, associated paraphernalia or related trademarks or promotional material’ (p2,\(^4\))

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4. [http://scenesmoking.org](http://scenesmoking.org)
5. [http://smokefreemovies.ucsf.edu](http://smokefreemovies.ucsf.edu)
Like the Californian Government, the Australian Government seeks to support the local film industry through the provision of concessions for amounts invested in movies made in Australia—for further information on tax offsets for investment in films see http://www.ato.gov.au/content/00288548.htm

In addition to taxpayer subsidies to investors, the Australian Government provides grants for film development to encourage local content, foster talented new film makers, support Indigenous film making and encourage the development of creative material that resonates with Australia. See funding guidelines for bodies such as Screen Australia—http://www.screenaustralia.gov.au/funding.

5.26.8

Public support for proposals to address depiction of smoking in movies

Compared to the plethora of studies of public support for other tobacco-control measures (such as smokefree public places), there have been surprisingly few published studies investigating levels of public support for smoking restrictions in movies.

As part of a 2004 New South Wales survey of smoking-related perceptions and practices, 1154 adults participated in a computer-assisted telephone interview about perceptions relating to smoking depictions in movies and television. When participants were asked what government measures they would support to limit exposure of smoking depictions in films, 63.1% supported screening anti-smoking ads before movies that had any smoking in them, 50.7% supported regulating the movie industry to limit the portrayal of smoking in movies, and 37.2% supported including smoking in the movie rating system.

In a study with US parents about whether cigarette use should be included as a movie ratings criteria and if movies with tobacco use should be rated R, only 52% of parents believed that cigarettes should be used as movie ratings criteria and only 28.9% supported an R rating for movies that featured smoking. The authors commented that ‘if parents disagree with an R rating exclusively for smoking, applying R ratings to movies with smoking potentially could lead parents to become more lenient in their restrictions’.

There are no reports of studies canvassing public opinion about taxpayer subsidies of movies depicting smoking.

5.26.9

Status in Australia of proposals to address depiction of smoking in movies and on the Internet

The Tobacco Advertising Prohibition Act 1992 prohibits anyone in Australia from broadcasting in cinemas or on TV any material deemed to be a tobacco advertisement—see Chapter 11, Section 11.3 for further details. As amended by the Tobacco Advertising Prohibition Amendment Act 2012 the Act also prohibits Australians from advertising tobacco products on the Internet except where the advertisement provides a direct facility to purchase products. However the legislation does not pertain to depictions of smoking that could not be deemed to be an advertisement in the sense that no financial benefit is gained by the transmitting party.

In 2004 in Australia, Cancer Council NSW proposed that counter-advertising be shown before all remaining films that contain pro-smoking imagery. Its suggested action points include:

that all movies are assessed for inappropriate smoking content prior to release

that once they have been identified, these films be accompanied by strong smoking education advertisements

1 Though it ruled out a direct ban on advertising and sale of tobacco products on the Internet, the Government did formulate legislation that gives it capacity to regulate the advertising of tobacco products on Internet sites in Australia. Amendments to the Tobacco Advertising Prohibition Act 1992 passed in February 2012 are aimed at ensuring that vendors who sell through the Internet include health warnings, refrain from promoting discounts or encouraging people to pass on information to others and adopt procedures to ensure that products are not supplied to minors—see Chapter 11, Section 11.12 for further details.
that this requirement be written into law at state, territory and national levels.

In the lead up to World No Tobacco Day in the same year, the Australian Democrats referred to this proposal and called on the Federal Government to take action. Health spokesperson Senator Lyn Allison moved a motion that urged the Government to:

(b) ... heed the latest call by the Australian Medical Association and adopt strategies and regulatory measures to counter the influence of smoking in films, including:

(i) a film classification system that provides clear warnings about the extent and nature of smoking in films with films attracting an appropriate descriptor such as ‘pervasive smoking’ in the same way that descriptors warn of coarse language, sexual references, nudity and violence,

(ii) anti-smoking announcements before films that depict smoking, and

(iii) changes to guidelines to ensure that public funds are not used to support Australian films that glamorise or promote smoking.10

Allison went on to propose the introduction of legislation, the Tobacco Advertising (Film, Internet and Misleading Promotion) Amendment Bill, which was released for public consultation. This bill was never voted on in the Senate. There has been little discussion since this time about whether it is appropriate for film funding agencies to provide grants to films that do not receive financial support from tobacco companies but that nevertheless could be said to glamorise smoking.

In its draft National Preventative Health Strategy10 the Preventative Health Taskforce steered away from any proposals involving automatic restrictive ratings or bans on funding. It recommended rather that the Government encourage the Australian Classification Board to take smoking into account along with all the other factors it considers when rating movies, video games and publications for sale, hire or exhibition in Australia.

The Australian Government’s response to the Taskforce indicated that it was not going to take immediate action and instead indicated that it would ask the Australian National Preventive Health Agency (established as part of national prevention strategy) to review the evidence for such reforms and to discuss them with other key departments, including the Department of Broadband, Communications and the Digital Economy; the Department of the Environment, Water, Heritage and the Arts; the Office of Film and Literature Classification; and Screen Australia. In an August 2010 newspaper article, the director of the Australian Classification Board, Donald McDonald, was quoted as stating that the board already considered community standards on harm caused by ‘inappropriate’ smoking or substance misuse when classifying films.41 No recent data in Australia are available on the prevalence of depictions of smoking in movies popular with Australian teenagers, or on the relative prevalence in movies rated MA as opposed to PG or M.

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1 http://parlinfo.aph.gov.au/parlinfo/download/media/pressrel/0NP6/upload_binary/0np65.pdf;fileType%3Dapplication%2Fpdf
References


Parent/family/home targeted interventions

In addition to the powerful influence of a parent's own smoking behaviour on the likelihood of adolescent smoking uptake, other aspects of parenting have also emerged as significant contributors to adolescent smoking. Parental advice not to smoke or explicit disapproval of smoking has been shown in some studies to be effective in deterring young people from smoking. Yet there is also evidence to suggest that parents often doubt their capacity to positively influence their children in this regard, feeling that children ignore or disdain such advice. For example, qualitative research undertaken in Australia found that while young people cite parental disapproval of smoking as a barrier to smoking uptake, parents in the same study often felt that their opinions had little influence. A large-scale empirical study in Sweden similarly found that the majority of adolescents were in support of strong parental intervention to help them refrain from tobacco, but preferred this not to be done in a punitive manner. More specifically, of the 4500 adolescents surveyed in 2006, almost all strongly supported parental action including trying to persuade them not to smoke (94%), not smoking themselves (87%) and not allowing their children to smoke at home (86%). This support was evident across both smoking and non-smoking adolescents.

Beyond parenting communications that are smoking specific, different parenting styles more broadly can potentially influence the likelihood of smoking uptake. For instance, a parenting style that combines both demanding and responsive management of children's behaviour has been shown to reduce smoking uptake, while more permissive home policies are associated with increased likelihood of experimentation. (See also Sections 5.7.1 and 5.7.1.1.) This section focuses on programs that attempt to train parents to adopt the kind of communication and parenting styles that have been associated with reduced uptake of smoking.

Do family-based interventions/programs work?

Programs to intervene against smoking at the home level have shown mixed effects, with evaluation of program effectiveness hindered by insufficient information reported or lack of rigour in program implementation. In the most recent (2009) Cochrane review of family-based programs (randomised controlled trials only included) for preventing youth smoking, four of nine trials testing a family intervention against a control group had significant positive effects, while one trial showed significant negative effects. The review also looked at five trials that compared the effectiveness of a family-based intervention with a school-based intervention. Only one of the five was shown to be effective, and interestingly in this study, there was no significant difference in the effectiveness of the family- versus school-based interventions at the six-year follow-up, but both intervention groups were less likely to take up smoking than the control group.

Overall, the Cochrane review concluded that it may be possible to help family members strengthen non-smoking attitudes and promote non-smoking in children, but several factors related to intervention quality emerged as important. The extent of implementer training and the fidelity of implementation were higher in those studies with positive outcomes. However the number of sessions in the family intervention program was not related to positive outcomes, suggesting that program intensity is not a prerequisite for effectiveness.

Another review published in 2011 looked at 16 studies that involved a parental intervention component, the nature of the parent involvement varying considerably and ranging from education via pamphlets, homework requiring parental involvement, parent and youth attendance at group sessions, and offering incentives for smoking cessation as a role model. Of the 25 trials reviewed, 10 were associated with a reduction in uptake of smoking, and six of these included parental involvement in the intervention program.

Not many of the studies to date have looked at the effectiveness of family-based interventions over a longer time period. One exception is a study by Spoth and colleagues that found some evidence of a sustained effect, with lifetime cigarette use significantly lower among those participating in the Iowa Strengthening Families Program Group at six-year follow-up post intervention. Likewise, the intervention trial evaluated by Storr and colleagues observed that children in the family–school partnership intervention group (which targeted improvements in
parent–teacher communication and parents’ child behaviour management strategies) had reduced smoking uptake compared with the control group at six-year follow-up.

In addition to tobacco-specific family-based interventions, smoking is sometimes incorporated into broader programs targeting a number of adolescent risk behaviours. An Australian example of this was a Perth-based randomised controlled trial to assess the impact of a home-based intervention designed to encourage parent–child communication about tobacco and alcohol. Parents (n=1201) of children aged 10–11 years were recruited from 20 primary schools, and those in the intervention group were provided with information sheets, parenting tips and activities to help parents talk with their child about issues related to smoking cigarettes and drinking alcohol. Parents in the intervention group were more likely to have engaged their child in discussions and to have addressed topics identified in the provided materials as being protective of children’s involvement in tobacco and alcohol.

In a published review of the effectiveness of 20 parenting programs to prevent or reduce use of drugs, alcohol or tobacco by children (<18 years), five of the reviewed interventions were tobacco specific, five were alcohol specific and the rest addressed a combination of substance use. The format of these parenting interventions varied widely, including group parenting skills training, homework tasks requiring parental participation, mailed booklets, home visiting or a mixture of these approaches. As with the reviews of smoking-specific interventions, the results were somewhat mixed, and where programs included parental involvement among other strategies, it is difficult to disentangle the relative effect of this component. However, the authors did note that more active parental involvement was an important feature of successful interventions.

While parental smoking itself is a significant predictor of smoking uptake, one interesting US study implemented a home-based program with parents who smoked. The program was framed around an ‘anti-smoking socialisation approach’, which focuses on influencing the development of children’s cognitive and behavioural norms against smoking. As articulated by the researchers, although parents who smoke model smoking behaviour, this does not preclude a parent from eliminating a child’s exposure to passive smoke, talking to a child about smoking, making cigarettes inaccessible, monitoring the smoking behaviour of children and their friends, and making clear the disciplinary consequences of smoking (p57). In the follow-up evaluation three years after the intervention, those in the intervention group were far less likely to have begun smoking, with the odds of smoking twice as high among the control group compared with the intervention group, despite the fact that children in both groups had parents who smoked.

While family-based interventions often focus on parents, having a sibling who smokes is also a significant predictor of smoking uptake. Given research indicating that older teenagers often hope that their younger siblings do not experiment with smoking, siblings may be another ally for tobacco-control efforts within the family setting.

### 5.27.2 Family-based smoking prevention interventions in Australia

In the National Preventative Health Strategy, The Roadmap for Action, assisting parents and educators to discourage use of tobacco is identified as a key action area (Chapter 3, Tobacco, key action area 9, along with assisting them to protect young people from secondhand smoke). The roadmap document goes on to identify a number of ways in which parents can help to discourage their children from taking up smoking, and within this, areas for possible tobacco-control efforts. Positive influences cited include quitting smoking if parents smoke themselves, effective strategies for dealing with family conflict, and spending time with children. Conversely, lack of parental supervision is noted as being strongly associated with smoking experimentation. In Australia, the role of families or parents in discouraging smoking has not been overtly addressed in many discrete programs, but is more likely to be incorporated into broader information for parents (see examples in Table 5.25.1), or as an element of school-based programs (such as the ‘Why can’t we smoke at school’ resource developed in Victoria described in Table 5.25.1). A more targeted exception is the ‘Clearing the air: talking to children and teenagers about smoking’ pamphlet available in Western Australia, Victoria and the Australian Capital Territory (see Table 5.25.1).
### Table 5.27.1

<table>
<thead>
<tr>
<th>Strategy/program</th>
<th>Description</th>
<th>Weblink</th>
</tr>
</thead>
<tbody>
<tr>
<td>'Why can't we smoke at school?' Guidelines to address students' smoking</td>
<td>Developed by Quit Victoria; the kit contains a letter to parents and a tool to help students develop a management plan to not smoke at school.</td>
<td><a href="http://www.oxygen.org.au/resources/tackling-smoking-in-schools">www.oxygen.org.au/resources/tackling-smoking-in-schools</a></td>
</tr>
<tr>
<td>'Clearing the air, talking to children and teenagers about smoking'</td>
<td>Resource developed and distributed to schools by the Smarter than Smoking project, Western Australia. Also available in Victoria and the Australian Capital Territory.</td>
<td><a href="http://www.quit.org.au/downloads/schools/clearing_the_air.pdf">www.quit.org.au/downloads/schools/clearing_the_air.pdf</a></td>
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</table>
References


Peer-based approaches

As discussed in Section 5.8, peer group influences have been identified in numerous studies as a significant factor in uptake of smoking. Consequently, peer influences on youth smoking have received considerable, and some would argue disproportionate, attention in tobacco control, both in terms of research and in terms of investment in interventions.

For a long time, ‘peer pressure’ or perceptions that ‘smoking is cool’ were touted by the average person as primary determinants of youth smoking. The evidence suggests that it is far less simple however, with peer influences interacting with and compounded by a host of other predictive factors, and the nature of peer influences on smoking changing over time and varying across social and cultural groupings.

Nonetheless, the evidence associating peer influences with adolescent uptake of smoking is often relied upon as part of the rationale for peer-led and peer-based approaches to smoking prevention. More broadly, peer education approaches have also been applied to a range of other health and social behaviours, and have a strong theoretical underpinning as outlined below.

Peer education approaches to youth smoking

The theoretical roots of peer education approaches can be traced to Bandura’s social learning theory, and to social inoculation theory. While peer education has been applied across a diverse range of settings and health issues, including smoking, the common elements relate to the ‘tapping into’ and utilisation of the existing social processes among young people to influence their health-related knowledge, attitudes, skills and behaviour. Social influence programs may foster social norms that reduce adolescent social motivation to commence smoking, and peer education strategies can complement and reinforce other health promotion approaches.

‘Diffusion of innovations’ is another theory that has been applied in peer education initiatives, and serves as a model for understanding how information, ideas and or behaviours spread throughout a community. Applied to health promotion, diffusion of innovation theory seeks to identify ‘natural and influential’ opinion leaders to endorse and support desired health behaviours. In this regard, it not just a matter of targeting any ‘peer’, but rather those who can act as opinion leaders to influence the views, attitudes or behaviour of others because of their already established and credible social standing with others.

The role of peer educators varies considerably across programs, and may include formal or informal counselling, information provision one-to-one or in a group, participation in interactive activities with peers, staffing of ‘hotlines’ and resource centres, modelling of interpersonal skills, and fostering of peer mentors. Some programs take a deliberately informal approach, seeking to tap into everyday communication within social groups and/or utilise existing peer ‘influencers’ as a vehicle for behaviour change.

Young people involved in peer education may also serve as viable role models and opinion leaders, and help to project norms of acceptable and unacceptable health-related behaviours.

Research by Allbutt and colleagues in Scotland found that older teenagers were adamant about not wanting younger teenagers to start smoking, and it is suggested that peer education approaches may capitalise upon this attitude.

Are peer education interventions effective?

While the rationale for peer-led approaches has theoretical and intuitive appeal, isolating the effectiveness of peer initiatives is difficult, and the evidence to date is somewhat mixed.
The complex nature of adolescent health behaviours and their peer interactions, and the influences of the broader social milieu in which they live, makes it difficult to measure behavioural change that is directly attributable to peer education. Peer-based strategies are also sometimes embedded within broader programs—for example, the long-running Minnesota Smoking Prevention Program in the US used peer leaders to conduct many of its program activities. Significant reductions in smoking onset and prevalence have been attributed to this program, but it is not clear what proportion of this success is due to the peer education component alone.

In a meta-analysis of smoking prevention programs, Rooney and Murray concluded that peer or social type programs should be continued as part of smoking prevention efforts, but that the overall magnitude of effect is quite limited. They argue that the impact of such programs may be improved if delivered early in the transition from elementary to middle school, if same-aged peers play a significant role in delivery of the program, and if they are part of a multi-component health program.

In a broader meta-analysis of adolescent drug prevention programs delivered in school settings, interactive programs and those led by peers addressing the social influences of drug use were among the more effective strategies.

As with youth mass media and school-based interventions, the quality, design, expectations and evaluation deficiencies of programs sometimes make it difficult to ascertain whether peer education is flawed *per se*, or flawed in its delivery. In a review of the effectiveness of youth peer interventions generally, Walker identifies a number of reasons for intervention failure, including a lack of clear aims and objectives, inconsistency between the project design and the external environment/constraints, inadequate appreciation of the fact that peer education is a complex and skilled process to manage, and inadequate training and support of peer educators.

The way in which influential and credible peers are selected can also be critical to the success of peer-led approaches. In school-based peer interventions, peer educators are most often self selected and/or selected by school staff, but as argued by Starkey and colleagues, this can result in peer educators who may not be perceived as influential or credible by the target group. The ASSIST intervention is an example of a UK program that sought to overcome this limitation, through the development of a peer nomination process to identify ‘influential students’. The intervention was evaluated in a randomised controlled trial and involved 10,730 students aged 12–13 years across 59 schools (30 intervention, 29 control). The nomination process resulted in a diverse mix of students being selected as ‘peer supporters’ in the intervention schools; these students were trained to utilise their informal contacts with peers to disseminate smokefree health promotion messages outside the classroom setting. Interestingly, the researchers note that while some students and staff expressed doubts about the suitability of some of the students recruited to be peer supporters, the likelihood of students becoming smokers was significantly lower in the intervention schools at two-year follow-up.

An independent economic evaluation of the ASSIST program has also been undertaken, deeming it to be a cost-effective intervention that resulted in a 2.1% reduction in smoking prevalence at two-year follow-up, and delivered at a modest cost of £32 per student (based on cost of program delivery projected in 2008 pound equivalent, which equates to approximately $72 Australian dollars). The authors also projected the economic costs and health promotion impact of extending the intervention to all Year 8 students (based on student numbers in 2007/2008) across all UK schools, concluding that this could result in 20,400 fewer adolescent smokers for a cost of around £38 million (which equated to around $85 million Australian at the 2008 exchange rate). The authors go on to note that this represents a good investment when compared to National Health Service expenditure on treating lung cancer in one year alone of £260.8 million.

### Peer-based smoking interventions in Australia

Peer-based education in Australia appears to be more commonly applied to drug education and sexual health issues than to smoking prevention or cessation. Historically in Australian tobacco control, there have been a few peer-based programs targeting smoking, such as the ‘Hot water kit’ peer education program developed by the Victorian Smoking and Health Program in the early 1990s; these days, issues relating to peer influence are more commonly embedded within broader school-based programs and resources.
Peer influence has also been used as a communication approach as part of the Western Australian Smarter than Smoking media project targeting adolescents. The project produced a series of advertisements that sought to tap into the peer influence psyche, with vignettes, for example, featuring young people reflecting on the lack of money or fitness of peers who smoke. Campaign evaluation data collected from a sample of young people aged 14–15 years between 1999 and 2005 found a significant strengthening in young people's agreement with statements relating to the cost and effects on fitness of smoking.23
References


Section: 5.28.3
Date of last update: 10 April 2012
School-based interventions

School-based interventions have been the traditional cornerstone of efforts to prevent the adoption of health-compromising behaviours by young people, including smoking. Lynagh and colleagues\(^1\) identify some of the major premises underlying the use of schools to promote health:

- children spend a large proportion of their waking life in school, including during the developmental years when health-risk behaviours are often formed
- schools are recognised places of learning, and have structures and systems into which 'health education' can be integrated
- the school environment, and the messages and cues it communicates, can influence student attitudes and behaviours by either reinforcing or undermining what is taught in the classroom
- schools provide a prime access point as nearly all young people attend school, including disadvantaged and 'at risk' groups
- schools also provide access to important secondary target groups such as parents, families and the broader community.

The most common types of school-based smoking prevention methods are described in Table 5.29.1. An evaluation summary of the approaches is presented in the following section.

### Table 5.29.1
School-based intervention methods relating to youth smoking

<table>
<thead>
<tr>
<th>Methods</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information-giving curricula(^3)</td>
<td>Present information about smoking, including health risks of tobacco use, and the prevalence and incidence of smoking.</td>
</tr>
<tr>
<td>Social theory based</td>
<td>Social competence curricula based on Bandura’s Social Learning Theory,(^4) Social Influence Approaches based on McGuire’s Persuasive Communications’ Theory,(^5) and Evans’s Theory of Psychological Inoculation.(^6) Programs may be underpinned by one or a combination of these approaches.</td>
</tr>
<tr>
<td>Multi-modal programs</td>
<td>The methods combine curricular approaches with wider initiatives within and beyond the school, including programs for parents, schools, or communities and initiatives to change school policies about tobacco, or state policies about the taxation, sale, availability and use of tobacco. This is congruent with a health promoting schools approach that is considered ‘best practice’.(^7)</td>
</tr>
</tbody>
</table>

Source: Thomas and Perrera 2006\(^2\)

### 5.29.1 Are school-based programs effective?

There is very mixed evidence regarding the effectiveness of school-based smoking interventions, both from individual studies and various reviews of the evidence.\(^2, 8, 9, 10, 11, 12\) In addition, few studies have evaluated their long-term impact.\(^11, 14\) Several reviews concluded that school-based smoking prevention programs are relatively ineffective,\(^11, 13\) but a more recent (2009) critique of the various reviews and meta-analyses conducted to date contested this conclusion.\(^12\) Flay contends that the differing methodologies and methodological limitations of past reviews have led to conclusions of ineffectiveness, and notes also the difficulty of strictly comparing the vast variety...
of programs that have been implemented in schools, which can differ considerably in theoretical framework, target age group, program content, method of delivery, duration, type of school environment and so on.\textsuperscript{12}

From his comprehensive ‘review of reviews’, Flay concludes that school-based interventions can produce significant and practical effects in both the short term and long term.\textsuperscript{12} This does not apply to all programs clearly, and Flay’s review found certain elements were critical for long-term effectiveness, including interactive social influences or social skills programs, a duration of 15 or more sessions including some up to at least ninth grade, and substantial short-term effects.\textsuperscript{12}

Various other reviews have also sought to distil which intervention elements are associated with program effectiveness. A meta-analysis undertaken by Tobler and colleagues found that programs with interactive learning strategies were significantly more effective than non-interactive programs.\textsuperscript{15} Other reviews found that interventions based on social reinforcement, developmental stages and social norm orientations have been more effective in modifying attitudes and behaviour than programs that focus on more rational information delivery.\textsuperscript{16,14,17} Programs only providing information have limited, if any, effect\textsuperscript{2} and are generally viewed as dated and too narrow a form of health education.

The timing of interventions in relation to child age and development can also be pertinent in terms of effectiveness. Evidence suggests that the most critical window of opportunity for prevention programs in school settings appears to be in the late primary to early secondary school years.\textsuperscript{18} This corresponds to the age at which smoking experimentation is typically observed. In an intervention targeting 5th and 6th grade students Crone and colleagues found that treatment had limited effects during elementary school but in secondary school (one year later) significant effects on smoking and behavioural determinants were seen.\textsuperscript{19} The intervention group had a higher intention not to smoke and started to smoke less often than the control group.\textsuperscript{19}

One of the criticisms of some interventions is that they have been designed and initially piloted as ‘research projects’, which may not be so effective when implemented in ‘real life conditions’ within schools.\textsuperscript{16} In seeking to explain the disappointing evaluation of two multifaceted school-based programs in the UK that were modelled on a successfully trialled program in the US, Nutbeam and colleagues\textsuperscript{20} also queried the efficacy of school interventions in real life settings.

There is some evidence of a synergistic effect on smoking behaviour from the dovetailing of school programs with mass media and other interventions targeting young people.\textsuperscript{21} An Australian example of this is the Western Australia Smarter than Smoking project, which has an active schools component (including teacher and school activity resources, school grants, smarter than smoking sports, arts sponsored activities for school students, and so on) complementing mass media and other strategies.\textsuperscript{22} As noted by Flay,\textsuperscript{23} it is often difficult for multimodal interventions to disentangle the relative impact of school curricula-based, school-wide environmental change, parent training, mass media and community-wide interventions.

As summarised in the US Surgeon General’s 2000 report on reducing tobacco use, school-based programs are more effective when coupled with community-based initiatives that involve mass media and other techniques.\textsuperscript{24} A 2006 Cochrane review similarly concluded that school-based interventions that are multi-modal and complemented by broader community campaigns and strategies are more likely to have a positive effect.\textsuperscript{2} However the review also went on to note that such interventions are relatively rare in practice and in the literature.\textsuperscript{1} A well-known exception is the successful and often cited smoking interventions in North Karelia\textsuperscript{25} and Minnesota,\textsuperscript{26} which both reported positive long-term outcomes for school-based programs that were complemented by broader community campaigns.

Not only is effectiveness of school-based programs affected by the quality of the intervention content and delivery, and the degree of supporting strategies in the broader school and community, but emerging research also suggests that other individual traits of students can affect the extent to which they are responsive to smoking prevention interventions. For instance, in a smoking prevention trial conducted in China, adolescents at risk for developing depression were found to process social information differently from low-risk peers: specifically, the program was less effective with adolescents with high levels of depressive symptoms, and their perceptions of smoking prevalence among friends was more resistant to change.\textsuperscript{27} The authors concluded that adolescents more at risk of depression may be more sensitive to social influences associated with smoking prevalence, and that individual

\footnotesize{\textsuperscript{1} http://www.smarterthansmoking.org.au/}
disposition traits such as this need to be taken into account in developing prevention programs.\textsuperscript{23} Another study by Wang and colleagues looked at the association between depressed mood and smoking uptake among a cohort of students (n=563) exposed to two school-based smoking prevention interventions. Follow-up data on depressed mood and smoking were collected from the students from Grade 6 through to age 19 years. Depressed mood was found to be associated with smoking uptake.\textsuperscript{24}

It has been argued by some that at best, existing school-based interventions appear to be able to delay the onset of smoking,\textsuperscript{29,30} rather than prevent it. As discussed above, one of the most comprehensive and recent reviews of the evidence refutes this and contends that some interventions have been shown to be effective in deterring smoking uptake.\textsuperscript{12} Moreover, even if interventions do only delay onset, while prevention is obviously the preferred outcome, delayed onset is still a positive public health outcome because mortality is lower and quitting rates are higher among smokers who commence smoking at a later age.\textsuperscript{10,30} A recent study by Jit and colleagues found that an intervention that delays smoking initiation without decreasing smoking prevalence at age 18 years may reduce adult smoking prevalence by 0.13–0.32% and all-cause mortality by 0.09% over the lifetime of the sample.\textsuperscript{13}

Table 5.29.2
Examples of school-based interventions in Australia

<table>
<thead>
<tr>
<th>Strategy/program</th>
<th>Description</th>
<th>Target group</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>The critics’ choice</td>
<td>Encourages students to watch, critique and discuss 12 anti-smoking television advertisements from all over the world. Classroom worksheets included. Free resource.</td>
<td>Upper primary and lower secondary</td>
<td>South Australia, New South Wales, Queensland, Western Australia, Tasmania, Victoria, the Australian Capital Territory</td>
</tr>
<tr>
<td>TOBACCO—the truth is out there</td>
<td>Prevention activities mapped to the South Australian Curriculum Standards and Accountability Framework. Online</td>
<td>Middle school</td>
<td>South Australia</td>
</tr>
<tr>
<td>Drug education K–12 teacher support package</td>
<td>A teacher resource with a range of student activities, covering topics such as passive smoking, health effects and harms of smoking, recognising pressures to smoke and coping strategies, prevalence of smoking, strategies to quit smoking, tobacco and the law, tobacco and pregnancy, personal intentions and behaviours towards smoking. <a href="http://www.decd.sa.gov.au/drugstrategy/pages/resources/supportpackages/?reflag=1">http://www.decd.sa.gov.au/drugstrategy/pages/resources/supportpackages/?reflag=1</a></td>
<td>Prep–12</td>
<td>South Australia</td>
</tr>
<tr>
<td>School drug education and road aware</td>
<td>Teacher education, curriculum support, drug information for parents, support for school policies, support for parents and community participation in developing and implementing drug education programs, policies and protocols. Includes information on the effects of tobacco, terms and definitions relating to tobacco, patterns and prevalence of use, models to understand usage, usage by adolescents, theory and principles of intervention and strategies for responding.</td>
<td>All years</td>
<td>Western Australia</td>
</tr>
<tr>
<td>Cigarette smoke is ‘poison’</td>
<td>Provides strategies and tools that can be used to prevent the uptake of tobacco smoking among young people and encourages schools to provide a supportive environment for those who want to quit smoking. Online</td>
<td>Primary and secondary schools</td>
<td>Queensland</td>
</tr>
<tr>
<td>Healing time stages 2 and 3 drug education resources for Aboriginal students</td>
<td>Developed to address the drug education needs of all students, particularly Aboriginal students, in primary school. Support learning outcomes identified in the New South Wales Personal Development, Health and Physical Education and English K–6 syllabuses. Each manual contains six lessons and two Dreamtime stories with Stage 2 focusing on passive smoking and Stage 3 on the effects of smoking, reasons not to smoke and advocacy skills. <a href="http://www.asaust.org.au/lv4/Lv4information_HealingTime.htm">http://www.asaust.org.au/lv4/Lv4information_HealingTime.htm</a></td>
<td>Specifically Aboriginal but suits all K–6 students</td>
<td>New South Wales</td>
</tr>
<tr>
<td>Smoke free schools</td>
<td>Guidelines &amp; support materials for schools including classroom lesson materials for students. Outlines guidelines for the prevention and management of smoking tobacco.</td>
<td>Middle school years</td>
<td>Victoria</td>
</tr>
<tr>
<td>Smokescreen</td>
<td>A smoking prevention resource, supporting the New South Wales Personal Development, Health and Physical Education K–6 and Years 7–10 syllabuses. <a href="http://www.oxygen.org.au/downloads/resources/community-resources/smokescreen">www.oxygen.org.au/downloads/resources/community-resources/smokescreen</a></td>
<td>Stage 3 (Years 5–6) and Stage 4 (Years 7–8)</td>
<td>New South Wales</td>
</tr>
<tr>
<td>KEEP LEFT Youth smoking cessation guides for school nurses</td>
<td>A resource for school staff (particularly school nurses and others who work with students who smoke) to assist them in cutting down or quitting tobacco smoking. <a href="http://www.oxygen.org.au/downloads/resources_for_schools/keep_left.pdf">www.oxygen.org.au/downloads/resources_for_schools/keep_left.pdf</a></td>
<td>Identified smokers years x to x</td>
<td>South Australia, Western Australia</td>
</tr>
<tr>
<td>Smarter than smoking school-based resources and programs\textsuperscript{1}</td>
<td>Classroom resources including Keeping Ahead of the Pack (a smoking prevention resource for use with lower secondary school students) and an Ideas Kit for Upper Primary School. Smart School Grants. Schools can apply to Healthyway for up to $3000 to implement smoking prevention initiatives in their school.</td>
<td>Different year group strategies, but mainly years 5–7 and 8–10.</td>
<td>Western Australia</td>
</tr>
</tbody>
</table>
5.29.2

School-based smoking interventions in Australia

All states and territories in Australia have developed or have access to some form of school-based smoking prevention activity (see Table 5.29.2), with information on many of these programs easily accessible online. These programs vary in their delivery technique, content and target group, but many cover similar topics. Jointly developed initiatives such as ‘The critics’ choice’ (see Table 5.29.2), which have been used by a number of states and territories, are an example of more strategic and cost-effective approaches.

As noted in the literature, evaluation of school-based smoking interventions is generally patchy, and information on effectiveness is not readily available for many Australian interventions. Exceptions are interventions that have received research grant funding. For example, a randomised controlled trial of the Smoking Cessation for Youth Project found that the project was successful in both reducing regular cigarette smoking (five days per week or more) and preventing greater uptake of cigarette smoking in students who had not smoked. Another Australian study targeting high school students was not as successful, and while the intervention improved smoking knowledge, it had no success in improving smoking behaviour.

5.29.3

Making school-based interventions more effective

Despite the mixed evidence of effectiveness to date, school settings do have the potential to influence the health-related beliefs, attitudes, knowledge and behaviour of young people in relation to smoking, and are an important complement to other tobacco-control measures.

Effectiveness would be enhanced if school-based interventions were more strategically based around the evidence of factors influencing smoking uptake. For example, the increasing recognition of the importance of the social context of smoking supports programs that explore and address social influences, particularly programs that allow students to explore these issues themselves, either individually or in groups. School programs have effectively helped to impart awareness of the long-term health effects of smoking, but young people tend to disassociate themselves from these consequences, as they lack personal salience to their lives in the here and now. Similarly, focusing on the shorter term consequences of smoking is far more relevant to young people than longer term health effects, a finding reiterated repeatedly in focus group research with adolescents in Australia. Programs also need to be adaptable to the needs and culture of different minorities to resonate with these groups. Findings from the National Youth Tobacco Prevention Research Project suggest that there is potential for smoking to be incorporated into teaching as a ‘factual study’ of a social change phenomenon, rather than being confined to the health curriculum.

There is considerable scope also to improve the content, design and delivery of behaviourally based interventions in schools to enhance their relevance, appeal and effectiveness with young people. Classroom-based activities and lessons need to be framed around current and evidence-based pedagogy and not outdated health education or didactic learning approaches. This is reflected in the factors identified by Cuijpers as integral to effective school-based drug prevention programs more broadly, which seem congruent with findings regarding smoking-specific school-based programs. The effective ingredients include:

- interactive delivery methods
- use of the social influence model
- components on norms, commitment not to use, and intentions not to use
- community components
- use of peer leaders rather than relying totally on adult providers
- inclusion of training and practice in the use of refusal and other life skills.

A novel cluster randomised controlled trial found considerable success in the ASSIST program, training peer supporters to undertake informal conversations about smoking with other students outside the classroom setting. Schools that were randomised to the trial intervention had lower odds of smoking at all three follow-up periods,
with a significant risk reduction at one year that diminished to a non-significant reduction at two years. The use of peer led interventions and the ASSIST program are now being more widely encouraged. Young people today are exposed both in and out of school to a range of stimulating mediums and activities that set a high benchmark in terms of interest and creativity. Thus programs should have built-in methods of updating material. Smoking in particular runs the risk of being viewed as a ‘tired’ issue, and so innovative and creative ways to address it need to be found. Programs need to be sustained until the school leaving age through ‘booster’ components such as health fairs or guest speakers in order to retain pertinence.

Moreover, teachers and school curricula often struggle within a crowded timetable to accommodate the silo approach to health risk factors (that is to say, lessons focused on tobacco only). The UK National Institute for Health and Clinical Excellence recommends that information on the health impacts of smoking and its social, legal and behavioural aspects be integrated into the broader curriculum in areas such as biology, economics, mathematics, chemistry, geography or media studies. It is artificial always to treat each health issue independently, as there are underlying determinants, issues and skills relevant across health behaviour areas. The clustering of tobacco use with other risk behaviour is indeed well documented (see Section 5.5). Reid also argues that coupling smoking with other health issues is beneficial because on its own, it is often ranked below other topics in terms of teacher priority. Others concur that teachers may be more prepared to devote valuable curriculum time to more comprehensive rather than single issue programs.

5.29.4 School policies

One of the single most inexpensive actions a school can take to reduce smoking is to introduce and enforce a no-smoking policy. An analysis of smoking and policy at 55 schools demonstrated an association between policy strength, policy enforcement and the prevalence of smoking among pupils. In a study of factors from the school and community environment that affect youth smoking, Lovato and colleagues found that students were less likely to smoke if they attended a school with a focus on tobacco prevention, stronger policies prohibiting tobacco use and fewer students smoking on the peripheries than in schools without these characteristics. Thus bans on smoking in schools need to be diligently enforced to have most impact on adolescent smoking rates. In Australia, although all states and territories have had smokefree school buildings under workplace laws since 1988, some have been slow to extend this to all school grounds. Western Australia’s Department of Education and Training only extended its policy to all outside areas in 2005, and the Northern Territory still allows smoking in designated areas on school grounds under the proviso that it is out of sight of children. In Victoria, the Smoke-free Schools— Tobacco Prevention and Management Guidelines recommend that schools operate as non-smoking environments.
References


Harnessing predictors of uptake to prevent smoking

The National Tobacco Strategy (NTS) outlines how programs separate from tobacco control programs that address underlying determinants of smoking also help to create environments that support people not to smoke. It talks of the potential benefits that might be gained through investment in programs designed to strengthen community and cultural resources—programs to reduce the chance of educational failure, family conflict, loss of cultural identity and the development of mental health problems. Positive changes from these programs may well reduce uptake among young people of smoking as well as other health-compromising behaviours. Of particular relevance to youth smoking prevention, the NTS endorses broader government policies and programs that address the underlying causes of disadvantage in our community—for instance, efforts to reduce family conflict and to improve school effectiveness. These measures have strong potential to improve the proportion of students feeling a connectedness with school, and to improve academic achievement, both of which are highly protective against smoking uptake (see Section 5.9).

Sport and physical activity as protective factors

Research has suggested that physical activity and sport participation are negatively associated with cigarette smoking among young people. A recent systematic review of articles relevant to sports participation and substance use (alcohol, tobacco and illicit drugs) among secondary school and college students aged 13–24 years identified 34 relevant peer-reviewed quantitative studies published between 1982 and 2008. The studies reviewed suggested that sport participation is related to higher levels of alcohol consumption, but lower levels of both cigarette smoking and illegal drug use. The majority (14) of the 15 studies examining the relationship between participation in sport and cigarette smoking found sports involvement to be negatively related to cigarette use, suggesting that participation in sport may serve as a protective factor against tobacco consumption.

A 2009 study among Cypriot adolescents and young adults investigating the association between level of physical activity (very active, active, moderately active, or inactive) and type of smoking behaviour found a consistent and negative relationship between physical activity and smoking across both sex and age. Greater intensity of physical activity was associated with a lower likelihood of smoking; physically active young people smoked fewer cigarettes and were more likely than inactive individuals to be non-smokers or occasional smokers.

Other research has found that teens who participate in a wide variety of physical activities, particularly with their parents, are at decreased risk for smoking and other risk factors such as drinking, drugs, violence, smoking, sex and delinquency, compared with teens who watch a lot of television.

Investigators in a study that found that adolescents exhibiting decreasing and erratic team sport participation were more likely to be current smokers than adolescents with low or high sport participation further concluded that adolescents with decreasing team sport participation are at increased risk of later smoking. Rodriguez followed this research by examining adolescents’ perceptions of their physical selves, concluding that physical activity plays a part in influencing physical self-perception and is an important factor to consider in youth smoking interventions. The positive relationship between participation in physical activity such as sport and perception of physical self is supported by other research in this area, including a survey among Danish young people aged 16–20 years in which adolescent participation in leisure time physical activity was found to be inversely associated with smoking behaviour. This relationship, however, held only among adolescents who perceived physical activity to be an important part of their self-concept, suggesting that participation in leisure time physical activity may have an indirect protective effect on smoking behaviour through its effect on adolescents’ self-concept.

While these research findings do not suggest that scarce tobacco-control resources should be redirected to physical activity and other health programs for young people, there are promising synergies upon which to draw. Sport and recreational ‘health promotion sponsorship’ is an example of a synergy that has been harnessed by some Australian states and territories. For example, through Healthway, Smarter than Smoking has sponsored around

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1 National Tobacco Strategy (NTS)
2 Section 5.9
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60 youth-related sports and arts events or activities annually, with promotional strategies such as signage and merchandise, message endorsement by role models and competitions. Structural strategies have included the implementation of smokefree policies and banning the sale of tobacco products at sponsored events. Other ways in which those in tobacco control can harness sport as a protective factor against smoking include supporting and encouraging programs that target physical activity and other positive health behaviours among youth populations at higher risk of smoking, as well as emphasising the detrimental effects of smoking on fitness in information and messages targeting adolescents.
References


Other drug use

As noted in Section 5.5, tobacco use in adolescence is associated with other risky behaviours, including other drug use. Australian and international research consistently shows that smokers are more likely than non-smokers to drink alcohol (including frequent binge drinking), use cannabis and other illicit drugs and sniff glue or petrol.

Concurrent use of tobacco and alcohol appears to affect the quantity of consumption. For example, in recent research among US college students who were both smokers and drinkers, (mean age 20 years) students drank more while smoking and smoked three times as many cigarettes, on average, during drinking episodes. Smoking while drinking was more likely when students were with others at a party or a bar, while increased stress between assessments predicted a greater likelihood of smoking while drinking. High rates of drinking common among young adults may contribute to the transition from less-than-daily to daily cigarette smoking, for example by altering the subjective effects of smoking such as satisfaction and enjoyment; preliminary research among young adults found that alcohol consumption was associated with a reduction in some of the negative effects associated with smoking and with an increase in subsequent smoking levels.

Recent evidence from a US longitudinal study among young adults followed over three years suggests that even occasional smoking is predictive of hazardous drinking and alcohol use disorders, after controlling for baseline drinking behaviours. Concurrent tobacco and alcohol use among young people aged 15 years has been associated with greater nicotine dependence, significantly higher levels of consumption and more excessive use of alcohol, earlier drinking uptake, and more cannabis use, compared with those who consumed only alcohol. Similarly, compared with those who used tobacco only, concurrent users reported higher nicotine dependence and more cannabis use. The severity of nicotine dependence has also been found to significantly predict alcohol-related problems among adolescent smokers in a smoking cessation clinical trial.

In Australia, in a 2007 study of Australians aged between 12 and 19 years who were former or current smokers or drinkers, the average age at which they had their first cigarette or full glass of alcohol was very similar, at about 14.5 years of age. For young people in the same age bracket, initiation of cannabis use among those who had had a ‘hit’ occurred at an average age of about 15 years, and first use of ecstasy occurred at an average age of 16.3 years. Up to almost half of those using illicit drugs have on occasion used tobacco at the same time: in 2008, among Australian secondary school children aged 12–17 years who reported having used other substances in the previous 12 months, 49% who had taken ecstasy, 48% of cannabis users, 43% who had used amphetamines and 37% who had used hallucinogens reported also using tobacco at the same time.

A recent survey among over 29 000 young French people aged 17 years revealed that the likelihood of first initiating tobacco was far greater than the likelihood of initiating cannabis, while the risk of experimentation with cannabis or tobacco was much greater once a student had experimented with one of these substances. Recent research among some groups of US youth has found the association between trajectories of tobacco and cannabis use from adolescence into adulthood to be quite high, with some evidence that ‘smoking’ may represent a social construct and an activity domain within which the use of cigarettes or cigars containing tobacco and/or cannabis is somewhat interchangeable.

In some settings, however, it appears that it is the wish to use cannabis that leads to tobacco addiction, tobacco being used initially as a means of facilitating cannabis smoking (see Chapter 6, Section 6.10). This pattern of use has been reported among some Aboriginal and Torres Strait Islander populations (see Chapter 8, Section 8.11.2). Similarly, recent Swiss research among young cannabis users found the mixing of tobacco and cannabis in cannabis cigarettes to be very common, especially among daily tobacco smokers, with some current and former cannabis users perceiving cannabis to be more natural, less harmful and less addictive than tobacco.

Cannabis use has been linked with the transition from experimental to daily tobacco smoking in late teenage and early adult years. There is also evidence from a large school survey among Canadian adolescents that, compared with cannabis non-users, cannabis users were almost six times more likely to be current tobacco smokers, while those adolescents who concurrently use tobacco and cannabis may be more tobacco dependent. Victorian research found that adolescents and young adults who use cannabis on a regular basis are more likely to progress to tobacco initiation and dependence, even after controlling for obvious potential confounding factors such as peer
group and family influences. The authors of this study suggest a number of reasons why the behaviours may be interlinked, including the propensity for tobacco and tobacco to be used in combination, biological mechanisms, and nicotine functioning as a way of ameliorating symptoms of withdrawal from cannabis use. Recent research among Finnish twins suggests that several common genetic influences may be related to tobacco and cannabis (and other illicit drug) use; common and unique environmental factors were also very important, while the direct impact of tobacco smoking uptake explained most of the variation in the initiation of illicit drug use.

The connection between smoking and the use of other drugs is likely to be due to a combination of individual, social and environmental factors, including temperamental characteristics. For example, recent evidence from The Netherlands suggests young adolescents who report higher levels of hopelessness and sensation seeking are at higher risk for an early onset of substance and poly-substance use (including alcohol, tobacco and cannabis).

There is also some evidence that the biological changes in the brain caused by early exposure to nicotine may also influence neurological response to other drugs, such as alcohol and cannabis, and other drugs of abuse, leading to a greater risk of ongoing use and addiction.
References


