

TOBACCO USE IN YOUNG PEOPLE

Introduction

Tobacco smoking is the leading cause of preventable and premature death and a significant contributor to ethnic and socioeconomic disparities in health, both in New Zealand and internationally [345,346]. Most adult smokers started smoking in adolescence. Only one percent of smokers had their first cigarette after age 25 [346]. While many of the serious health consequences of smoking, such as lung cancer and heart disease, tend to affect older people, there are health consequences for young smokers. The US Surgeon General's 2012 report *Preventing tobacco use among youth and young adults* [346] concluded that there was sufficient evidence that smoking caused nicotine addiction beginning in adolescence and young adulthood, reduced lung function and lung growth during childhood and adolescence, and led to early abdominal atherosclerosis in young adults. The report found that the evidence suggested that smoking contributes to future use of marijuana and other illicit drugs and coronary atherosclerosis in adulthood and that smoking is not associated with weight loss.

Action on Smoking and Health New Zealand (ASH) has been monitoring year 10 student smoking since 1999. Youth smoking rates have declined almost every year over the period and the 2012 ASH figures are significantly lower than those for 2010. Smoking prevalence increased with decreasing socio-economic status and it was also highest among Māori young women. Findings from the New Zealand Year 10 survey in 2002 indicated that young people were more likely to smoke on a daily basis if their parents smoked (especially if both parents did), if they had pocket money of more than \$5 per week and their best friend smoked [347]. The 2006 New Zealand Year 10 survey found that exposure to second-hand smoke and lack of parental anti-smoking expectations were independently associated with smoking susceptibility and current smoking, and that receiving pocket money, and an absence of monitoring of expenditure were associated with smoking susceptibility and current smoking. Findings were similar whether or not one or more parents were smokers [348].

The following section uses data from the 1996, 2006, and 2013 Censuses to review the proportion of young people aged 15–24 years who were regular smokers. This section also uses the Action on Smoking and Health (ASH) survey data to review the prevalence of smoking in Year 10 (aged 14–15 years) secondary school students and the 2012/13 New Zealand Health Survey to describe the prevalence of daily smoking amongst young people aged 15–24 years.

Census Data

Data Source and Methods

Definition

Proportion of young people aged 15–24 years who were regular smokers

Data Source

Numerator: NZ Census: The number of young people aged 15–24 years who answered “yes” to the Census question “Do you smoke cigarettes regularly (that is one or more per day)?”

Denominator: NZ Census: The number of young people aged 15–24 years who were home on Census night

Notes on Interpretation

Note 1: Census data categorises those aged 15–24 years into two groups: smokers and non-smokers, with missing responses in this analysis being assigned to the non-smoking category. These data may, therefore, underestimate the proportion of smokers in this age group.

Note 2: Differences in the way ethnicity questions were structured between the 1996 and 2001 Censuses mean that ethnic specific rates for these two periods may not be strictly comparable. This must be kept in mind when interpreting the figures in the section which follows.



New Zealand Distribution and Trends

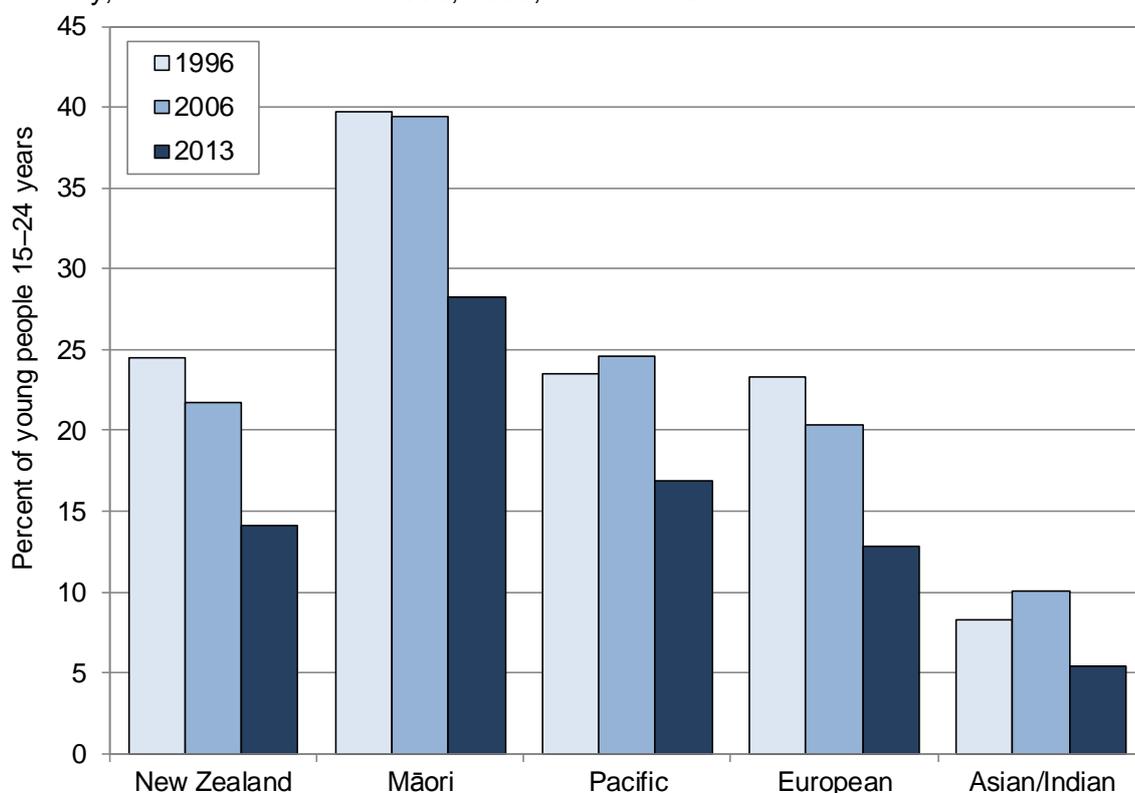
New Zealand Trends

In New Zealand, the proportion of young people who were regular smokers declined from 24.5% in 1996 to 14.1% in 2013 (**Figure 1**).

Distribution by Ethnicity

At the 2013 Census, 28.2% of Māori and 16.9% of Pacific young people were regular smokers, as compared to 12.8% of European and 5.4% of Asian/Indian young people. The proportion of Māori (RR 2.20 95% CI 2.17–2.23) and Pacific (RR 1.31 95% CI 1.28–1.34), young people who were regular smokers was *significantly higher* than for European young people. In contrast, rates for Asian/Indian young people (RR 0.42 95% CI 0.41–0.43) were *significantly lower* (**Figure 1, Figure 3, Table 1**). However, the proportion of young people who were regular smokers declined for all ethnic groups between 1996 and 2013.

Figure 1. Percent of young people aged 15–24 years who were regular smokers by ethnicity, New Zealand at the 1996, 2006, and 2013 Censuses



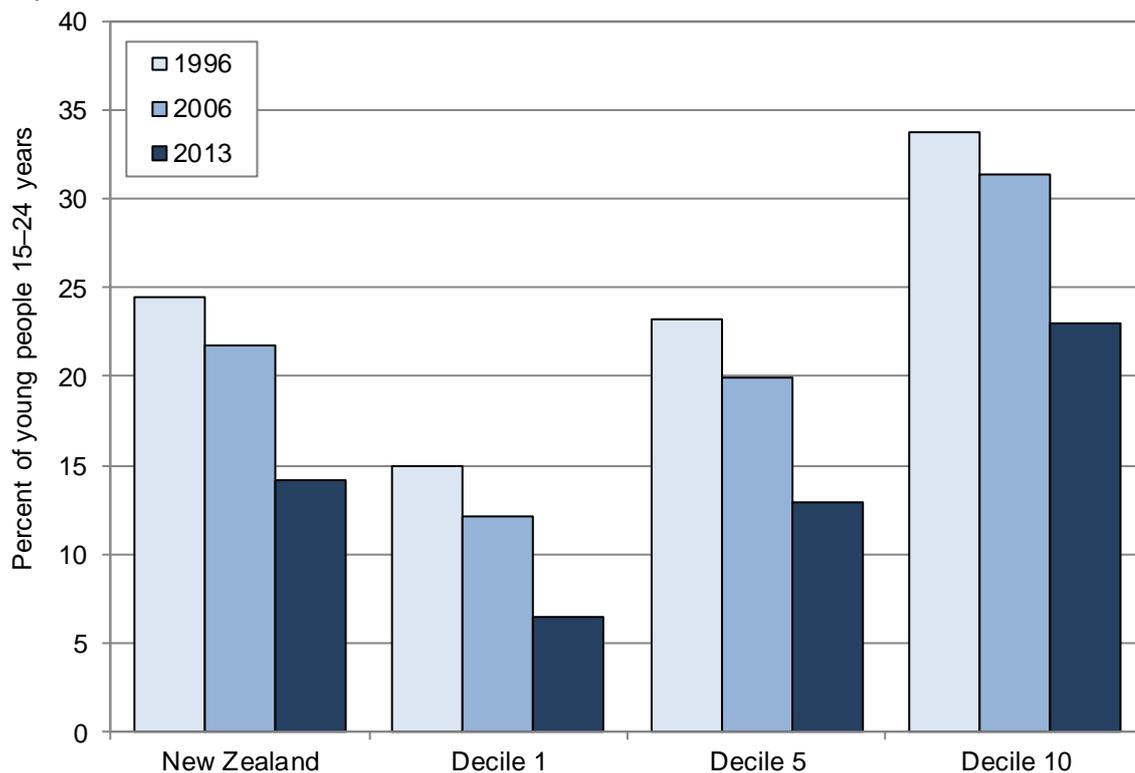
Source: Statistics New Zealand; Note: Ethnicity is level 1 prioritised

Distribution by NZ Deprivation Index Decile

At the 2013 Census, the proportion of young people who were regular smokers increased from 6.5% for those in the least deprived areas (NZDep decile 1) to 23.1% for those in the most deprived areas (NZDep decile 10). During this period, smoking rates for young people in the most deprived areas were 3.55 (95% CI 3.43–3.68) times higher than for those in the least deprived areas (**Figure 2, Figure 3, Table 1**).

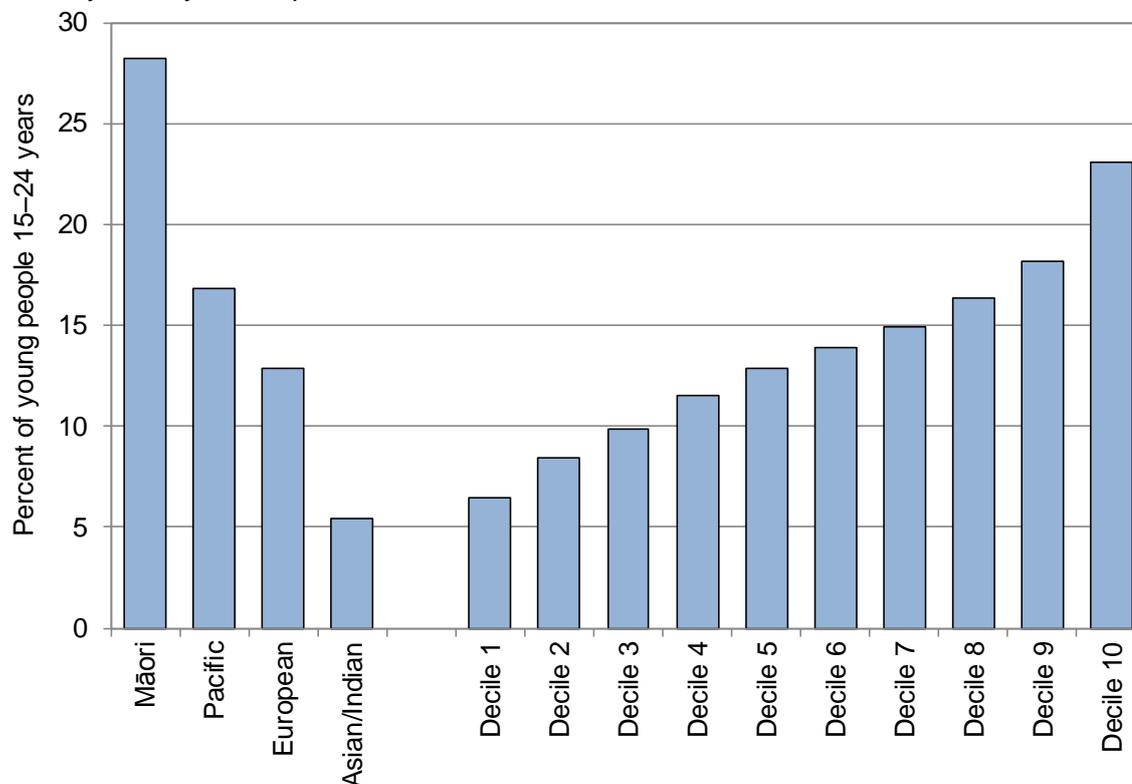


Figure 2. Percentage of young people aged 15–24 years who were regular smokers by NZ Deprivation Index decile, New Zealand at the 1996, 2006, and 2013 Censuses



Source: Statistics New Zealand; Note: Decile is NZDep13

Figure 3. Percentage of young people aged 15–24 years who were regular smokers by ethnicity and by NZ Deprivation Index decile, New Zealand at the 2013 Census



Source: Statistics New Zealand; Note: Ethnicity is level 1 prioritised; Decile is NZDep13

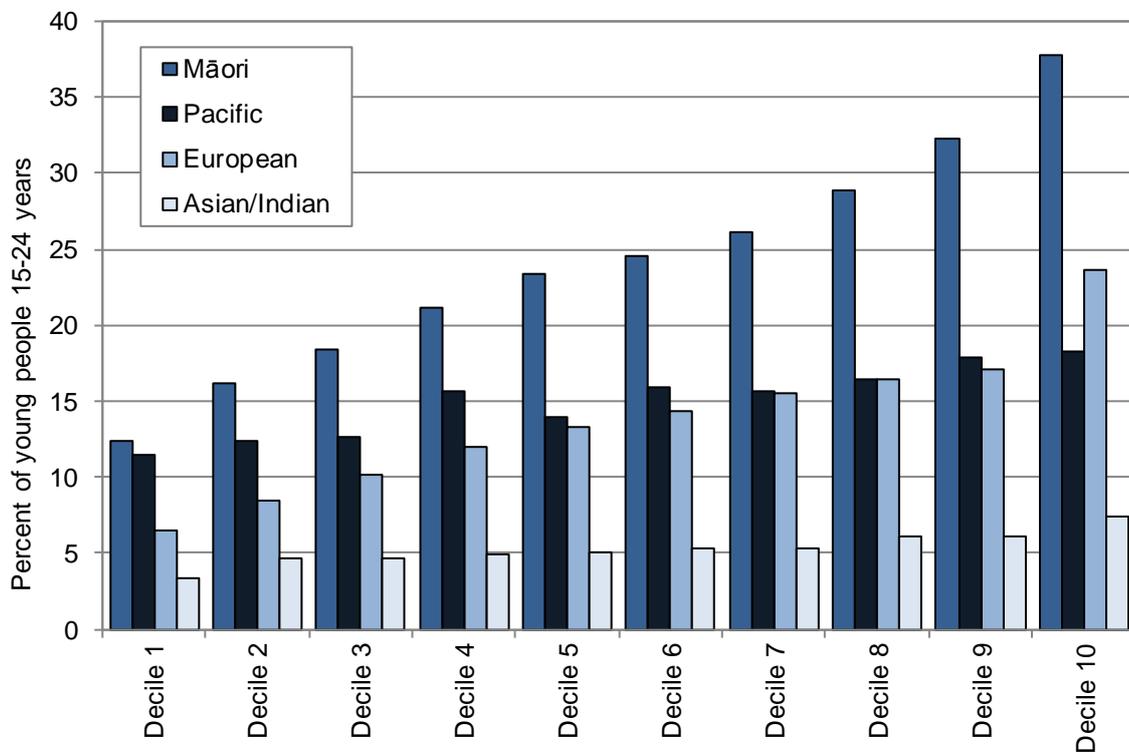


Table 1. Young people aged 15–24 years who were regular smokers by ethnicity and NZ Deprivation Index decile, New Zealand at the 2013 Census

Variable	Number of young people	Percent of young people	Rate ratio	95% CI
Young people aged 15–24 years who were regular smokers				
Ethnicity				
Māori	30,216	28.2	2.20	2.17–2.23
Pacific	7,857	16.9	1.31	1.28–1.34
Asian/Indian	4,302	5.4	0.42	0.41–0.43
European	39,423	12.8	1.00	
NZ Deprivation Index decile				
Decile 1	3,201	6.5	1.00	
Decile 2	4,404	8.4	1.30	1.25–1.36
Decile 3	5,100	9.8	1.52	1.46–1.58
Decile 4	6,057	11.5	1.78	1.71–1.85
Decile 5	7,122	12.9	1.98	1.91–2.06
Decile 6	7,803	13.9	2.14	2.06–2.23
Decile 7	8,925	15.0	2.31	2.22–2.40
Decile 8	10,908	16.4	2.53	2.43–2.62
Decile 9	13,095	18.2	2.80	2.70–2.91
Decile 10	16,260	23.1	3.55	3.43–3.68

Source: Statistics New Zealand; Note: Ethnicity is level 1 prioritised; Decile is NZDep13

Figure 4. Percentage of young people aged 15–24 years who were regular smokers by ethnicity and NZ Deprivation Index decile, New Zealand at the 2013 Census



Source: Statistics New Zealand; Note: Ethnicity is level 1 prioritised; Decile is NZDep13



Distribution by Ethnicity and NZ Deprivation Index Decile

At the 2013 Census, the proportion of young people who were regular smokers increased with increasing deprivation for each of New Zealand's ethnic groups. At each level of deprivation, however, a higher proportion of Māori > European and Pacific > Asian/Indian young people were regular smokers (Figure 4).

South Island DHBs Distribution and Trends

South Island DHBs Distribution

In the South Island at the 2013 Census, the proportion of young people who were regular smokers ranged from 11.0% in the Otago area to 21.2% in the Southland area. Rates were *significantly higher* than the New Zealand rate in Nelson Marlborough, South Canterbury, the West Coast, and in the Southland area, while rates were *significantly lower* in the Otago area (Table 2).

Table 2. Young people aged 15–24 years who were regular smokers, South Island DHBs vs. New Zealand at the 2013 Census

DHB/Area	Number of young people	Percent of young people	Rate ratio	95% CI
Young people aged 15–24 years who were regular smokers				
Nelson Marlborough	2,202	15.7	1.11	1.07–1.15
South Canterbury	1,056	17.4	1.23	1.17–1.30
Canterbury	9,588	14.4	1.02	1.00–1.04
West Coast	684	19.5	1.38	1.29–1.48
Otago	3,489	11.0	0.78	0.75–0.80
Southland	2,883	21.2	1.50	1.45–1.55
New Zealand	82,896	14.1	1.00	

Source: Statistics New Zealand

South Island DHBs Trends

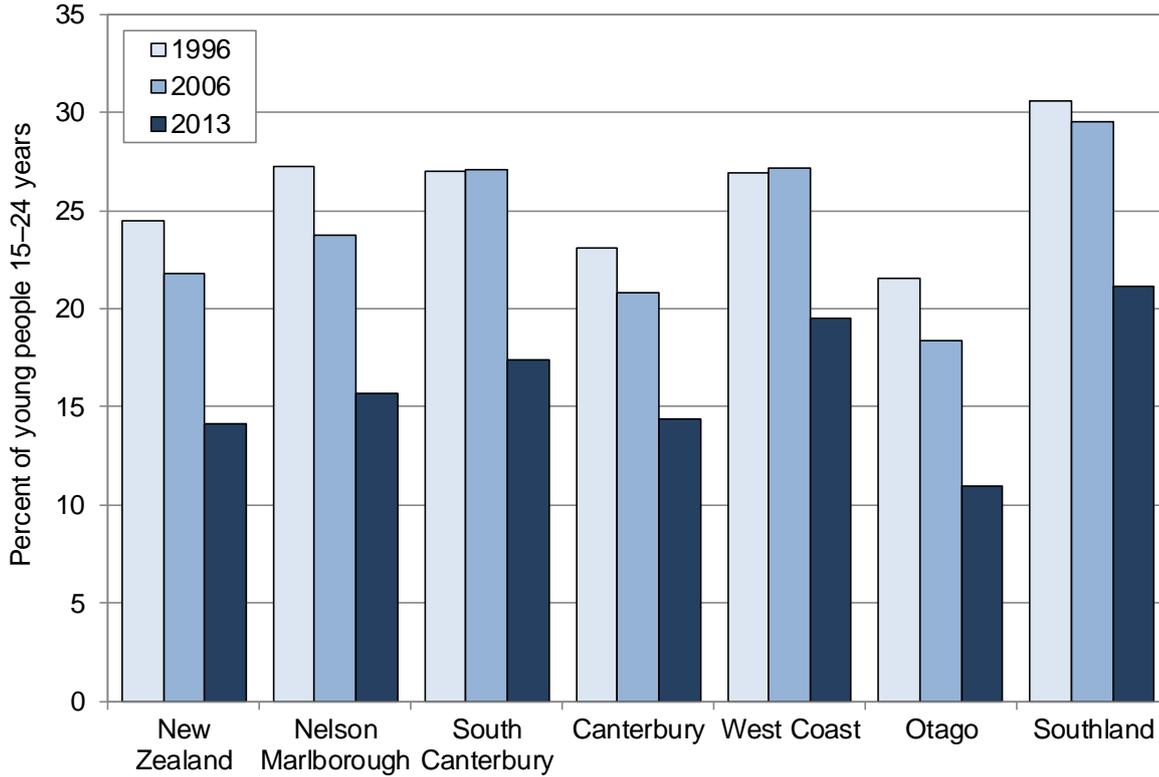
In all South Island DHBs, the proportion of young people who were regular smokers declined between 1996 and 2013, with the largest declines occurring between 2006 and 2013 (Figure 5).

Distribution by Ethnicity

In Canterbury, a higher proportion of Māori > Pacific > European > Asian/Indian young people were regular smokers at the 2013 Census, while in the remaining South Island DHBs, a higher proportion of Māori than European young people were regular smokers (Figure 6).

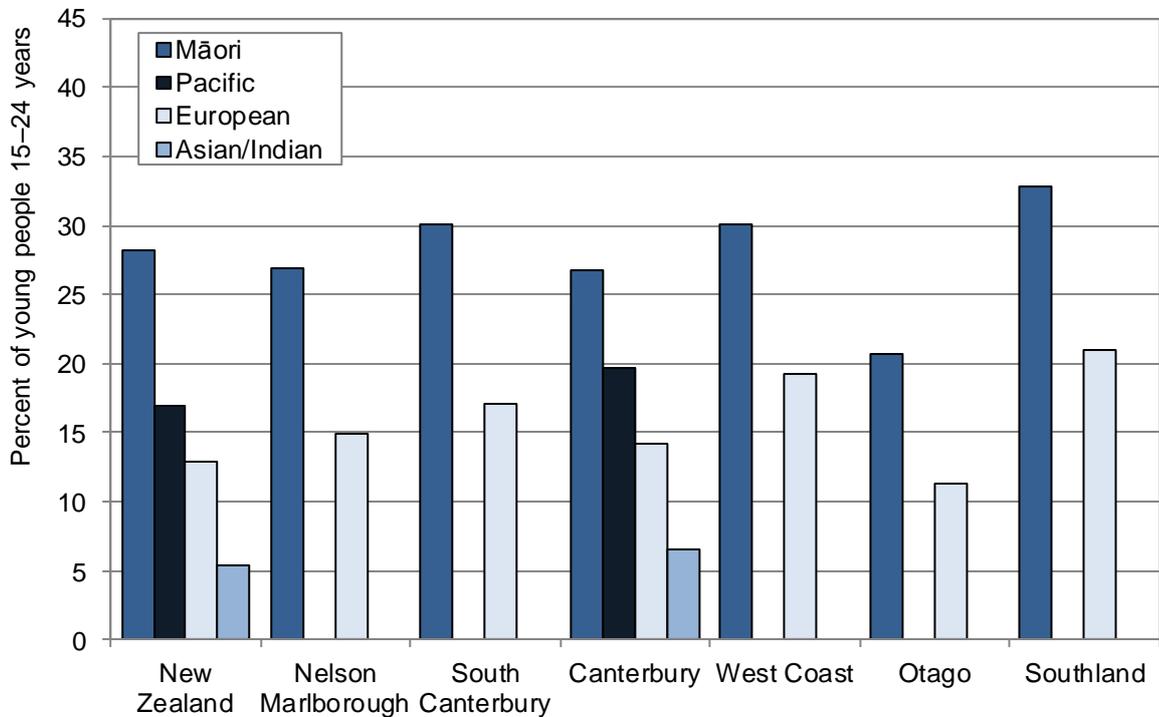


Figure 5. Percentage of young people aged 15–24 years who were regular smokers, South Island DHBs vs. New Zealand at the 1996, 2006 and 2013 Censuses



Source: Statistics New Zealand

Figure 6. Percentage of young people aged 15–24 years who were regular smokers by ethnicity, South Island DHBs vs. New Zealand at the 2013 Census



Source: Statistics New Zealand; Note: Ethnicity is level 1 prioritised



ASH Year 10 Survey

The Year 10 ASH Smoking Survey has been used to monitor smoking in 14 and 15 year old students since 1999. The survey samples around half of the secondary schools with Year 10 students in New Zealand, and sample sizes typically exceed 25,000 students each year [349]. The results reflect the smoking behaviour of secondary school students aged 14 and 15 years, and are useful for understanding trends and risk factors for smoking initiation.

Data Source and Methods

Definition

1. Proportion of Year 10 students who are daily smokers
2. Proportion of Year 10 students who have never smoked

Data source: ASH Surveys

Numerator: Number of Year 10 students who are daily smokers
Number of Year 10 students who have never smoked

Denominator: Number of Year 10 students surveyed

Notes on Interpretation

Note 1: Action on Smoking and Health (ASH) was established in 1982 with the aim of reducing smoking and smoking-related premature deaths. While the Ministry of Health provides funding for the annual national Year 10 Smoking Survey, ASH manages the data collection and oversees its analysis [349]. Since 1997, ASH has conducted annual surveys of smoking behaviour in Year 10 (14 to 15 year old) students, and since 1999 has collected information from more than 25,000 students annually.

Note 2: Questionnaires are self-administered and cover demographic variables as well as smoking-related issues. Survey forms with instructions are mailed to all secondary schools and teachers supervise the completion of the questionnaires by students. It has been suggested that such a design means it is not always clear how the sample has been selected and how consistently the survey has been administered, however, the large sample size and annual frequency makes the survey useful for monitoring smoking behaviour of Year 10 students in New Zealand, and a useful tool for understanding trends and risk factors for smoking initiation [350].

Note 3: In 2000 and 2001, over 70% of schools in NZ participated and of these, 70% of enrolled students took part [351]. Since then, however, participation rates have declined, with school response rates being 67% in 2002, 66% in 2003, 65% in 2004, 58% in 2005, 57% in 2006, 47% in 2007 and 54% in 2008. In 2008, compared to the national Year 10 population, Māori and low decile schools were underrepresented. This underrepresentation is likely to systematically bias the results of later surveys, with the proportion of young people living with parents who smoke, or in a home with smoking inside, likely to be increasingly underrepresented in these figures [352].

Note 4: The data presented in this section are based on the estimates for the whole population based on the Year 10 sample as reported by ASH, and are available from <http://www.ash.org.nz/>

New Zealand Distribution and Trends

New Zealand Trends

In New Zealand during 1999–2013 the proportion of Year 10 students who were daily smokers declined, from 15.6% in 1999 to 3.2% in 2013. Similarly, the proportion who had never smoked increased, from 31.6% in 1999 to 75.1% in 2013 (**Figure 9**).

Gender and Ethnicity

In New Zealand during 1999–2013, daily smoking rates for Māori and Pacific students were higher for females than for males, while rates for Asian students were higher for males. There were also marked ethnic differences in daily smoking during this period. The proportion of Māori and Pacific students that smoked daily were consistently higher than rates for NZ European and Asian students (**Figure 7**).

Daily smoking rates declined for students of all ethnic groups during 1999–2013. For Māori students, the rates fell from 30.3% in 1999 to 8.5% in 2013, and from 19.9% to 3.8% for Pacific students. The rates of students smoking daily declined from 12.9% in 1999 to 1.8% in 2013 for NZ European students, and from 7.0% to 1.0% for Asian students.



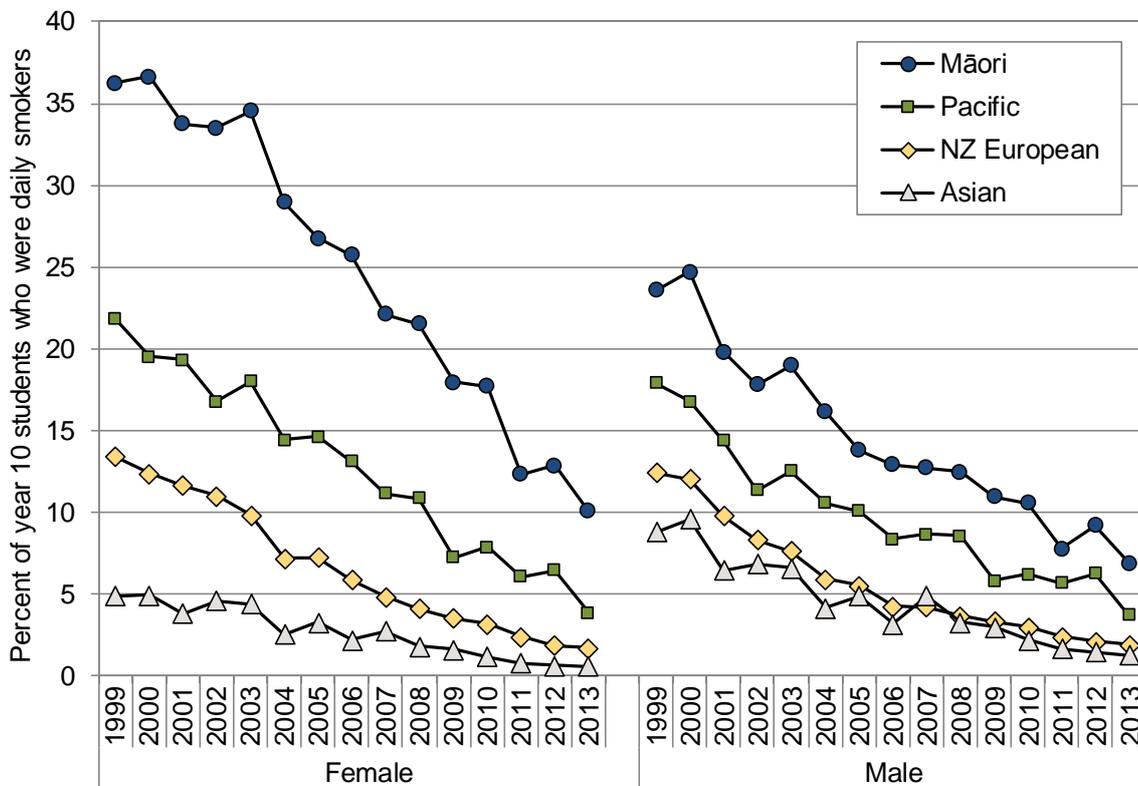
Gender and Socioeconomic Status

In New Zealand during 1999–2013, daily smoking rates were higher for students attending schools in the most deprived areas (school socioeconomic deciles 1–3), and lowest among the least deprived areas (school socioeconomic deciles 8–10).

While gender differences were again evident, these diminished as the level of deprivation decreased. Higher rates of daily smoking were seen for female students attending schools in the most deprived areas, and virtually disappeared in schools in the least deprived areas (Figure 8).

Daily smoking rates declined for students of all socioeconomic groups during 1999–2013. The percent of students smoking daily decreased from 23.5% in 1999 to 6.8% in 2013 among those attending schools in the most deprived areas, from 16.2% to 3.7% for students at schools in average areas, and from 11.8% to 1.6% for students from schools in the least deprived areas.

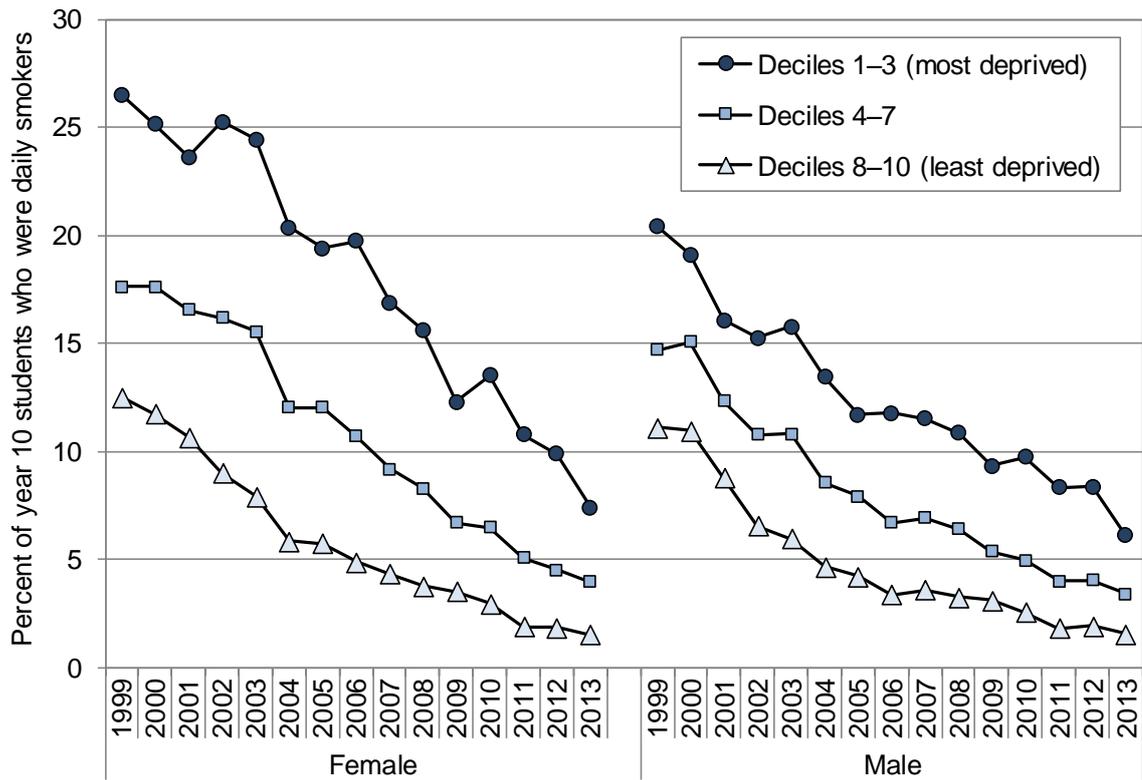
Figure 7. Percentage of Year 10 students who were daily smokers by gender and ethnicity, New Zealand 1999–2013



Source: ASH Year 10 surveys; Note: Ethnicity is prioritised



Figure 8. Percentage of Year 10 students who were daily smokers by gender and school socioeconomic decile, New Zealand 1999–2013



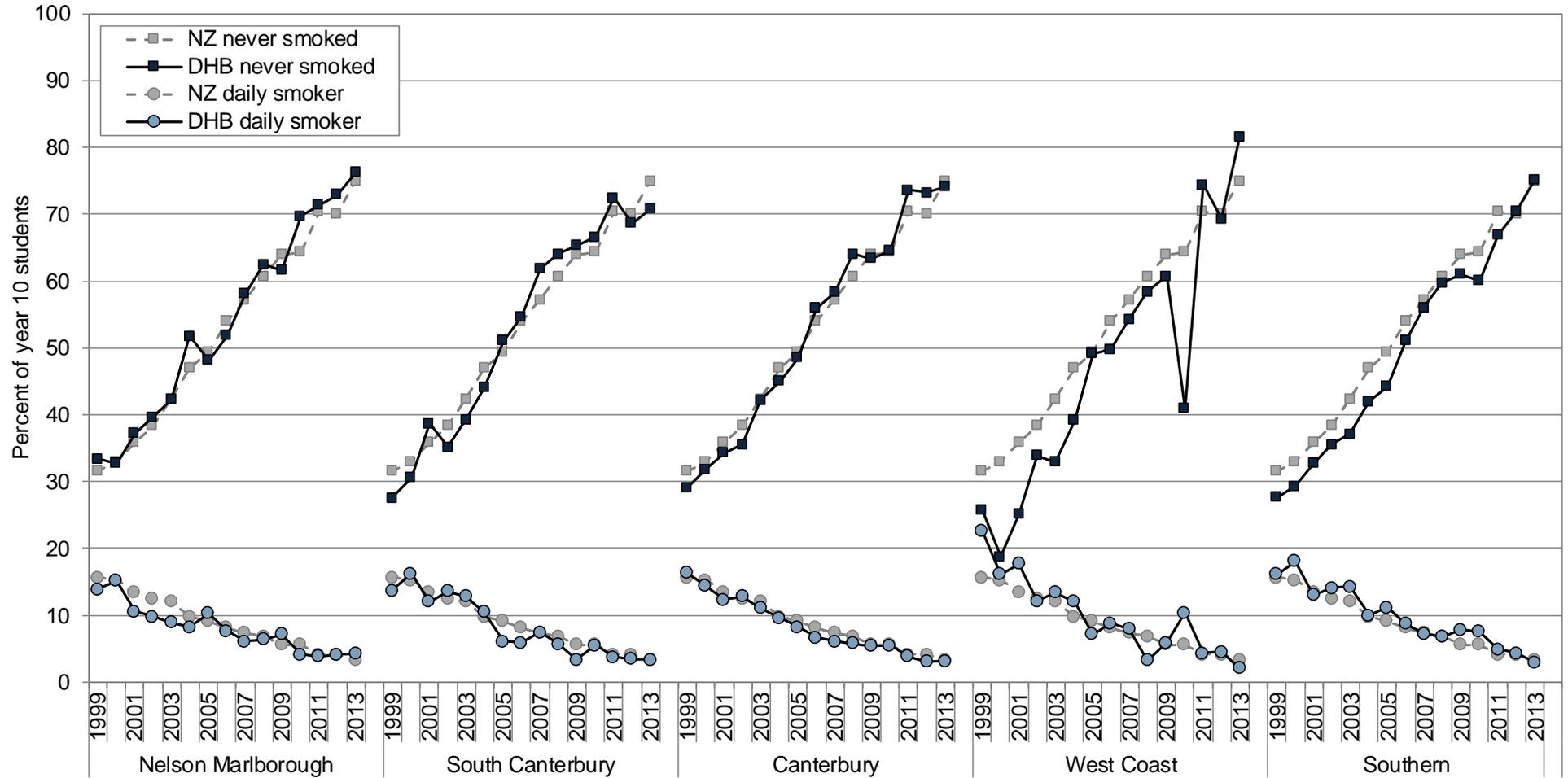
Source: ASH Year 10 surveys

South Island DHBs Distribution and Trends

In all South Island DHBs during 1999–2013, the proportion of Year 10 students who had never smoked increased, while the proportion who were daily smokers declined. During this period, the daily smoking rates in the South Island DHBs were similar to the New Zealand rate (Figure 9).



Figure 9. Percentage of Year 10 students who were daily smokers vs. never smoked, South Island DHBs vs. New Zealand, 1999–2013



Source: ASH Year 10 surveys

New Zealand Health Survey 2012/13

The New Zealand Health Survey provides a snapshot of the health of the New Zealand population, including children and young people. The NZ health survey utilises face-to-face questionnaires to sample approximately 13,000 adults and 4,000 children [335]. This section summarises presents the smoking behaviour of young people aged 15–24 years.

Data Source and Methods

Indicator
Daily smoking among young people aged 15–24 years (smokes daily and has ever smoked more than 100 cigarettes)

Data source: New Zealand Health Surveys 2011/12 and 2012/13

Numerator: Number of young people aged 15–24 years who are daily smokers

Denominator: Percent of adults aged 15 years and older

Notes on Interpretation

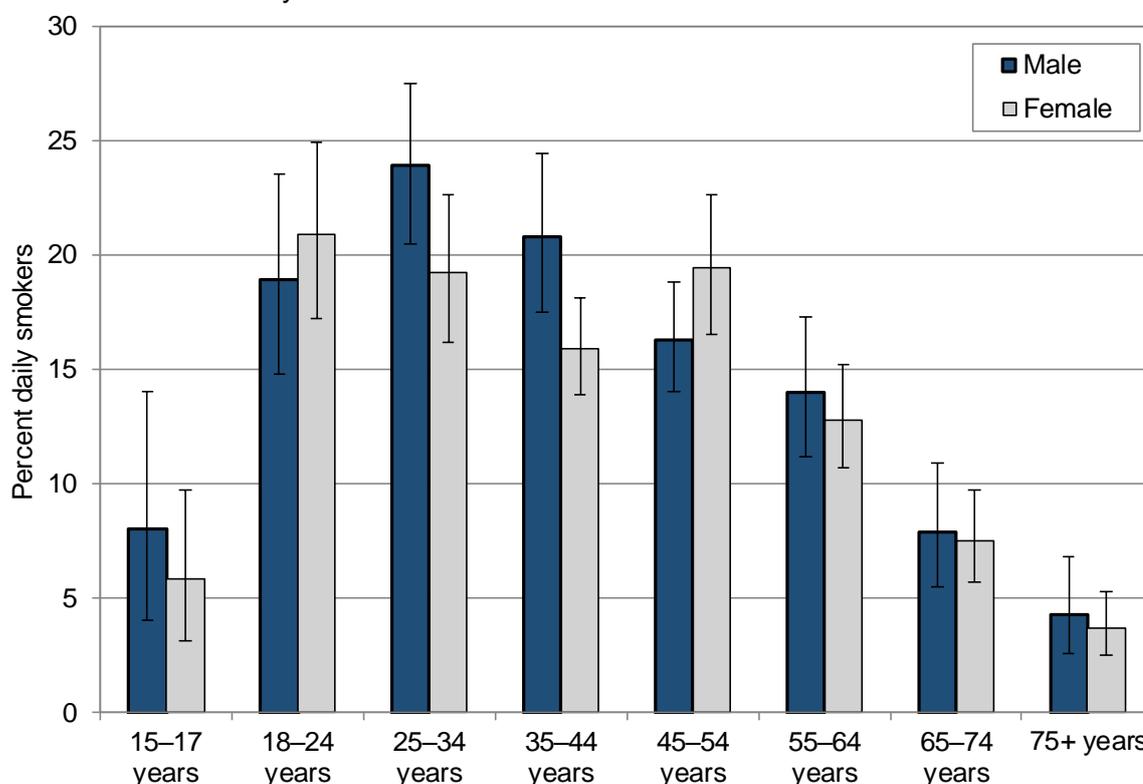
Note 1: the NZ Health Survey 2012/13 utilised face-to-face interviews to sample 13,009 adults and the parents/caregivers of 4,485 children during the period 1 July 2012 to 30 June 2013.

Note 2: The survey results refer to the usually resident population of all ages living in permanent dwellings, aged-care facilities and student accommodation. Those not included in the survey were: people living in institutions (such as for long-term hospital care, hospital- and dementia-level care in aged-care facilities, and in prisons), the homeless, short-term visitors and tourists [335].

New Zealand Distribution and Trends

Smoking rates remain low in youths and are declining in young adults (**Figure 10**) [335]. In 2012/13, the unadjusted daily smoking rate for 15–17-year-olds was 6.5% in 2011/12 and 7% for 2012/13 [335]. The unadjusted daily smoking rate among adults aged 18–24 years had *decreased significantly* from 24.4% in 2011/12 to 19.8% in 2012/13 ($p=0.04$) (**Figure 11**) [335].

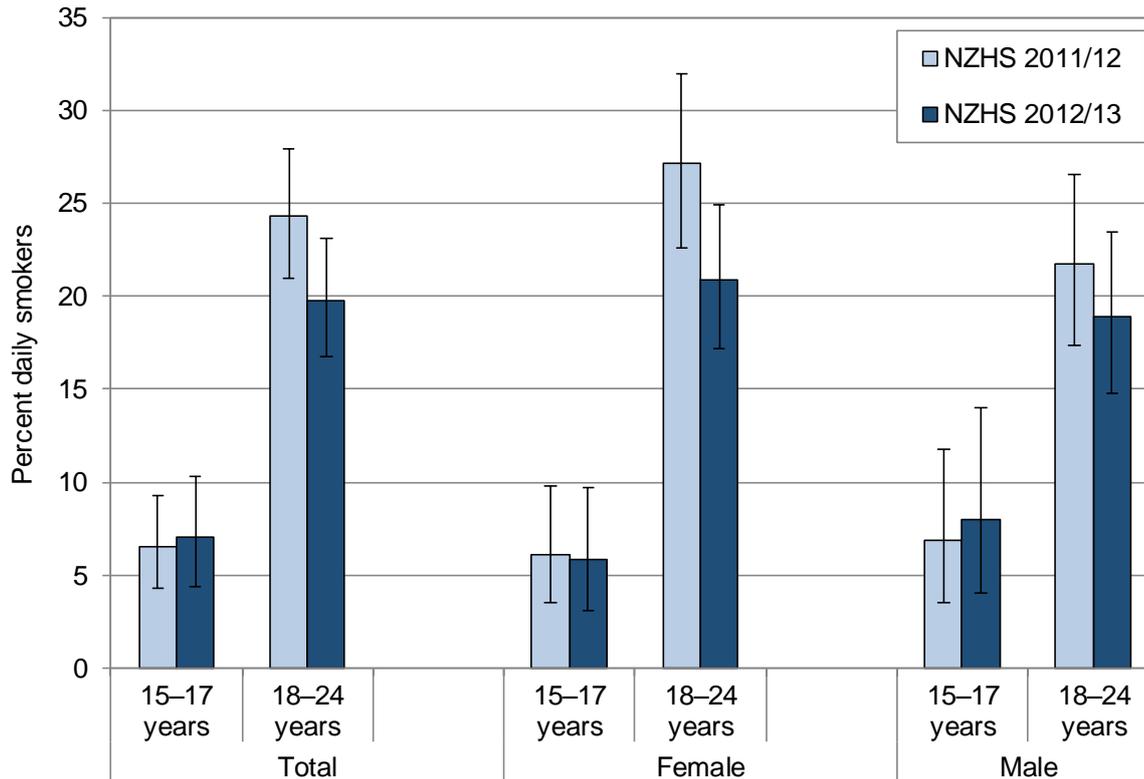
Figure 10. Percentage of population who are daily smokers by age-group and gender, New Zealand Health Survey 2012/13



Source: New Zealand Health Survey 2012/13 [335]



Figure 11. Percentage of young people aged 15–24 years who are daily smokers by age-group and gender, New Zealand Health Surveys 2011/12 and 2012/13



Source: New Zealand Health Surveys

Local Policy Documents and Evidence Based Reviews Relevant to the Prevention of Smoking in Young People

In New Zealand, there is no national strategy focused on the prevention of youth smoking. There are several policy documents addressing the prevention or cessation of cigarette smoking in general. In addition, a large number of evidence-based reviews consider smoking prevention and cessation in adolescents. **Table 3** (below) provides an overview of local policy documents and evidence-based reviews addressing the prevention of smoking in young people, and **Table 4** (page 326) addresses smoking cessation. Other chapters summarise publications addressing the cessation of smoking in pregnancy and the prevention of exposure to second-hand cigarette smoke in children.



Table 3. Local policy documents and evidence based reviews relevant to the prevention of smoking in young people

Ministry of Health publications
<p>Ministry of Health. 2012. Guidelines for Implementing the Prohibition on the Display of Tobacco Products 2012: Information for sellers of tobacco products and Smoke-free Enforcement Officers. Wellington: Ministry of Health. http://www.health.govt.nz/publication/guidelines-implementing-prohibition-display-tobacco-products</p> <p>These guidelines provide information to sellers of tobacco products to ensure that they understand the new obligations that were placed on them when the prohibition on tobacco displays came into force on 23 July 2012 following the passing of the Smoke-free Environments (Controls and Enforcement) Amendment Act 2011. The law introduced a complete ban on the display of tobacco products.</p>
International guidelines
<p>National Institute for Health and Care Excellence. 2010. School-based interventions to prevent smoking (PH 23). London: National Institute for Health and Care Excellence. http://publications.nice.org.uk/school-based-interventions-to-prevent-smoking-ph23</p> <p>This concise guidance on school-based smoking prevention interventions provides recommendations relating to organisation-wide or whole-school approaches, adult-led interventions, peer-led interventions, staff training and development, and having a coordinated approach. The recommendations cover: the target population, the people who should take action, and the actions they should take. Evidence statements for the recommendations are not included in the main text but can be found in appendix C. The supporting documents on which the guidance was based can be found in appendix E, which is not included in the downloadable PDF version of the guidance, but can be found at: http://guidance.nice.org.uk/PH23/SupportingEvidence .</p>
<p>National Institute for Health and Care Excellence. 2008. Preventing the uptake of smoking by children and young people (PH14). London: National Institute for Health and Care Excellence. http://publications.nice.org.uk/preventing-the-uptake-of-smoking-by-children-and-young-people-ph14/introduction</p> <p>This guidance focused particularly on mass-media and point-of-sale measures to prevent the uptake of smoking by children and young people. It intended for a wide audience: those in the health sector, the criminal justice system, local authorities, and the wider public, voluntary and community sectors, as well as those working in retail or the mass media. The mass-media recommendations cover campaign development, campaign messages and campaign strategies, and the point-of-sale recommendations cover illegal and under-age sales. Evidence statements for the recommendations are not included in the main text but can be found in appendix C. Links to the supporting evidence for the guideline (appendix E), which is not included in the downloadable PDF version of the guidance, can be found at: http://guidance.nice.org.uk/PH14/SupportingEvidence.</p>
Evidence-based medicine reviews
<p>Thomas RE, McLellan J, Perera R. 2013 School-based programmes for preventing smoking. Cochrane Database of Systematic Reviews, 4, DOI: 10.1002/14651858.CD001293.pub3. http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD001293.pub3/abstract</p> <p>This review included 134 RCTs involving 428,293 participants aged 5–18 years. The review authors considered the studies in three groups: “pure prevention cohort”, “change in smoking behaviour” and “point prevalence of smoking”. Pooled results of the 49 “pure prevention” studies (142,447 participants) indicated no overall effect of the intervention at one year or less: odds ratio (OR) 0.94, 95% CI 0.85–1.05, but a significant effect at longest follow-up: OR 0.88, 95% CI 0.82–0.96, indicating a 12% absolute reduction in starting smoking in the intervention groups. Sub-group analyses indicated that programmes that combined a social competence with a social influence approach were more effective, both at 12 months (six trials/seven arms, OR 0.49, 95% CI 0.28–0.87), and at longest follow-up (eight cluster-RCTs/10 arms, OR 0.50, 95% CI 0.28–0.87), while there was a significant effect of social competence curricula only at longest follow up (OR 0.52, 95% CI 0.30–0.88). Studies that used social influences programmes, multimodal interventions or information-only approaches found no overall effect at any time point. Fifteen cluster RCTs (45,555 participants) reported on change in smoking behaviour. Their results indicated no overall effect at longest follow up and a small, but statistically significant effect in favour of the controls at 12 month follow up, however there were positive findings for social competence and combined social competence and social influences interventions. Twenty-five studies reported data on point prevalence of smoking. Due to heterogeneity their data could not be pooled.</p>
<p>Thomas RE, Lorenzetti DL, Spragins W. 2013. Systematic Review of Mentoring to Prevent or Reduce Tobacco Use by Adolescents. Academic pediatrics, 13(4), 300–07.</p> <p>Mentoring has been defined as: “A personal relationship in which a caring individual provides consistent companionship, support, and guidance aimed at developing the competence and character of a child or adolescent” [353]. This review identified four RCTs, two focusing exclusively on tobacco, and the other on both tobacco and drug use reductions. Only one study, of mentoring by peers in UK year 8 students, reduced adolescent smoking. The other three studies were underpowered, with the largest having fewer than 200 participants. The review authors concluded that, at best, modest effects can be expected from mentoring programmes that train and monitor mentors and have carefully structured interventions. They stated that further research is needed.</p>

U.S Department of Health and Human Services. 2012. **Preventing tobacco use among youth and young adults: A report of the Surgeon General**. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health. http://www.cdc.gov/tobacco/data_statistics/sgr/2012/index.htm

This report includes an extensive review of the effectiveness of interventions to promote smoking cessation in adolescents. Cognitive behavioural strategies and achieving sufficient dosage of programming (number of sessions) appeared to be important. There was little evidence of the efficacy of pharmacological adjuncts in youth smoking cessation and gaps in the evidence include longer term follow up and how to effectively recruit young smokers to intervention programmes.

Patnode C D, O'Connor E, Whitlock E P, et al. 2012. **Primary Care Relevant Interventions for Tobacco Use Prevention and Cessation in Children and Adolescents: A Systematic Evidence Review for the U.S. Preventive Services Task Force. Evidence Synthesis No. 97. AHRQ Publication No. 12-05175-EF-1**. Rockville, MD: Agency for Healthcare Research and Quality. <http://www.ncbi.nlm.nih.gov/books/NBK114973/>

This review included 19 controlled trials of interventions designed to prevent smoking uptake and/or encourage smoking cessation in young people that were conducted in, or potentially feasible for (or referable from), health care settings and that reported tobacco use prevalence or a similar outcome at least six months after the intervention. Almost all the trials were conducted in the US. The intervention components and settings were very heterogeneous. Seven fair quality trials evaluated combined prevention and cessation interventions. A pooled analysis of the data from six of them (8,749 participants) indicated a non-significant difference in smoking prevalence between the intervention and the control group at 6–12 months follow up. Pooled analysis of data from the nine suitable prevention trials (26,624 participants) suggested a small reduction in smoking initiation at 6–12 months: (risk ratio, 0.81; 95% CI 0.70–0.93). The review authors stated that: "Overall, methodological differences between the included trials limits our ability to determine if the relatively small effect found on smoking initiation in this subset of trials represents true benefit across this body of literature. In particular, the measurement of smoking status, including what constituted smoking initiation and cessation, varied across all studies. In addition, the diversity of both the components and the intensity of the interventions limit our ability to draw conclusions about common efficacious elements".

Johnston V, Liberato S, Thomas D. 2012. **Incentives for preventing smoking in children and adolescents**. Cochrane Database of Systematic Reviews doi:10.1002/14651858.CD008645.pub2
<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD008645.pub2/abstract>

The authors of this review identified seven controlled trials meeting their inclusion criteria, with participants aged 11–14 years. All except one were trials of the "Smokefree Class Competition" (SFC), which was co-funded by the European Commission from 1997–2009 and carried out in 22 European countries. The school-based competition involves classes of young people generally aged 11–14 who commit to being smoke-free for six months. They report regularly on their progress and if 90% or more of the class is non-smoking at six months the class enters a draw to win prizes. Only five SFC trials had data that could be used in meta-analysis (3 RCTs and 2 non-randomised controlled trials). Pooled data from the three RCTs (1,108 participants) indicated no significant long term effect of incentives on smoking uptake at longest follow-up: RR 1.00, 95% CI 0.84–1.19. Pooled results from the two non-randomised trials (1,025 participants) also indicated no significant effect: RR 0.81, 95% CI 0.61–1.08. The review authors were unable to extract data on smoking status of young people who reported not smoking at baseline from the one trial that did not study the SFC. They stated that there was little robust evidence to indicate unintended consequences of these interventions, such as bullying of smoking students or students lying about their smoking status, although this had not been the focus of much research. They concluded that, to date, incentives have not been shown to prevent smoking uptake in young people as there have been relatively few studies in this area and they have been of variable quality.

Carson KV, et al. 2012. **Interventions for tobacco use prevention in Indigenous youth**. Cochrane Database of Systematic Reviews doi:10.1002/14651858.CD009325.pub2
<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009325.pub2/abstract>

This review assessed the effectiveness of intervention programmes to prevent tobacco use initiation or progression to regular smoking amongst young indigenous populations. Two RCTs (1,505 participants) met inclusion criteria. Both studies were based in Native American populations and employed multi-component community-based interventions tailored to the specific cultural aspects of the population. No difference was observed in weekly smoking at 42 months follow up in the one study assessing this outcome (skills-community group versus control: RR 0.95, 95% CI 0.78–1.14; skills only group versus control: RR 0.86, 95% CI 0.71–1.05). Positive change found in the second study at post-test was not maintained at six month follow up. Given the paucity of evidence the authors concluded that methodologically rigorous trials are needed to investigate interventions aimed at preventing the uptake of tobacco use amongst indigenous youth and to assist in bridging the gap between tobacco-related health disparities in indigenous and non-indigenous populations.

Lovato C, et al. 2011. **Impact of tobacco advertising and promotion on increasing adolescent smoking behaviours**. Cochrane Database of Systematic Reviews doi:10.1002/14651858.CD003439.pub2
<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003439.pub2/abstract>

This review identified 19 longitudinal studies that assessed individuals' smoking behaviour and exposure to advertising, receptivity or attitudes to tobacco advertising, or brand awareness at baseline, and assessed smoking behaviour at follow ups. The studies followed over 29,000 baseline non-smokers aged 18 and under. In 18 of studies participants who were more aware of or receptive to tobacco advertising, were more likely to have experimented with cigarettes or become smokers at follow up, supporting a causal link between advertising and tobacco use in young people.

Carson KV, et al. 2011. **Community interventions for preventing smoking in young people**. Cochrane Database of Systematic Reviews doi:10.1002/14651858.CD001291.pub2
<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD001291.pub2/abstract>

This 2011 update reviewed trials comparing the effectiveness of multi-component community interventions with single component or school-based only interventions in influencing smoking behaviour in young people, including preventing uptake. The interventions used co-ordinated, widespread, multi-component programmes which aimed to influence behaviour. The programmes included education of retailers, mass media, school and family-based components, and there was often community involvement in planning and/or implementation. Twenty-five studies (15 RCTs and 10 non-randomised controlled trials) were included in the review. Ten of them were associated with a reduction in smoking uptake in the intervention group. Changes in intentions to smoke, knowledge, attitudes and perceptions about smoking did not generally appear to affect long-term smoking behaviour. Overall there was some evidence to support the effectiveness of community interventions but the review authors stated that the evidence was not strong and had a number of methodological flaws. The authors identified the strong influence of local factors and likely difficulties with replication of interventions but suggested the principles and methods on which successful interventions are based may be useful in programme implementation in similar settings.

Brinn MP, et al. 2010. **Mass media interventions for preventing smoking in young people**. Cochrane Database of Systematic Reviews doi:10.1002/14651858.CD001006.pub2
<http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD001006/frame.html>

This updated review evaluated the effectiveness of mass media interventions to prevent smoking in young people. The primary outcome was reduced smoking uptake, and secondary outcomes included improved attitudes and behaviours. Seven controlled trials (approximately 49,398 participants) met the inclusion criteria. Three studies reported a reduction in smoking behaviour in young people. Common features of successful campaigns included using multiple channels for media delivery, combining school and media interventions and repeated exposure to campaign messages delivered to the same cohort of students over a minimum of three years. The authors stated that the evidence for mass media campaigns aimed at young people was not strong and had a number of methodological flaws. They offered recommendations for planning and evaluating future campaigns.

Uthman O, Yahaya I, Pennant M, et al. 2009. **School-based interventions to prevent the uptake of smoking among children and young people: effectiveness review**. Birmingham: West Midlands Health Technology Assessment Collaboration, University of Birmingham <http://www.nice.org.uk/nicemedia/live/12827/47624/47624.pdf>

This rapid review was used to develop the NICE guidance above. It includes 64 RCTs published between 1990 and November 2008, investigating a wide variety of school-based interventions and reporting various smoking outcomes. The review found that there was evidence that interventions may be effective but the authors noted that the studies which found the greatest effect of an intervention tended to be of lower quality. The review found no clear evidence to suggest that any particular conceptual model is more effective than any other conceptual model intervention compared to usual education. There was moderate evidence from five RCTs indicating that multi-component interventions with both school and community components, with or without an additional family component, were ineffective at preventing smoking uptake compared to usual education. The evidence on the effectiveness of interventions with both school and family components in preventing smoking uptake compared to usual education was inconclusive, as was the evidence on whether school-based programmes were delaying rather than preventing smoking. There was no robust evidence that school-based interventions have long-lasting effects beyond school leaving age. It was unclear whether the status of the person delivering the intervention affected effectiveness. Intervention effectiveness did vary with location in a number of studies but not in a consistent way. There was clear evidence that booster session enhanced effectiveness of main programmes. There was no clear evidence that age of students at intervention or at follow-up affected effectiveness. There was limited evidence on adverse effects of interventions as no studies specifically examined adverse or unintentional effects but two studies found students exposed to interventions were more likely to smoke.

Stead LF & Lancaster T. 2008. **Interventions for preventing tobacco sales to minors**. Cochrane Database of Systematic Reviews doi:10.1002/14651858.CD001497.pub2
<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD001497.pub2/abstract>

This review assessed the effect of interventions aimed at reducing underage access to tobacco by deterring retailers from making illegal sales. Outcomes included both changes in retailer compliance assessed by test purchasing, and changes in young people's smoking behaviour and their perceived ease of access. Thirty-five studies, fourteen of which had a control group, were included in the review. Active enforcement and/or multi-component educational strategies were more effective than information for retailers alone. While sales were reduced, none of the communities studied achieved complete, sustained compliance. Data from three trials indicated little evidence for an effect of retailer interventions on youth perceptions of ease of access to tobacco, or on smoking behaviour.

Richardson L, Allen P, McCoullough L, et al. 2008. **NICE Rapid Review: Interventions to prevent the uptake of smoking in children and young people**. Vancouver: British Columbia Centre of Excellence for Women's Health.
<http://www.nice.org.uk/nicemedia/live/12020/41335/41335.pdf>

This review, which was used to develop the NICE guidance above, examines the effectiveness of (a) mass media interventions designed to prevent the uptake of smoking in children and young people and (b) interventions designed to prevent the illegal sale of tobacco to children and young people. It is based on a review of 60 studies (40 on mass media and 20 on access restrictions) that were identified as being relevant, as well as interviews with key informants. Included studies were of various types: RCTs, meta-analyses, systematic reviews, case-control studies, cohort studies, controlled before-and-after studies, interrupted time series studies, qualitative studies and cross sectional studies.

Other relevant publications

Gray RJ, Hoek J, Edwards R. 2014. **A qualitative analysis of 'informed choice' among young adult smokers.** Tobacco Control. <http://tobaccocontrol.bmj.com/content/early/2014/09/10/tobaccocontrol-2014-051793.abstract>

This paper reports on a qualitative New Zealand study which involved in-depth interviews with fifteen young adults who had started smoking since turning 18 and therefore might be considered to have made an "adult choice" to smoke. The study found that although the study participants knew that smoking is generally harmful and were aware of some specific risks, they rarely considered these risks to be personally relevant when they started smoking, and few had made a deliberate decision to become smokers. Because they had a poor understanding of addiction, most believed that their smoking was a short term phase that they could stop at will. Participants typically began smoking in situations which discouraged informed choice, such as when they had been drinking or were in socially pressured situations. The researchers conclude that cognitive and contextual factors limited young adults' ability to make an "informed choice" at the time they began smoking. They proposed an updated informed choice framework that recognised these factors and suggested that measures to dissociate smoking from alcohol consumption such as restricting smoking in outdoor bar areas and restricting tobacco sales in alcohol outlets could be useful as well as reframing public health messages to make the risks of smoking appear more immediate and use affective rather than cognitive arguments, such as implying that smoking undermines a young adult's desire for control over their lives and self-assertion.

Marck K, Glover M, Kira A, et al. 2014. **Protecting children from taking up smoking: parents' views on what would help.** Health Promotion Journal of Australia, 25(1), 59–64. <http://www.publish.csiro.au/paper/HE13029>

This study investigated the opinions of the parents of children in low-income areas of Auckland on factors which could help prevent their children from taking up smoking, using a free text section in a questionnaire. There were 1806 parents who filled in this section, 70% of those who returned the questionnaire. Most respondents (80%) were Māori or Pacific mothers and 25% were smokers. The parents' suggestions fell into five main categories: increasing children's knowledge of the harms of smoking, denormalising smoking, reducing access to tobacco, building children's resilience, and health promotion activities. The most common suggestion was to inform children about the risk of smoking.

Virginia A. Moyer and on behalf of the U.S. Preventive Services Task Force. 2013. **Primary Care Interventions to Prevent Tobacco Use in Children and Adolescents: U.S. Preventive Services Task Force Recommendation Statement.** Pediatrics doi:10.1542/peds.2013-2079
<http://pediatrics.aappublications.org/content/early/2013/08/20/peds.2013-2079.full.pdf>

This recommendation statement from the USPSTF is based on the systematic review by Patnode et al. (above). The USPSTF found that there was adequate evidence that behavioural counselling interventions, such as face-to-face or phone interaction with a health provider, print materials, and computer applications, can reduce the risk of starting smoking in school-aged children and adolescents. They recommend that primary care clinicians provide smoking prevention interventions, including education or brief counselling (a B grade recommendation).

Bauld L, Branding J, Templeton L. 2009. **Facilitators and barriers to the delivery of school-based interventions to prevent the uptake of smoking among children: A systematic review of qualitative research.** Bath: UK Centre for Tobacco Control Studies. <http://www.nice.org.uk/nicemedia/live/12827/47627/47627.pdf>

This qualitative review was used to inform the NICE guidance above. It is based on a review of 21 qualitative studies of variable quality. Findings are grouped into six themes: delivery context of the intervention, characteristics of the young people receiving the intervention, peer interventions, delivery mechanisms, smokefree schools, and programme content. For each theme, facilitator and barriers are identified.

Note: The publications listed above were identified using the search methodology outlined in Appendix 1.

Table 4. Local policy documents and evidence-based reviews relevant to smoking cessation in young people

Ministry of Health publications
<p>Ministry of Health. 2014. The New Zealand Guidelines for Helping People to Stop Smoking. Wellington: Ministry of Health. http://www.health.govt.nz/publication/new-zealand-guidelines-helping-people-stop-smoking</p> <p>These brief, 6-page guidelines are intended for frontline health workers and are an update of the 2007 New Zealand Smoking Cessation Guidelines. They state that all health care workers, regardless of their location, specialty or seniority, have a responsibility to help people who want to stop smoking. They are structured around the ABC pathway: Ask about smoking status, give Brief advice to stop smoking, and encourage smokers to use Cessation support and offer to help them access it. Further information supporting the recommendations can be found in Background and Recommendations of The New Zealand Guidelines for Helping People to Stop Smoking document (see below).</p>
<p>Ministry of Health. 2014. Background and Recommendations of the New Zealand Guidelines for Helping People to Stop Smoking. Wellington: Ministry of Health. http://www.health.govt.nz/system/files/documents/publications/background-and-recommendations-of-the_new-zealand-guidelines-for-helping-people-to-stop-smoking.pdf</p> <p>The recommendations and supporting information in this document are based on a 2013 review by West et al. for the UKCTAS on the effectiveness and affordability of interventions for smoking cessation, together with information from the literature review for the 2007 New Zealand Guidelines. Each recommendation is graded according to the system developed by the Australian NHMRC.</p>
<p>Ministry of Health. 2014. Guide to Prescribing Nicotine Replacement Therapy (NRT). Wellington: Ministry of Health. http://www.health.govt.nz/system/files/documents/publications/guide-to-prescribing-nrt-jun14.pdf</p> <p>This brief publication outlines the process for prescribing nicotine replacement therapy (NRT). It includes the questions health care workers should ask their patients or clients and the dosage different patients or clients should be prescribed. It also shows the right way to fill out a Quit Card (which patients or clients can use to get subsidised NRT).</p>
<p>Ministry of Health. 2014. The ABC Pathway: Key messages for frontline health care workers. Wellington: Ministry of Health. http://www.health.govt.nz/system/files/documents/publications/abc-pathway-for-frontline-health-care-workers-jun14.pdf</p> <p>This document is intended frontline health workers. It provides key messages about the “ABC” approach for helping people stop smoking. In addition to “general messages”, it provides key messages for maternity services, mental health services, emergency departments, surgical services and cancer services.</p>
Evidence-based medicine reviews
<p>Stanton A, Grimshaw G. 2013. Tobacco cessation interventions for young people. Cochrane Database of Systematic Reviews doi:10.1002/14651858.CD003289.pub5 http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003289.pub5/abstract</p> <p>This review aimed to evaluate the effectiveness of interventions for smoking cessation in young people. It included 20 trials involving regular smokers aged < 20 years (14 RCTs, 12 cluster RCTs and 2 controlled trials). Many interventions included multiple components from various theoretical backgrounds. The majority used some form of motivational enhancement together with psychological support such as cognitive behavioural therapy (CBT). Some were tailored to stage of change using the trans-theoretical model (TTM). The three trials based mainly on TTM interventions (1,662 participants) had a pooled risk ratio (RR) of 1.56 at one year (95% CI 1.21–2.01). Meta-analysis of the 12 trials (2,667 participants) that included motivational enhancement gave an estimated risk ratio (RR) of 1.60 (95% CI 1.28–2.01) at six months or more. The results of the 13 trials of complex interventions that included CBT could not be pooled due to clinical heterogeneity. Individually, none of them achieved statistically significant results. Pooling the results of six studies of the Not on Tobacco programme gave a marginally significant result: (RR of 1.31, 95% CI 1.01–1.71) although the review authors noted that in three of these trials abstinence for as little as 24 hours at six months was considered a positive outcome. One small trial of nicotine replacement therapy and two trials of bupropion did not find significant effects. The authors concluded that complex approaches were promising, especially those that incorporated elements sensitive to stage of change and used CBT and motivational enhancement. They stated that there is not yet sufficient evidence to recommend any one particular model and that further research is needed to provide better data on sustained quitting.</p>
<p>Civiljak M, Stead Lindsay F, Hartmann-Boyce J, et al. 2013. Internet-based interventions for smoking cessation. Cochrane Database of Systematic Reviews doi:10.1002/14651858.CD007078.pub4 http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD007078.pub4/abstract</p> <p>This review included 28 studies with over 45,000 participants (RCTs and quasi-RCTs). Fifteen trials compared an Internet intervention to either a non-Internet smoking cessation intervention or no intervention. Ten involved adults, one young adult university students and two, adolescents. Neither of the two small trials in adolescents detected an effect of the intervention. A post-hoc analysis, which pooled results from three trials in adults (3,631 participants) comparing an interactive tailored Internet intervention with usual care or printed self-help material, indicated a statistically significant effect in favour of the intervention: risk ratio (RR) 1.41, 95% CI 1.11–1.78, but all three trials were judged to be at high risk of bias in one domain, and all measured self-reported smoking as the outcome.</p> <p>Pooled results of two studies (686 participants) comparing an interactive Internet intervention that included automated phone contact with non-active control also indicated a significant effect: RR 2.05, 95% CI 1.42–2.97. None of the other trials comparing an Internet intervention to a non-Internet intervention or no intervention found a significant effect on</p>

<p>smoking cessation. Fourteen trials, all in adults, compared different Internet interventions. Meta-analysis was possible for three trials which compared a tailored and/or interactive Internet programme with a non-tailored, non-interactive Internet programme and the results indicated no beneficial effect: RR 1.12, 95% CI 0.95–1.32. One trial found evidence of a benefit from a tailored email compared to a non-tailored one but another compared tailored messages to non-tailored messages and found no effect. Trials failed to detect a benefit from including a mood-management component or adding an asynchronous bulletin board.</p> <p>The review authors concluded that Internet-based intervention can help people to quit smoking at six months or more, especially if they are interactive and tailored to individuals but that the trials that compared Internet interventions with usual care or self-help had inconsistent results and were at risk of bias They stated that further research is needed.</p>
<p>Thomas RE, Lorenzetti DL, Spragins W. 2013. Systematic Review of Mentoring to Prevent or Reduce Tobacco Use by Adolescents. <i>Academic pediatrics</i>, 13(4), 300–07.</p> <p>Mentoring has been defined as: “A personal relationship in which a caring individual provides consistent companionship, support, and guidance aimed at developing the competence and character of a child or adolescent” [353]. This review identified four RCTs, two focusing exclusively on tobacco, and the other on both tobacco and drug use reductions. Only one study, of mentoring by peers in UK year 8 students, reduced adolescent smoking. The other three studies were underpowered, with the largest having fewer than 200 participants. The review authors concluded that, at best, modest effects can be expected from mentoring programmes that train and monitor mentors and have carefully structured interventions. They stated that further research is needed.</p>
<p>Patnode C D, O'Connor E, Whitlock E P, et al. 2012. Primary Care Relevant Interventions for Tobacco Use Prevention and Cessation in Children and Adolescents: A Systematic Evidence Review for the U.S. Preventive Services Task Force. Evidence Synthesis No. 97. AHRQ Publication No. 12-05175-EF-1. Rockville, MD: Agency for Healthcare Research and Quality. http://www.ncbi.nlm.nih.gov/books/NBK114973/</p> <p>This review included 19 controlled trials of interventions designed to prevent smoking uptake and/or encourage smoking cessation in young people that were conducted in, or potentially feasible for (or referable from) health care settings and that reported tobacco use prevalence or a similar outcome at least six months after the intervention. Almost all the trials were conducted in the US. The intervention components and settings were very heterogeneous. Seven fair quality trials evaluated combined prevention and cessation interventions. A pooled analysis of the data from six of them (8,749 participants) indicated a non-significant difference in smoking prevalence between the intervention and the control group at 6–12 months follow up. Meta-analysis of data from seven behaviour-based cessation trials (2,328 participants) and from the two cessation trials of medication (bupropion, 256 participants) did not show a statistically significant effect on self-reported smoking status in baseline smokers at 6–12 months follow up. None of the trials of behaviour-based interventions reported on harms of treatment although some trials reported a non-significant increase in smoking prevalence after the intervention. Three bupropion trials did report on harm (the two that were included in the meta-analysis of benefits plus an additional trial that did not meet the criteria for meta-analysis because it only reported outcomes at six weeks) and findings were mixed. The review authors stated that definitions of smoking initiation and cessation varied between studies, and this, together with the diversity of both components and intensity across the interventions limited their ability to draw conclusions about common efficacious elements.</p>
<p>Carson KV, et al. 2012. Interventions for smoking cessation in Indigenous populations. <i>Cochrane Database of Systematic Reviews</i> doi:10.1002/14651858.CD009046.pub2 http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD009046.pub2/abstract</p> <p>This review sought to evaluate the effectiveness of smoking cessation interventions in indigenous populations, who carry a disproportionate burden of smoking-related morbidity and mortality. Four studies met eligibility criteria, two of which were New Zealand studies (mobile phone text messaging and bupropion, both in adults), highlighting the paucity of available evidence. The limited available evidence reported indicated that smoking cessation interventions specifically targeted at Indigenous populations can produce smoking abstinence but that further research is needed.</p>
<p>Kim Y, Myung SK, Jeon YJ, et al. 2011. Effectiveness of pharmacologic therapy for smoking cessation in adolescent smokers: Meta-analysis of randomized controlled trials. <i>Am J Health Syst Pharm</i>, 68(3), 219–26</p> <p>This meta-analysis evaluating the effectiveness of pharmacologic therapy (bupropion and nicotine replacement therapy) for smoking cessation in adolescent smokers included six RCTs, involving 816 smokers aged 12–20 years. No significant increase in abstinence rates was detected with pharmacologic therapy (RR 1.38, 95% CI 0.92–2.07). Subgroup meta-analysis found no significant increases in abstinence rates in short-term (≤12 weeks) or mid-term (26 weeks) follow-up. Few adverse events were reported. While current evidence does not support the effectiveness of pharmacologic interventions for adolescents, the authors note the small number of trials and participants. This review was assessed by the CRD who noted that none of the trials appeared adequately powered to detect a difference in smoking cessation rates. The CRD stated: “Overall, this review had some methodological problems and the limitations of the included studies should be borne in mind when interpreting the authors’ conclusions”. The CRD is at: http://www.crd.york.ac.uk/CRDWeb/ShowRecord.asp?AccessionNumber=12011002839&UserID=0#.U5-bxPmSx8E</p>
<p>Bryant J, et al. 2011. A systematic review and meta-analysis of the effectiveness of behavioural smoking cessation interventions in selected disadvantaged groups. <i>Addiction</i>, 106(9), 1568–85.</p> <p>This review assessed the effectiveness of behavioural interventions (including verbal advice, self-help, incentives and psychological interventions) in disadvantaged groups. Meta-analysis of four studies of behavioural interventions for at-risk youth did not reveal a significant effect on smoking cessation, (RR 1.55, CI 0.74–3.26) but sample sizes and the number of well-controlled RCTs pooled for analysis were small.</p>

Heckman CJ, et al. 2010. **Efficacy of motivational interviewing for smoking cessation: a systematic review and meta-analysis.** *Tobacco Control*, 19(5), 410–16.

This systematic review and meta-analysis of interventions incorporating motivational interviewing (MI) for smoking cessation identified 31 trials, including eight trials in adolescents. The meta-analysis of all 31 trials (9,485 individual participants) showed an overall odds ratio (OR) comparing likelihood of abstinence in the MI versus control condition of 1.45 (95% CI 1.14–1.83). For adolescents the OR for the MI effect was 2.29 (95% CI 1.34–3.89), suggesting that current MI smoking cessation approaches can be effective for adolescents.

Sussman S & Sun P. 2009. **Youth tobacco use cessation: 2008 update.** *Tobacco Induced Diseases*, 5(1), 3.
<http://www.tobaccoinduceddiseases.com/content/5/1/3>

This updated empirical review included 64 controlled trials assessing teen smoking cessation interventions. Meta-analysis indicated an absolute difference in percentage of participants who quit of 4.26% in favour of the intervention groups compared to controls (an improvement on the value found in the 2006 meta-analysis of 48 studies: 2.90% absolute risk reduction). Studies using programmes based on social influences, cognitive-behavioural theory, or programming to enhance motivation were more effective and the strongest effects were found in classroom-based educational programs, school-based clinics, and computer-based programmes. Programmes consisting of at least 5 sessions were more effective.

Other relevant publications

Marsh L, Dawson A, McGee R. 2013. **What do young New Zealanders want in terms of smoking cessation?** *Journal of Smoking Cessation*. Available on CJO 2013 doi:10.1017/jsc.2013.30.

This study, which examines young New Zealander's views on what would help them quit smoking, is based on discussions with 10 focus groups involving 66 young smokers aged between 15 and 17 years, conducted in late 2011. Around half of the participants had tried to quit smoking and some had made multiple attempts using a variety of methods. They described both mental and physical difficulties with quitting. The young people's ideas on what would be helpful for quitting included having supportive people around them, making personal changes and adopting alternative behaviours to smoking, legislative changes and other ideas unique to young people.

Curry SJ, Mermelstein RJ, Emery SL, et al. 2013. **A national evaluation of community-based youth cessation programs: end of program and twelve-month outcomes.** *Am J Community Psychol*, 51(1–2), 15–29.
<http://link.springer.com/article/10.1007%2Fs10464-012-9496-8>

This paper reports on a longitudinal evaluation of a sample of 41 community-based youth smoking cessation programmes in the US. The evaluation aimed to identify the site, programme and participant characteristics associated with successful cessation. Most programmes were conducted in schools, used cognitive-behavioural components, and had, on average, nine sessions of about an hour each. About one third had some participants who had been mandated to attend and over 80% offered some kind of attendance incentive. Seventy-four percent of participants lived with a smoker, almost two-thirds reported binge drinking, one third reported having ADD or ADHD and 27% had depressive symptomatology. Across all programmes, the mean percentage of participants abstinent for at least seven days at the end of the program was 13.89% and the mean percentage abstinent for at least 30 days at 12-month follow-up was 12.49%. In the multivariate GEE model, factors that were significant predictors of 30 days abstinence at 12 months were: greater attendance at the program sessions; longer time to first cigarette after waking; father very supportive of quitting; starting the program with a strong intention to stick with it; participation in a program with only voluntary participants; and organizational leadership that is aware and supportive of the program. The study authors stated that their findings indicate the importance of both individual and community-level variables, including motivation, opportunities for and encouragement to engage in activities outside of academics, having youth participate in treatment before they become highly dependent smokers, and community norms and ordinances that discourage youth purchase, possession, and use of tobacco.

Cengelli S, O'Loughlin J, Lauzon B, et al. 2011. **A systematic review of longitudinal population-based studies on the predictors of smoking cessation in adolescent and young adult smokers.** *Tobacco Control*.
<http://tobaccocontrol.bmj.com/content/early/2011/08/13/tc.2011.044149.abstract>

This review aimed to describe the determinants of self-initiated smoking cessation (defined as quitting for at least six months) as identified in longitudinal population-based studies of adolescent and young adult smokers. The review authors identified nine relevant English-language studies, published between 1 January 1984 and 31 August 2010. All of the studies were school based. Participants ranged in age from 12–23 years at baseline and 14–29 years at final follow-up. There was considerable heterogeneity across the studies in definition and measurement of smoking status, and in the potential determinants of cessation investigated. Despite this, there were five factors that robustly predicted quitting across the studies which investigated the factor: not having friends who smoke, having an intention to quit in the future, resisting peer pressure to smoke, having negative beliefs about smoking, and being older when first smoking. The review authors concluded that their review did not provide a solid evidence base for developing smoking cessation interventions for adolescent and young adult smokers, but that in the meantime, until better evidence becomes available, practitioners may consider incorporating the results of this review in policies and interventions.

Note: The publications listed above were identified using the search methodology outlined in Appendix 1.