



**Challenging the tobacco industry – is
there a role for industry
denormalisation to promote reductions
in youth smoking in the UK?**

A review of the evidence

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Introduction

Smoking prevalence and effects of smoking

There are more than one billion smokers in the world (WHO 2008) and Great Britain has around 10 million adult smokers, which is a sixth of the total UK population (ASH 2011a). Smoking initiation predominantly occurs before the age of 18 in the UK's (ASH 2001a), with the latest results from the *Smoking, Drinking and Drug Use among Young People in England* survey showing 15% of 15 year olds report being regular smokers (National Centre for Social Research 2010). In the North West of England, estimates from the 2009 Trading Standards survey of people aged 14 to 17 years attending schools reported that 22% of respondents identified themselves as smokers (Auton and Hoang, 2009).

Smoking kills half of all long-term users and in the UK it is the biggest single cause of inequalities in the death rates of rich and poor (HM Government 2010). In the UK approximately one third all of all cancer deaths can be attributed to smoking (Peto et al 2004) including cancer of the lungs, mouth, lip, throat, bladder, kidney, stomach, liver and cervix (Secretan et al 2009). Smoking causes 90% of lung cancer deaths, 80% of deaths from bronchitis and emphysema, while 17% of heart disease deaths are cancer related (ASH 2011b). Smokers who smoke between one and 14 cigarettes daily are eight times more likely to die from lung cancer and smokers under the age of 40 are five times more likely to suffer a heart attack compared to non smokers (ASH 2011b). Female smokers can experience menopause up to two years earlier than non smokers and are at a greater risk of developing osteoporosis; smoking has also been associated with male impotence and sperm abnormalities. Young smokers are at a greater risk of asthma, respiratory symptoms and in general, poorer health than young people who do not smoke (ASH 2011b); it can also cause more school absences and result in the young person being less fit than their non smoking counterparts (ASH 2011b). Consequently, reducing smoking prevalence continues to be recognised as a public health priority by the new UK coalition Government (Department of Health 2010).

In 2009/10 the UK Government earned £8.8 billion in revenue from tobacco tax – about 76% is tax on the price of a packet of cigarettes (ASH 2011c). The global tobacco industry produces five and half trillion cigarettes annually (ASH 2011c).

In England, smoking costs the NHS between £2.5 and £5bn per annum (Department of Health 2010). A study examining the cost benefits of reducing smoking has shown that £524 million could be saved through a reduction in heart attacks and strokes (Parrot and Godfrey 2004). Smoking has been shown to result in lost productivity due to smoking breaks, and absenteeism and in England and Wales, 34 million working days are lost annually due to absenteeism caused by smoking related illness (ASH 2011c), costing an estimated £400 million through lost productivity each year (Parrot et al 2000). A study examining the cost benefits of creating smokefree workplaces in England has shown that between £2.3 billion and £2.7 billion could be saved (ASH 2011c). In 2009/10 the Government spent £83.9 million on services to help people stop smoking (ASH 2011a).

The American picture

Because the majority of research into denormalisation is American based, a brief overview of smoking in America is provided. Each day, approximately 3,900 young people between the ages of 12 and 17 years initiate cigarette smoking in the United States (Substance Abuse and Mental Health Services Administration 2005). Smoking has declined among young people in the USA since peaking in 1997 (Johnston et al 2004), however, 8.1% of middle school students (aged 11-14 years) and 21.7% of high school students (aged 15-18 years) smoke cigarettes (CDC 2005). Similar to the UK, more girls smoke than boys (8.6% and 7.7% respectively for 11-14 year olds and 22.4% and 22.1% respectively for 15-18 year olds; CDC 2005). Eighty percent of all smokers have their first cigarette before age 18; 90% of all smokers begin before the age 20 (Substance Abuse and Mental Health Services Administration 2004), and one third of all smokers began before the age of 14 (Mowery et al 2000). Every day the tobacco industry spends more than \$24 million to advertise, market and promote its products. Every day tobacco kills 1,200 Americans (American Legacy Foundation 2010),

The UK law on tobacco

The legal age to purchase cigarettes in the UK was increased from the age of 16 to 18 years in October 2007 making it illegal to sell cigarettes to any person under the age of 18 years (Legislation Government 2010b). All forms of tobacco advertising and promotion are now banned in the UK (Legislation Government 2010d), the only exception to this being the display of tobacco products in shops. However, a ban on the display of tobacco products in shops is intended to be enforced from October 2011¹ (with the exception of small shops which will be in from 2013) (Legislation Government 2010a). A ban on sales of cigarettes from vending machines is also due to come into force in 2011 with the aim of reducing youth access to cigarettes (Legislation Government 2010c). All packaging of cigarettes sold in the UK is now required to include a health warning message that covers 30% of the front of the pack and 40% of the back of the pack (Department of Health 2007). Research shows this has already had an effect; between 2002 and 2006 there was an increase in the proportion of young people aware of new pack design from 11% in 2002 to 18% in 2006 (Centre for Tobacco Control Research 2008). The European Tobacco Products Directive sets a maximum upper limit of tar, nicotine and carbon monoxide for cigarettes sold in the European Union, which also now bans words such as 'light' or 'mild' from a brand name (unless authorised by Member States; EU Tobacco Products Directive 2001). Since the smoking ban was introduced in July 2007 smoking is now prohibited in nearly all enclosed public places and workplaces throughout the UK (excluding certain rooms in hotels, care homes, hospices and in prisons; ASH 2011d).

Key actions by the UK government on smoking since 1991 are summarised in Table 1.

¹ Following publication of the Government's Tobacco Control Plan on 9 March 2011 implementation of the regulations has been postponed until April 2012 and April 2015 for large and small shops respectively.

Table 1. UK action on smoking

Year	Legislation	Action
1991	Children and Young Persons (Protection from Tobacco) Act 1991.	Increased the penalties for the sale of tobacco to persons under the age of 16 years. Prohibited the sale of unpackaged cigarettes. Required the publication of warning statements in retail premises and on vending machines. Made provision with respect to enforcement action by local authorities.
1998	<i>Smoking Kills</i> White paper.	Minimal tobacco advertising in shops. Tough enforcement on underage sales and proof of age cards. Voluntary agreement with vending machine operators.
2002	Tobacco advertising and promotion Act 2002.	Bans the advertising and promotion of tobacco products including the use of brand-sharing and sponsorship of cultural and sport events.
2003	Tobacco advertising and promotion Act 2002.	Ban on billboard and press advertising (came into force 2003).
2006	Health Act 2006.	An Act to make provision for the prohibition of smoking in certain premises, places and vehicles and for amending the minimum age of persons to whom tobacco may be sold.
2007	Smokefree England. The Children and Young Persons (Sale of Tobacco etc.) Order 2007.	SmokeFree legislation banned smoking in public places. Illegal to sell tobacco products to anyone under the age of 18.
2008	Criminal Justice and Immigration Act 2008.	Strengthened sanctions against shopkeepers who persistently sell cigarettes to underage children and teenagers.
2010	The Tobacco Advertising and Promotion (England) Regulations 2010.	These regulations prohibit the display of tobacco products at the point of sale. They are due to enter into force on 1 October 2011 in large shops and on 1 October 2013 in small shops.
2010	The Audiovisual Media Services (Product Placement) Regulations 2010.	Permits product placement in certain types of TV programme. However, it prohibits product placement in UK-made programmes of any tobacco product including electronic or smokeless cigarettes, tobacco accessories such as lighters and cigarette papers or pipes intended for smoking.
2010	The Protection from Tobacco (Sales from Vending Machines [England]) Regulations 2010.	Sales of tobacco from vending machines will be prohibited from 1 October 2011.

Source: Jones et al 2009

The tobacco industry

Promotion and marketing advertisement acts as communication through television, the internet, and other mass media and affects the lifestyle of consumers. Tobacco industries track and respond

to shifts in needs and lifestyles of consumers through aggressive marketing campaigns connecting 'its brand images' to common values and lifestyles (Yach and Bettcher 2000).

Some companies adopt a standardised approach to promotions using the same basic advertisements and promotional strategies across markets. Others develop adverts and promotional strategies to meet conditions particular to local markets (Kotler 1999). Philip Morris International is the world's leading tobacco company and its brands include Marlboro (the world's best selling international cigarette brand; Altria Group Inc 2003). Brands such as Marlboro are recognised all over the world, particularly among young people (Zhu et al 1998, Emri et al 1998, Stanton 1996, Simpson 2002, Warner and Connolly 1991, Goldberg 2003) and young adults are a key target for Marlboro internationally (Leo Burnett Co 1990).

Philip Morris's global market research efforts and advertising promotion targeting young people (aged 18-30) developed during the 1990's. Market research conducted by Philip Morris used three categories:

- Lifestyle/psychographic research
- Brand studies
- Advertising/communication effectiveness (Philip Morris International 1986).

This research was based on young adult lifestyles and values, when was then used to inform Marlboro's brand to gain an understanding of the needs, values and beliefs of target consumers. Young people had similar core values across Asia, Europe and the USA and this led to the development of standardised promotions and a single brand identity for Marlboro. This allowed for policymakers to develop more effective marketing restrictions and tobacco control counter marketing efforts.

Smoking prevention approaches

Tobacco control priorities for children and young people have largely focused on smoking prevention. Schools have been a particular focus of efforts to prevent smoking in young people, particularly in the USA. Studies of school-based programmes have tended to be based on educational approaches; there is conflicting evidence about the effectiveness of programmes based on social influences approaches and limited evidence for the effects of other approaches (for example social competence and multi-modal programmes). Researchers have also recognised that decisions to smoke are made within a broad social context, leading to the development of community- and family-based prevention programmes. However, there is limited evidence for the effectiveness of multicomponent community-based interventions for preventing the uptake of smoking and a strong evidence base for the effectiveness of family-based interventions is lacking. Mass media strategies have also been used for broad based public education on a range of health issues including tobacco use prevention and control, and they have been shown to be effective in preventing the uptake of smoking in young people, particularly when combined with other prevention approaches. Campaigns of longer duration and higher intensity appear to be associated with greater declines in smoking rates (Jones et al 2009).

Denormalisation

Over the last decade, anti-smoking mass media campaigns aimed at young people in the USA have focused on changing young people's attitudes toward tobacco use and companies through 'denormalisation' with the aim of reducing smoking amongst young people (Bauman et al 1991, Popham et al 1994, Elder et al 1996, Goldman and Glanz 1998, Biener 2000, Biener et al 2000, Siegel and Biener 2000, Sly et al 2001a, Sly et al 2001b). Three elements have commonly been used as the basis for counter-industry campaigns targeting young people: 1) combating positive images of smoking in cigarette advertising; 2) exposing industry 'manipulation'; and 3) the development of an anti-smoking 'brand' (Farrelly et al 2003).

"Denormalization refers to the activities undertaken specifically to reposition tobacco products and the tobacco industry consistent with the addictive and hazardous nature of tobacco products, the health, social and economic burden resulting from the use of tobacco, and the practices undertaken by the industry to promote its products and create social goodwill toward the industry" (Steering Committee of the National Strategy to Reduce Tobacco Use in Canada 1999, cited by Ashley and Cohen 2003).

Studies conducted in the USA suggest that tobacco industry denormalisation presented in mass media campaigns can have some effects upon young people's attitudes, knowledge and behaviour, particularly when combined with broader tobacco control initiatives and repeated over a long period of time (Richardson et al 2007, Hammond et al 2006). The majority of USA-based campaigns have aimed to raise awareness amongst young people about how the tobacco industry uses manipulative tactics to promote smoking. Denormalisation was also incorporated as one of the four main goals of the Canadian national tobacco control strategy in 1999.

PHASE ONE:

Phase One Aim

The aim of the phase one literature review was to bring together evidence from research that has examined the impact of tobacco industry denormalisation, and counter industry campaigns and activities that have been used to prevent and reduce smoking amongst young people. The evidence gathered was used (as far as was possible) to help identify effective treatment types; content and mode of campaign delivery; practical aspects of delivery including the setting and type of intervention provided; and demographics of the young people in which interventions were found to be effective.

Phase One Methods

Scope of the review

A rapid review of published literature was conducted through a literature search of academic databases and an online search for grey literature (for example, research reports).

Identification of relevant studies

A targeted search was undertaken to identify tobacco industry denormalisation and counter industry campaigns and activities. Targeted searches were conducted through selected specialist databases (including Medline, PsycInfo, Embase, Eric and the Social Citation Index), and a database of published and unpublished literature was compiled and held in the Endnote software package. A search strategy template for Medline is presented in Appendix 1.

A web search was also conducted to identify grey literature. A number of smoking related websites including The Robert Wood Johnson Foundation, Stop Teen Addiction to Tobacco, The Foundation for Smoke-free America, ASH and The Roy Castle Lung Foundation were searched for relevant articles and reports. Previous work conducted by one of the review's co-authors was utilised including a systematic map and summary of the impact of advocacy initiatives led by, or on the behalf of, young people in 2009 (Jones et al 2009). Relevant papers and campaigns identified through this work were included in the literature review.

Two reviewers screened all titles and abstracts retrieved from the database searches according to the criteria described below. Full text articles of relevant studies were then screened. Only studies written in English and published since 1990 were included.

Phase One Results

Summary of studies identified

A total of 333 papers were identified from the literature searches. After the first round of screening, 257 papers were excluded (54 of which were duplicates) and 76 papers were retrieved for full paper screening. Of these papers, 49 were excluded.

In total, 27 papers were selected to inform the literature review. Twenty studies reported on evaluations of state and national anti-tobacco media campaigns; 16 of which examined the USA-based truth[®] campaign. Five studies focused on the Florida 'truth' media campaign, initiated in the state in 1998, and 11 studies examined the national truth[®] campaign developed by the American Legacy Foundation.

Three studies (Davis et al 2009, Farrelly et al 2009b, Sly et al 2001b) were based on longitudinal data collection. Two studies (Davis et al 2009, Farrelly et al 2009b) were based on national datasets; the National Longitudinal Survey of Youth 1997 (NLSY97; Farrelly et al 2009b) and American Legacy Longitudinal Tobacco Use Reduction Study (ALLTURS; Davis et al 2009), respectively. Thirteen studies were based on a repeated cross-sectional design (Cowell et al 2009, Davis et al 2007, Farrelly et al 2002, Farrelly et al 2005, Farrelly et al 2009a, Hersey et al 2005, Thrasher et al 2004, Trasher et al 2006, Vallone et al 2009, Dietz et al 2010, Niederdeppe et al 2004, Sly et al 2001a, Sly et al 2005). Eight studies of the national truth[®] campaign were based on data collected as part of the Legacy Media Tracking Survey (LMTS), an ongoing tracking survey based on a nationally representative sample of young people aged 12-17 years old in the USA, and one study used data from the Monitoring the Future (MTF) survey (Farrelly 2005). Evaluation of the Florida 'truth' media campaign was based on the Florida Anti-tobacco Media Evaluation (FAME), a repeated cross-sectional survey of 12-17 year olds in Florida, in three studies (Dietz et al 2010, Niederdeppe et al 2004, Sly et al 2001a). A further four studies examined particular USA statewide campaigns, including those in Minnesota (Dunn et al 2004, Sly et al 2005), Ohio (Evans et al 2006), and the Northern Plains region (Vogeltanz-Holm et al 2009). Two of the studies (Dunn et al 2004, Vogeltanz-Holm et al 2009) were based on data collected from cross-sectional surveys.

Seven experimental studies were identified, including four randomised experimental studies (Henriksen and Fortmann 2002, Pechmann et al 2003, Pechmann and Reibling 2006, Sutfin et al 2008), a case study (Pechmann and Reibling 2000), a longitudinal survey (Biener et al 2004) and a content analysis (Beaudoin 2002). Five studies examined a range of anti-smoking television adverts shown between 1986 and 2001 (Pechman and Reibling, 2006, Beaudoin 2002, Biener et al 2004, Henriksen et al 2006 and Pechmann et al 2003). One study examined cost effectiveness across seven different campaigns (Pechman and Reibling 2000), and one study utilised a randomised design to compare smokers and non smokers attitudes to a number of adverts (Sutfin et al 2008). Tables 2 to 5 summarise the details of the studies included in the phase one literature review.

Table 2. American Legacy Foundation national truth® campaign

Study	Study aim	Method	Findings
Cowell et al 2009	Examined ethnic differences in the association between exposure to the truth® campaign and beliefs and attitudes about the tobacco industry and intent to smoke.	Repeat cross-sectional survey of 12-17 year olds (LTMS). Data based on seven waves for period December 1999 to July 2003 (n=31,758).	When analysed by race/ethnicity, exposure to the truth® campaign was positively associated with increased anti-tobacco beliefs and attitudes-statistically significant for white and African American youth.
Davis et al 2007	Examined the effects of the truth® campaign on perceived peer smoking prevalence.	Repeat cross-sectional survey of 12-17 year olds (LTMS). Data collected between winter 1999 and autumn 2003 (n=35,074).	Exposure to the truth campaign was negatively and significantly associated with perceived smoking prevalence.
Davis et al 2009	Examined the effects of recall of the truth® campaign on changes in tobacco-related beliefs, intentions, and smoking initiation.	Longitudinal survey, conducted between 2000 and 2002. Baseline data collected from young people aged 11-18 years who participated in ALLTURS (n=34,740); 47% (n=16,327) completed all three follow-ups.	Recall of truth was associated with increased agreement with anti-smoking beliefs, decreased smoking intentions, and lower rates of smoking initiation.
Farrelly et al 2002	Based on exposure to the truth® campaign, analysed changes in youths' attitudes, beliefs, and intentions regarding the tobacco industry and tobacco use.	Repeat cross-sectional survey of 12-17 year olds (LTMS). Based on two waves of data collection; December 1999 to February 2000 (n=3,439); and September to December 2000 (n=6,233).	Exposure to truth® counter marketing advertisements was consistently associated with an increase in anti-tobacco attitudes and beliefs.
Farrelly et al 2005	Assessed whether there was a dose-response relationship between the level of exposure to the truth® campaign and youth smoking prevalence during the first two years of the campaign.	Repeated cross-sectional survey of 13-18 year olds (MTF). Based on data collected 1997-2002 (approx. n=51,000).	The campaign accounted for a significant portion of the recent decline in youth smoking prevalence in the USA. Smoking prevalence among all students declined from 25.3% to 18.0% between 1999 and 2002; the campaign accounted for approximately 22% of this decline.
Farrelly et al 2009a	Examined how the truth® campaign influenced youth's tobacco-related attitudes, beliefs and intentions during the first three years of the campaign.	Repeat cross-sectional survey of 12-17 year olds (LTMS). Based on eight waves of data collection from winter 2000 to autumn 2003 (n=35,074).	Exposure to truth advertisements was associated with steady positive changes in attitudes, beliefs and intentions to smoke.

Study	Study aim	Method	Findings
Farrelly et al 2009b	Examined whether exposure to the truth® campaign influenced youth smoking initiation.	National longitudinal survey of 12-17 year olds (NLSY97). Baseline data collected from nationally representative sample in 1997 (n=8,984). Based on data from eight waves (1997-2004).	Exposure to the truth® campaign was associated with a decreased risk of smoking initiation. Over the period analysed (1997 to 2004), approximately 450,000 adolescents were prevented from trying smoking nationwide.
Hersey et al 2005	Assessed the impact of state media campaigns that featured counter industry messages on youth smoking outcomes.	Repeat cross-sectional survey of 12-17 year olds (LTMS). Based on data collected between 1999 and 2002 and compared over these three periods (n=3,424, 12,967 and 10,855).	Between 1999 and 2002, rates of current smoking and established smoking decreased significantly faster in states with established or more newly funded counter-industry campaigns than in other states. State counter-industry campaigns appeared to prime, or make more salient, negative perceptions about tobacco industry practices.
Thrasher et al 2004	Examined whether state level involvement in tobacco production limits the effectiveness of anti-industry adverts to prevent tobacco use among adolescents in the USA.	Repeat cross-sectional survey of 12-17 year olds (LTMS). Based on data from six waves between 1999 and 2003 (n=28,307).	Advert reactions did not differ according to whether the state was involved in tobacco production or not. There were significant, comparable increases in anti-industry attitudes/beliefs since the onset of the truth campaign, in both tobacco producing and non-producing states due, in part, to campaign exposure.
Thrasher et al 2006	Examined how adolescents at elevated smoking risk (based on social bonding and sensation seeking) responded to the national truth® campaign.	Repeat cross-sectional survey of 12-17 year olds (LTMS). Based on two waves between 2001 and 2002 (n=10,035).	Reactions to anti-industry adverts and the strength of anti-industry attitudes were comparable between high- and low-sensation seeking adolescents. However, among weakly bonded adolescents, there were less favourable advert reactions and weaker anti-industry attitudes than among strongly bonded adolescents.
Vallone et al 2009	Examined whether socioeconomic status was associated with awareness of and receptivity to the national truth® campaign.	Repeat cross-sectional survey of 12-17 year olds (LTMS). Based on data from seven waves between 2000 and 2004 (n=30,512).	Young people with lower socioeconomic status (SES; defined as living in lower education zip codes) were less likely to have confirmed campaign awareness as compared with those with higher SES (i.e. living in higher education zip codes). Zip code level median household income was not associated with confirmed awareness of the campaign, nor receptivity to the campaign.
ALLTURS = American Legacy Longitudinal Tobacco Use Reduction Study; LTMS = Legacy Media Tracking Survey; MTF = Monitoring the Future; NLSY97 = National Longitudinal Survey of Youth 1997.			

Table 3. Florida State Tobacco Control Programme

Study	Study aim	Method	Findings
Dietz et al 2010	Examined the association of the termination of the 'truth' media campaign and changes in smoking rates among youths in Florida.	Repeat cross-sectional survey of 12-17 year olds (FAME). Based on six waves between 1998 and 2001 (approx. n=1,800 at each wave).	The 'truth' campaign achieved high levels of awareness in the first year; 96% were aware of the "truth" campaign, and 93% confirmed awareness of at least one 'truth' advert. Following termination of the campaign smoking rates continued to decline for all youth, and there was still a relatively high rate of recall of the campaign. However, in 2004-2006, smoking rates started to increase among youth aged 16 years or older.
Luke 2004	The dissertation explores the relationship between the state and a social movement organisation.	Group interviews with 86 youth aged 12 to 18 to assess the ways the youth group, Florida's SWAT mobilised youth and to determine what they were mobilised to do.	The SWAT program proved to be dependent on the state leadership. While most were minimally affected, some of the students came to understand the goals and tactics of a social movement and developed and maintained an emotional and intellectual commitment to the fight against big tobacco.
Niederdeppe et al 2004	Examined associations between specific beliefs and current smoking in relation to the Florida 'truth' campaign.	Repeat cross-sectional survey of 12-17 year olds (LTMS). Based on data collected between 2000 and 2001 in Florida (n=1,097) and states without established comprehensive tobacco control programs (n=6,381).	Young people in Florida reported substantially higher levels of 'truth' and anti-tobacco group awareness compared to their national counterparts. Young people in Florida also reported less favourable beliefs than those nationwide about the tobacco industry, but similar beliefs about the social and physical effects of smoking.
Sly et al 2001a	Presented selected findings from evaluation of the Florida 'truth' media campaign.	Repeat cross-sectional survey of 12-17 year olds in Florida (FAME) and in a national population. Targeted sample sizes were 1,800 for the FAME surveys and 1,000 for the national surveys.	Significant increases in advert specific awareness, confirmed, receptivity, and campaign awareness, and confirmed awareness were reached by the sixth week. They continued to rise through the first year. No attitude and only minor behaviour differences were noted between the treatment and comparison populations at baseline. By the end of the first year, Florida youth had stronger anti-tobacco attitudes and better behaviour patterns than the comparison population.
Sly et al 2001b	Examined the impact of the 'truth' media campaign on rates of smoking initiation.	Longitudinal survey of 12-17 year olds. Based on follow-up of random sample of FAME respondents in 1998 (n=1,820).	Based on a composite measure of media effectiveness (advert effectiveness index), the results demonstrated that participants who scored low or high on the advert effectiveness index were more likely to remain non-smokers than those who not affected by the campaign.
FAME = Florida Anti-tobacco Media Evaluation. SWAT = Student's Working Against Tobacco. LTMS = Legacy Media Training Service.			

Table 4. Other campaigns

Study	Study aim	Method	Findings
Dunn et al 2004 'Target Market' Minnesota, USA	Presented select findings from an evaluation of a state-wide anti-tobacco industry youth organising movement.	Four advertisements placed in youth television and radio spots from July to December 2001. Cross-sectional study. Based on data from randomly selected adolescents aged 15-17 years old in six rural and two urban areas (n=852).	Branding scores were correlated with taking action to get involved and spreading the anti-industry message. Dunn concluded that youth organising effort, in combination with an intensive counter marketing media campaign, can be an effective strategy for involving youth in tobacco prevention and generating negative attitudes about the industry.
Evans et al (2006) 'Stand' campaign Ohio, USA	Examined whether brand equity serves as a protective factor to prevent youth from initiating smoking.	Campaign components included television, radio, print and billboard advertising; website and Internet adverts were placed on external youth-targeted websites. Longitudinal survey, with two follow-up surveys. Baseline data collected from random sample of 11-17 year olds in Ohio (n=1,657). Participation rates for the two follow-ups were 75% (n=1,010) and 67% (n=673).	Youth with higher brand equity in the 'stand' campaign exhibited lower levels of smoking initiation at the first 8-month follow-up. Somewhat reduced, but significant, prevention effects were also observed at a second 20-month follow-up.
Sly et al 2005 'Target Market' Minnesota, USA	Assessed the consequences of the termination of a state-wide counter marketing campaign.	Repeated cross-sectional surveys. Based on four waves between 2002 and 2003 targeting adolescents aged 12-17 years (n=1,079 to 1,150 across four surveys).	The prevalence of adolescents confirming awareness of the target market campaign declined over the three survey periods. In parallel to the decline in awareness, susceptibility to tobacco use increased and there was a decline in anti-tobacco attitudes and beliefs.

Study	Study aim	Method	Findings
<p>Vogeltanz-Holm et al (2009)</p> <p>The 'Plain Truth' campaign</p> <p>Northern Plains, USA</p>	<p>Examined responses to 10 television and radio tobacco counter marketing adverts and young people living in a rural area.</p>	<p>Set of 10 adverts (five TV and five radio) selected to run as part of the 'Plain Truth' campaign aired for 13 weeks. Adverts themes included health or social consequences, industry manipulation, personal testimonials, and celebrity messages. Cross-sectional survey. Telephone survey of young people aged 12-17 years from the target area of the state (n=407).</p>	<p>Around half of the sample could recall at least one television or radio advert. There were significantly different recall rates for the five TV adverts with the highest confirmed recall for adverts focusing on health consequences.</p>

Table 5. Experimental studies

Study	Study aim	Method	Findings
Henriksen et al 2006 USA	Examined whether exposure to tobacco industry sponsored prevention adverts promoted intentions to smoke and more favourable attitudes towards the industry.	Randomised controlled trial. Young people aged 14-17 years (n=832) assigned to three conditions: (1/2) youth smoking prevention campaigns sponsored by the Philip Morris and Lorillard tobacco companies; (3) youth smoking prevention adverts sponsored by the American Legacy Foundation (truth® campaign).	Adolescents rated Philip Morris and Lorillard adverts less favourably than the other youth smoking prevention adverts. Adolescents' intentions to smoke did not differ as a function of advert exposure. However, exposure to Philip Morris and Lorillard adverts engendered more favourable attitudes toward tobacco companies.
Pechman and Reibling 2006 USA	Examined the impact of eight types of anti-smoking adverts (representing health, counter industry, and industry approaches) on intention to smoke.	Randomised controlled trial. Young people aged 14-15 years (n=1,725) assigned to view one of nine videotapes containing a TV show with adverts that included either a set of anti-smoking adverts or a set of control adverts.	The adverts focusing on young victims suffering from serious tobacco-related diseases elicited disgust, enhanced anti-industry motivation, and reduced intent to smoke among all but conduct-disordered adolescents. Counter industry and industry adverts did not significantly lower smoking intentions.
Pechman and Reibling 2000 USA and Canada	Used five USA state campaigns, one USA research study and one Canadian initiative to assist in planning anti-smoking advertisements. Examined why certain campaigns are more cost effective than others.	Case study combined with data collection and analysis. Students aged 12-16 years (n=1,128) ranked campaigns on advertising message variables. Compared how the campaigns ranked in terms of message content versus cost effectiveness.	A campaign initiated in Vermont was found to be the most cost effective. The campaign sought to stress the positive consequences of non-smoking, model refusal skills, convey the immediate social and physical problems associated with smoking, and teach adolescents about cigarette marketing. The next most cost effective campaigns were in California, Massachusetts, and Florida. Successful campaigns geared messages and execution to adolescents, and included the following themes: second-hand smoke, smoker as negative role model, refusal skills, and deceptive portrayal of a lethal product.

Study	Study aim	Method	Findings
Beaudoin 2002 USA	Examined how various characteristics appeared differently in anti-smoking television adverts (between 1991 and 1999) targeting different groups and in adverts produced by different organisations.	Content analysis of 197 anti-smoking adverts. Adverts were coded according to the following themes: industry manipulation, secondhand smoke, addiction, cessation, youth access, term of effects, and romantic rejection. Also coded were: advert venue; whether adverts were dominated by real people; animation, or inanimate objects; and advert appeals (e.g. sex, humour, fear, adventure and sociability).	Concluded that youth-oriented adverts have youth characters, sociability, and humor as common appeals, and social and short-term consequences. Whereas the adult-oriented adverts relied on fear appeals and long-term, health-related consequences.
Biener et al 2004 USA	Examined the optimal characteristics of anti-smoking adverts for youth based on their impact on recall and perceived effectiveness (using message tone, reach and frequency of broadcast and characteristics of audience).	Longitudinal survey of young people aged 12 to 15 years. Based on data from the 1993 Massachusetts Tobacco Survey of youth. Follow-up conducted between November 1997 and February 1998 (n=618; 58%). A Generalized Estimating Equation (GEE) approach was used to model the recall and perceived effectiveness of eight advertisements as a function of viewer and advert characteristics.	Advertisements featuring messages about serious health consequences, which had been independently rated as high in negative emotion, were more likely to be recalled and were perceived as more effective by youth survey respondents than adverts featuring messages about normative behaviour for teens or adverts relying on humour.
Pechmann et al 2003 USA, Canada and Australia	Investigated the effects of common anti-smoking message theme on adolescents' smoking-related cognitions and intentions compared with a no-message control.	Randomised controlled trial. Seventh and tenth graders (12-16 years) randomly assigned to eight treatment and one control group (n=1,667) to view a set of adverts.	Of the seven anti-smoking message themes tested, only three (endangers others, refusal skills role model, and smokers' negative life circumstances) had an effect on adolescents' intentions not to smoke, and all did so by conveying that smoking cigarettes poses severe social disapproval risks.

Study	Study aim	Method	Findings
Sutfin et al 2008 USA	Study examined smoking and nonsmoking adolescents' responses to three popular thematic approaches: (1) endangering others, (2) negative life circumstances, and (3) industry manipulation.	Randomised controlled trial. High school students randomly assigned to one of three anti-tobacco advert conditions or a control condition (n=488).	Adolescents exposed to negative life circumstances adverts reported lower intentions to smoke than those exposed to control and industry manipulation adverts. Responses differed based on smoking status. Smokers liked the adverts less and had fewer positive and more negative thoughts.

Evaluations of state and national anti-tobacco media campaigns

American Legacy Foundation national truth® campaign

The national version of the truth® campaign was developed by the American Legacy Foundation and launched in February 2000. The target group for the campaign is 12-17 year olds and it aim was to provide them with information to give them an informed choice about smoking by ‘exposing the tactics of the tobacco industry, providing the truth about addiction and the health effects and social consequences of smoking’ (American Legacy Foundation 2010). The campaign uses research with youth audiences, marketing and social science research to form its strategies (truth® 2010). Table 6 summarises the variety and scope of activities that have been delivered as part of the campaign over the last 10 years.

Table 6. truth® campaign activities

Campaign	Year	Content
truth®	(2000)	Launched at a youth summit attended by 1,000 teens from across the country.
Infect truth®	(2001, 2002)	Educated teens on the facts about cigarette design and engineering.
A Look Behind the Orange Curtain	(2002, 2003)	Shed light on the tobacco industry’s marketing tactics and included such topics as addiction and the health consequences of smoking.
Crazyworld	(2003)	Showed teens how tobacco companies play by a different set of rules than other companies. While many companies recall products at the first sign of danger to a consumer, the tobacco industry makes a product that kills 1,200 of its customers every day.
Connect truth®	(2004)	Used an orange dot icon to link together pieces of information to reveal the larger picture about the effects of smoking and the chain of events from the marketing of tobacco products to consumer illnesses to death.
Shards O’Glass	(2004)	Featured a fictitious company that manufactures freeze pops with glass shards in them, a dangerous product analogous to cigarettes. The advert is meant to raise consumer awareness about the harmful effects of smoking.
Seek truth®	(2004)	Used the ‘question and answer’ format to encourage teens to ask questions and seek answers about the tobacco industry and its marketing and manufacturing practices.
Fair Enough	(2005)	Took a new approach to advertising with a sitcom-style television campaign that featured a cast and theme music. The commercials used tobacco industry documents to reveal marketing ideas.
truth® found	(2005–2006)	Pointed big orange arrows at some of the people and places targeted and affected by Big Tobacco.
truth® documentary	(2006)	Used a documentary filmmaking style to capture real people’s reactions to the marketing tactics of the tobacco industry. The campaign, called truth® documentary for the style in which the adverts were shot, featured one correspondent and a camera crew investigating the reasoning behind some ideas from Big Tobacco.
Infect truth®	(2006)	Called attention to the marketing tactics and health consequences of the tobacco industry in such a way as to “infect” people with that knowledge and encourage active peer-to-peer participation.
truth® documentary phase II	(2007)	Built on the approach of truth® documentary to continue to highlight the absurdity of statements found in tobacco industry documents.
The Sunny Side of truth®	(2008)	Used animation, music, Broadway-style choreography and sarcasm to illustrate the “sunny side” of smoking tobacco.

Source: Truth®

The national truth® campaign has been shown to be negatively and significantly associated with perceived smoking prevalence (Davis et al 2007) and consistently associated with an increase in anti-tobacco attitudes and beliefs (Farrelly et al 2002, Farrelly et al 2009a). Recall of the campaign has been shown to be associated with increased agreement with anti-smoking beliefs, decreased smoking intentions, and lower rates of smoking initiation (Davis 2009). It has also been demonstrated that the truth® campaign was associated with a decline in youth smoking and initiation in the USA between 1999 and 2002 (Farrelly et al 2005, Hersey 2005) and it has been estimated that between 1999 and 2004, approximately 450,000 adolescents were prevented from trying smoking nationwide as a result of exposure to the campaign (Farrelly et al 2009b). Comparisons of the truth® campaign with campaigns developed by the tobacco industry (including the Phillip Morris 'think don't smoke' campaign and a Lorillard tobacco company campaign) have shown that young people rate the truth® campaign more favourably than tobacco company campaigns (Davis et al 2007, Davis et al 2009, Farrelly et al 2002, Farrelly et al 2009a).

Studies have examined the impact of the truth® campaign among particular subgroups, according to those of low socioeconomic status (Vallone et al 2009), different racial/ethnic groups (Cowell et al 2009) and among adolescents at an elevated risk of smoking (Thrasher et al 2006). Young people of low socioeconomic status (SES; indicated by living in lower education zip codes) were found to be less likely to be aware of the campaign compared with young people with higher SES. However, receptivity to the campaign was not shown to be associated with household income or education. Some differences in the impact of the truth® campaign were found across different ethnic groups (Cowell et al 2009). The campaign had a greater impact on the beliefs, but not attitudes, of White and African American youth compared to Asian and Hispanic youth; suggesting that aspects of the campaign may resonate differently with different ethnic groups. In a study of young people at an elevated risk of smoking (Thrasher et al 2006), reactions to anti-industry adverts and the strength of anti-industry attitudes were comparable between high- and low-sensation seeking adolescents, but among those with weak social bonds, there were less favourable advert reactions and weaker anti-industry attitudes than among strongly bonded adolescents.

The Florida state tobacco control programme

The Florida state tobacco control programme (FTCP) was initiated with the launch of the 'truth' counter marketing campaign² in 1998, using funds from Florida's settlement with the tobacco industry. During the first year of the campaign, high awareness of the 'truth' campaign was reported among young people in Florida based on recall (Sly et al 2001a); at the end of the first year 96% were aware of the campaign and 93% could recall at least one of the adverts (Dietz et al 2010). Young people in Florida exposed to the 'truth' campaign reported less favourable beliefs about the tobacco industry than young people drawn from a nationwide sample during the first year of the campaign (Sly et al 2001a, Niederdeppe et al 2004), and the campaign was associated with a reduction in the risk of smoking initiation among young people in the state (Sly et al 2001b). The 'truth' campaign was one element of a range of tobacco control efforts in the state including the formation of a youth anti-tobacco group, Students Working Against Tobacco (SWAT), the first state-wide youth movement against tobacco (Farrelly et al 2003). Young people involved in SWAT participated in a number of activities, which included promoting SWAT (for example, distribution of materials), anti-industry public relations, community health education, elementary/peer education,

² The FTCP first developed the truth campaign concept, which was later adopted by the American Legacy Foundation for the national campaign.

attempts to influence the voluntary adoption of tobacco control policies and to influence the passage of tobacco control legislation and recruitment. Studies have generally focused on the impact of the 'truth' media campaign on smoking behaviours and it is not clear how SWAT contributed to changes in smoking behaviour in Florida. Whether SWAT was a viable social movement organisation has been explored, generating the finding that the programme proved to be dependent on the state leadership. Following a change in the governing administration the purpose of the organisation was found to have been substantially repurposed away from its original aims of social action on tobacco (Luke 2004).

Minnesota Youth Tobacco Prevention Initiative

Target Market was an anti-industry youth movement launched in Minnesota in 2000. The campaign was modelled on the Florida and national truth® campaigns, consisting of a counter-advertising media campaign and a youth organising effort. Events and activities were categorised into three groups: branding/recruiting, messaging, and fighting back (i.e. against the tobacco industry). The results indicated that branding activities designed to raise awareness about the programme may have been more successful in reaching a wider youth audience than messaging activities, which were intended to spread key messages about rejecting industry manipulation, and were associated with taking action to get involved in 'Target Market' activities (Dunn et al 2004). Both branding and messaging activities were associated with young people spreading anti-industry messages. Researchers have reported that the youth organising effort, in combination with an intensive counter marketing media campaign, was an effective strategy for involving youth in tobacco prevention and generating negative attitudes about the industry. Funding for Target Market was withdrawn in 2003 and as awareness of the campaign declined amongst young people, susceptibility to tobacco use increased and anti-tobacco attitudes and beliefs were negatively impacted by the elimination of the programme (Sly et al 2005).

Other USA anti-tobacco campaigns

Other USA-based campaigns that have focused on tobacco industry denormalisation and counter industry activities include the Wisconsin Anti-tobacco Media Campaign (Andrews et al 2004), the 'stand' campaign in Ohio (Evans et al 2006) and 'The Plain Truth' campaign in the Northern Plains region (Vogeltanz-Holm et al 2009).

'Stand' campaign

Components of the 'stand' counter marketing campaign included television, radio, print and billboard advertising and the basic strategy behind the campaign was to build brand awareness and equity in the 'stand' brand. Young people with higher brand equity in the 'stand' campaign reported lower levels of smoking initiation over 20 months (Evans et al 2006). Brand equity refers to the marketing effects that accrue to a product with its brand name, compared to the effects that the same product it would accrue without the brand name.

'The Plain Truth' campaign

The 'Plain Truth' campaign was based around 10 television and radio adverts used in previous national campaigns in the USA and Australia. The adverts aired for 13 weeks and themes included health and social consequences of smoking, industry manipulation, personal testimonials, and celebrity messages. The campaign primarily targeted a rural population. Awareness of the campaign, based on recall, was around 50%. There were significantly different recall rates for the five TV adverts with the highest confirmed recall for adverts focusing on the health consequences of smoking.

Experimental studies of counter-industry messages

Seven studies examined the impact of exposure to tobacco prevention advertising on smoking intentions under experimental conditions.

Five of the studies examined a range anti-smoking television advertisements shown between 1986 and 2001 (Pechmann and Reibling 2006, Beaudoin 2002, Biener et al 2004, Henriksen and Fortmann 2002 and Pechmann et al 2003). Beaudoin (2002) examined the effects of different types of adverts developed by different types of organisations and Biener et al (2004) examined recall and perceived effectiveness. Biener et al (2004) found that adverts with health consequences that produced a negative emotion were more likely to be recalled than those relying on humour. Pechmann et al (2003) randomly assigned adolescents to watch adverts to test whether the message themes would have an impact on cognitions including health risks and resistance to tobacco marketing. Pechman and Reibling (2006) examined adverts on intentions to smoke and Henriksen and Fortmann (2002) examined particular advertisements from the truth® campaign and from two industry campaigns; Philip Morris and Lorillard. Adolescents rated Philip Morris and Lorillard adverts less favourably than the other youth smoking prevention adverts. However, intention to smoke did not differ as a function of advert exposure. There was also no impact of counter industry advertising on smoking intentions under experimental conditions in two of the studies (Henriksen et al 2006, Pechman and Reibling 2006).

One study examined cost effectiveness across seven different campaigns (Pechman and Reibling 2000). The study used a case study combined with data analysis to rank seven campaigns on cost effectiveness. The Vermont campaign was most effective in terms of reducing smoking prevalence at a low per capita cost, the campaign consisted of mass media advertisements and a school programme.

One study compared smokers and non smokers' attitudes to a number of adverts (Sutfin et al 2008). Three levels of advert were examined; endangering others, negative life experiences and industry manipulation. Those exposed to the negative life circumstances adverts reported lower intentions to smoke, compared to those exposed to the control and industry manipulation adverts.

Phase One Discussion

In total, 27 papers were selected to inform the literature review. Sixteen studies examined the USA-based truth® campaign. Five studies focused on the Florida 'truth' media campaign, initiated in the state in 1998 and 11 studies examined the national truth® campaign developed by the American Legacy Foundation. A

further four studies examined particular USA statewide campaigns and seven experimental studies were identified.

Impact of tobacco industry denormalisation and counter industry campaigns and activities on smoking behaviours

Studies evaluating the national truth® campaign have been shown to be negatively and significantly associated with perceived smoking prevalence (Davis et al 2007) and consistently associated with an increase in anti-tobacco attitudes and beliefs (Farrelly et al 2002, Farrelly et al 2009a). Studies examining the campaign have shown that advertisements can be recalled, and two studies found that the campaign was linked to a decline in youth smoking and initiation in the USA between 1999 and 2002 (Farrelly et al 2005, Hersey et al 2005). Studies that have compared the truth® campaign to industry developed campaigns, such as those by Phillip Morris and Lorillard, have shown that young people rate the truth® campaign more favourably than tobacco company campaigns (Davis et al 2007, Davies et al 2009, Farrelly et al 2002, Farrelly et al 2009a). However, Henriksen et al (2006) found that although industry adverts were rated less favourably by young people, intentions to smoke did not differ.

Evaluations of the Florida state tobacco control programme (FTCP) reported similar findings with high awareness of the Florida truth campaign reported based on recall (Sly et al 2001a) and with a reduction in the risk of smoking initiation among young people in the state (Sly et al 2001b). In addition, young people in Florida exposed to the 'truth' campaign reported less favourable beliefs about the tobacco industry than young people drawn from a nationwide sample during the first year of the campaign (Sly et al 2001a, Niederdeppe et al 2004).

Other studies of USA counter marketing campaigns have reported on the success of locally developed campaigns. For example, the branding and messaging activities in the 'Target Market' campaign were associated with young people spreading anti-industry messages (Dunn et al 2004) and when the campaign was withdrawn susceptibility to tobacco use increased (Sly et al 2005). A study of the Ohio 'stand' campaign found that young people with higher brand equity in the campaign reported lower levels of smoking initiation over 20 months (Evans et al 2006).

Considering the experimental studies of counter industry messages, studies found that young people exposed to adverts containing negative life circumstances (Sutfin et al 2008) and serious health consequences (Biener et al 2004) reported lower intentions to smoke and higher recall of these types of adverts than adverts relying on humour (Biener et al 2004) and adverts focusing on control and industry manipulation (Sutfin et al 2008). Whereas no impact of counter industry advertising on smoking intentions was found under experimental conditions in two studies (Henriksen and Fortmann 2002, Pechman and Reibling 2006).

Effective type, content and mode of campaign delivery

The USA Centers for Disease Control and Prevention (CDC) has developed a best practice guide to help with the design of tobacco control programmes (McKenna et al 2000). The guide related to all programmes for youth prevention and promoting quitting smoking amongst young people and adults and was made up of

nine components, with counter marketing activities being one of them. The CDC panel of youth marketing and research experts made a number of recommendations:

- Recommended primary target audience; age 11-15 years (as smoking initiation often occurs during this time)
- Recommended secondary target; parents and older siblings
- Recommended themes; highlight a tobacco free lifestyle and provide examples of this
- Avoid portrayals of smoking as an increasingly popular majority behaviour
- Explain the relevant dangers of tobacco in a personal, emotional way
- Offer youth empowerment and control (and do not preach)
- Use multiple voices, strategies and executions
- Offer constructive alternatives to smoking and discourage destructive alternatives
- Portray smoking as unacceptable and undesirable for everyone
- Use multiple channels to deliver multiple messages repeatedly and consistently
- Maximise the use of existing media materials
- Provide sufficient funding for an intensive, sustained programme
- Ensure that the counter marketing activities complement other programme elements

Source: McKenna et al 2000

It is essential that counter industry campaigns are well funded and sustainable. An example of such a campaign is the Target Market campaign (Dunn et al 2004) launched in Minnesota in 2000. This campaign achieved positive outcomes with branding and messaging activities associated with young people spreading anti-industry messages. However, when this campaign was withdrawn in 2003, and as awareness of the campaign declined amongst young people, susceptibility to tobacco use increased and anti-tobacco attitudes and beliefs were negatively impacted by the elimination of the programme (Sly et al 2005). Dietz et al (2010) also found a negative impact following termination of the Florida 'truth' campaign; although smoking rates continued to decline immediately following termination, after time smoking rates began to increase again. Drawing on the evidence from evaluations of anti-tobacco mass media interventions, tobacco industry denormalisation campaigns are most likely to be effective when conducted and sustained over a longer period of time, with increased frequency of exposure (Richardson et al 2007) to produce a high level of awareness.

It is also recommended that the counter marketing activity is run alongside other complimentary elements. Although there is no direct head-to-head evidence on which to judge effectiveness, researchers have suggested that campaigns utilising other activities, such as youth movement activities in combination with mass media can be effective. Researchers have reported that the youth organising effort, in combination with an intensive counter marketing media campaign, may be an effective strategy for involving youth in tobacco prevention and generating negative attitudes about the industry (Dunn et al 2004). When comparing a number of campaigns, Pechman and Reibling (2000) also found a campaign with multiple elements (using a school programme alongside) was most cost effective due to reducing smoking prevalence at a low per capita cost. When considering message content, a number of studies found that messages focusing on negative health impacts had a greater impact on recall of the advertisement and reduced intention to smoke compared to messages that concentrated on the tobacco industry (Pechman and Reibling 2006, Biener et al 2004 and Sutfin et al 2008).

This review identified no studies that evaluated the effectiveness of anti-tobacco industry interventions in the UK, despite their existence in the UK. For example, the Direct Movement of the Young Smokefree Team (D-MYST), is a youth advocacy group based in Liverpool which aimed to denormalise smoking and make it seem less glamorous through a variety of different mechanisms. In relation to the tobacco industry, members of D-MYST demonstrated outside the British American Tobacco annual general meeting on issues relating to child labour and cigarette marketing. While those involved with the activities have provided some encouraging comments (Perigo 2010), unfortunately this review failed to identify any formal evaluation.

PHASE TWO

Phase Two Aim

The aim of the phase two review was to undertake a rapid appraisal of literature that examined the impact of tobacco industry denormalisation interventions and counter industry campaigns and activities that aimed to reduce smoking initiation or support smoking cessation among those aged 18-25 years.

Phase Two Method

A targeted search was undertaken using Medline which is widely recognised as the main source of bibliographic and abstract information relating to biomedical literature. Medline encompasses information from Index Medicus, Index to Dental Literature and International Nursing Index as well as other sources in the areas of allied health, biological and physical sciences, humanities and information science as they relate to medicine and health care. Consequently, Medline covers articles from almost 5,000 journals.

An initial investigation of Medical Subject Headings (MeSH) terms was undertaken in order to facilitate a more targeted search. Smoking, smoking cessation, tobacco and nicotine were all investigated and it was decided to use `smok*`³ and tobacco to incorporate these terms. The denormalisation/campaign aspect of the search could not be covered using MeSH terms so the terms which had been used in phase 1 were used.

No restriction by age or field (for example, a restriction to titles or abstracts) was made, but the search was constrained to the years 1990 to 2011. This search strategy identified 33 papers. Papers which referred to children and young people (aged less than 18 years) were excluded. Additional papers were identified from two sources: 1) Smokefree North West and 2) from papers excluded in the phase 1 review because they focused upon adults. The abstracts of all papers were reviewed. It was not possible to identify papers which specifically focused upon people aged 18-25 years, so papers which were related to adults of all ages were reviewed.

Phase Two Results

A review of the papers included in phase two are provided in Table 7.

³This is a truncation operator; the search will include, for example, smoke, smoking, smoked, smoking and smoker.

Table 7. A summary of academic literature relating to anti-tobacco industry interventions/attitudes among adult populations

Study	Study aim	Method	Findings
Dietz et al 2008 USA	The study examined whether the youth 'truth' campaign in Florida had an effect on adult smoking by 1) examining adult awareness of the youth campaign and 2) testing if awareness was associated with an intention to quit in the next 30 days.	Cross sectional, interview study of adult smokers contacted via random telephone dialling (n=781). Average age: 41 years.	21% confirmed the campaign theme, 45% confirmed the campaign logo, 62% confirmed the campaign advertising event (i.e. what occurred in the advert), and 68% confirmed the campaign advertising theme (i.e. the message). 31% of adults with children and 27% of adults without children expressed a willingness to quit. Analysis controlled for gender, age, ethnicity, marital status and education showed intention to quit was not associated with awareness of the truth campaign but was associated with awareness of industry manipulation.
Young et al 2007 Australia, UK, USA, Canada	The study aimed to compare Australian smokers' attitudes towards regulation of the tobacco industry with attitudes of people in the UK, the USA and Canada.	Cross sectional survey of smokers aged 18 and over from Australia (n=2,056), Canada (n=2,071), the USA (n=2,050) and the UK (n=2,045).	Smokers were generally very supportive of strong regulation of the tobacco industry. Support was highest in Australia and lowest in USA. Controlling for country, gender, age, income and education, support for increased regulation of the tobacco industry was associated with a belief that the tobacco industry should take responsibility for the harms they cause. Males, older smokers and those with lower incomes were most supportive of industry regulation.

Study	Study aim	Method	Findings
USA Sly et al 2002	The study aimed to identify whether there was a dose effect of exposure to the truth campaign over a 22 month period on smoking uptake and how this effect is moderated by 1) the campaign's message and 2) a person's anti tobacco attitudes.	Repeated cross sectional, interview study. A stratified sample (representative by age, gender, ethnicity, region, percentage not in school, public versus private school and single parent household) was drawn from the sample previously interviewed. The sample consisted of 1,805 respondents who were not smokers when first interviewed. People who could confirm no TV adverts were compared with people who could confirm one to three adverts, and four or more. Age range: 12-20 years.	<p>The rate of uptake of smoking varied inversely by 1) the number of adverts recalled, 2) the influence of the major theme and 3) the strength of Industry Manipulation Attitude Index (IMA; a measure of attitudes about tobacco industry manipulation). These associations were for both 1) 'even a puff' in the previous 30 days and 2) established smoker.</p> <p>These effects were then considered in three age cohorts: 15 and under, 16-17 and 18-20, and controlling for susceptibility to smoking (defined as at least one best friend who smoked). With two exceptions, confirmed awareness, influence of message theme and strength of IMA were significantly associated with smoking uptake. The exceptions were 1) for people aged 15 and under, confirmed awareness was not related to uptake for established smokers and 2) for people aged 18-20, confirmed awareness was not related to 'even a puff' smoking.</p> <p>IMA showed the strongest inverse relationship with smoking uptake.</p>
USA Ling et al 2007	The study aimed to investigate associations between attitudes toward the tobacco industry and smoking behaviour.	Cross sectional survey using random digit dialling of people aged 18-29 years in California (n=9,455).	Controlling for a range of factors including age, social group, gender, ethnicity, education and marital status, support for anti tobacco industry action was strongly negatively associated with 1) current smoking, 2) susceptibility to smoking in the future and 3) and intention to quit among smokers.

Study	Study aim	Method	Findings
<p>Ashley and Cohen 2003</p> <p>Canada</p>	<p>The study aimed to assess public attitudes toward the tobacco industry and to identify predictors of attitudes supportive of the tobacco industry.</p>	<p>Cross sectional survey of adults aged 18 and over, living in Ontario, using random digit dialling (n=1,607).</p>	<p>Attitudes to the tobacco industry:</p> <ul style="list-style-type: none"> • 75% felt the tobacco industry rarely/never tells the truth about the effects of smoking. • 56% felt cigarettes are too dangerous to be sold at all. • 43% felt the tobacco industry was mostly/completely responsible for smoking-related health problems. • 22% felt the tobacco industry was most responsible for young people starting to smoke. <p>Attitudes towards tobacco industry denormalisation strategies:</p> <ul style="list-style-type: none"> • 82% felt that tobacco should be regulated as a hazardous product. • 64% felt that the tobacco industry should be fined by the government from the money they earn from young people aged less 19 who smoke. • 55% felt the government should sue tobacco companies for health care costs caused by tobacco products. • 40% felt the government should sue the tobacco companies for the taxes lost because of cigarette smuggling. <p>Sex, age and education were not related to denormalisation score (a composite score related to answers to the eight questions detailed above). Support for tobacco industry denormalisation was higher among 1) non-smokes, 2) those that were more knowledgeable about the health effects of tobacco and 3) those with strong beliefs that the government should be responsible for health promotion.</p>

Study	Study aim	Method	Findings
<p>Hammond et al 2006</p> <p>USA, Canada, UK, Australia</p>	<p>The study aimed to 1) characterise social and industry denormalisation beliefs, 2) examine whether demographic variables, smoking behaviour and policy-related variables are associated with denormalisation, and 3) determine whether social and industry denormalisation have independent associations to smoking behaviour.</p>	<p>Longitudinal survey (the International Tobacco Control Four Country Survey) was used with smokers aged 18 or over from Canada (n=2,214), USA (n=2,138), UK (n=2,401) and Australia (n=2,305).</p>	<p>Smokers in all four countries held antagonistic beliefs toward the tobacco industry and showed little approval for smoking. Higher socioeconomic status and older age were associated with greater industry denormalisation beliefs (measured using questions on perception of the tobacco industry, for example, the tobacco industry can be trusted to tell the truth). Men reported greater anti-industry beliefs. Smokers reporting medium or high industry denormalisation beliefs were more likely to report an intention to quit and more likely to be abstinent at follow up than smokers reporting low anti-industry beliefs. Anti-industry beliefs were associated with noticing anti-smoking information, tobacco advertising and environmental tobacco smoke restrictions.</p>

Phase Two Discussion

Phase 2 of the evidence review demonstrates that smokers report smoking to be undesirable and show little approval for smoking or the tobacco industry (Hammond et al 2006). Consequently, adults across a range of countries support anti-tobacco industry interventions. Young et al (2007) demonstrated that smokers in Australia, the UK, the USA and Canada were very supportive of strong regulation; controlling for country, gender, age, income and education, respondents support for increased regulation of the tobacco industry was associated with a belief that the tobacco industry should take responsibility for the harms they cause. Ashley and Cohen (2003) reported that people that were more knowledgeable about the health effects of smoking are more supportive of tobacco industry denormalisation, suggesting that increasing knowledge about the health effects is a precursor to support of tobacco industry denormalisation. Themes relating to deceitful industry practices and the socially unacceptable nature of tobacco use may reduce adult smoking and encourage people to support government regulation (Hammond et al 2006).

Dietz et al (2008) concluded that the youth-focused truth campaign did not serve to influence adult's intentions to quit because intention to quit was not significantly associated with awareness of the Florida 'truth' campaign. However, Sly et al (2002), using a repeated cross-sectional design, showed that young people aged 12 to 20 who were not smoking at baseline were less likely to be established smokers at follow up if they recalled a greater number of 'truth' campaign adverts, scored more highly on self-reported influence of the campaign and scored more highly on self-reported negative attitudes towards tobacco industry manipulation, having controlled for age and smoking susceptibility. There was dose response relationship; the rate of uptake of smoking was inversely related to the number of adverts recalled. The 'truth' campaign therefore had an impact on those aged 12 to 20 who had previously been interviewed but not on a randomly selected group of adults with a mean age of 41 years.

Irrespective of the source of information, awareness of the tobacco industry tactics and industry manipulation was associated with smoking intentions and behaviour among adults. Dietz et al (2008) reported that, following adjustment for a range of factors, awareness of industry manipulation was positively associated with increased intentions to quit. Ling et al (2007) controlling for a range of factors including age, social group, gender, ethnicity, education and marital status reported that support for anti-tobacco industry action was strongly negatively associated with current smoking, susceptibility to smoking in the future and intention to quit among smokers.

Stronger evidence for an effect of tobacco industry denormalisation comes from follow up studies which use changes in smoking behaviour as an outcome measure. As detailed above, Sly et al (2002) demonstrated that non-smokers were less likely to become established smokers if they reported having negative attitudes towards the tobacco industry. Similarly, Hammond et al (2006) reported that smokers reporting medium or high industry denormalisation beliefs were more likely to report an intention to quit and more likely to be abstinent at follow up than smokers reporting low anti-industry beliefs. In combination, these findings suggest that anti-tobacco industry beliefs may be used to both reduce the likelihood of smoking initiation and increase the likelihood of quitting. Indeed Hammond et al (2006) concluded that anti-tobacco industry themes were successful in reducing adult smoking.

PHASE ONE AND TWO

Phase One and Two Conclusions

The majority of the evidence presented here, particularly in relation to anti-tobacco industry approaches to tackle youth smoking, comes from the USA. There is evidence from this review that the truth® and similar campaigns are recalled by young people and that they do have an effect on young people's attitudes towards smoking and the tobacco industry. Furthermore some studies report an association between campaigns and both a reduction in smoking intention and smoking initiation. However, two experimental studies, a study design providing stronger evidence than other study designs, reported that counter industry advertising had no effect on smoking intentions. Across studies, messages that focus on the negative health effects of smoking and smoking-related negative life circumstances had the greater impact in terms of recall and intention to smoke by young people than messages using humour or those focusing on industry manipulation. The intensity of the campaign is important, and the effects on young people wear off over time once the campaign has ceased. There is evidence to show that campaign effectiveness varies by sub-group of young people, for example, by ethnicity and by social economic status. One study found that a youth-focused campaign with multiple elements (used alongside a school programme) was the most cost effective.

While the evidence for an impact of anti-tobacco industry interventions on adults is less extensive, what evidence exists suggest that beliefs about the tobacco industry are related to smoking attitudes and behaviours including both a reduction in smoking initiation and an increase in smoking cessation. Anti-industry beliefs vary by a number of factors including age, gender, smoking status and socioeconomic status. The intensity of coverage is likely to be important, with Sly et al (2002) demonstrating that the number of adverts recalled was significantly inversely associated with the rate of smoking uptake. Industry denormalisation may therefore be an effective theme for campaigns aiming to reduce smoking prevalence among adults. However, relying on youth tobacco industry denormalisation campaigns may not be sufficient to reduce smoking among adults.

Phase One and Two Methodological and Contextual Considerations

Although evaluations of anti-industry campaigns indicate effectiveness in reducing smoking prevalence among both young people and adults, there are a number of factors which must be considered. Firstly, response bias may be a factor if those who responded were systematically different from those who chose not to take part in the research and if this is the case, the results will only be applicable to those who took part in the studies. In some longitudinal studies, there is also a failure to account for survey attrition over time and participants are often lost between baseline and follow ups (Davis et al 2009). In studies that use post only measurements to compare youths living in areas exposed and unexposed to the campaigns, it is possible that smoking rates are lower in areas exposed to the campaign before the campaign was initiated (Davis et al 2009). Characteristics of participants should also be considered; those who can recall the campaign messages may differ to

those who cannot, for example, youth with existing strong anti-tobacco attitudes may be more receptive to the campaign messages (Cowell et al 2009). While longitudinal studies (for example Sly et al 2002 Hammond et al 2006) provide stronger evidence for an effect, there may be other confounding factors which influenced both smoking and denormalisation beliefs.

It must also be noted that evidence relating to American populations, for example, may not necessarily be applicable to populations of the UK (Richardson et al 2007). In the UK, the Tobacco Advertising and Promotion Act 2002 came into force in November 2002 (Legislation Government 2010d) which means that many young people will be unfamiliar with tobacco advertising, a situation very different from that which currently exists in the USA. Even evidence for support for anti-tobacco industry interventions drawn from a number of countries should be interpreted with caution; using an intervention which has been shown to be successful in one context does not necessarily mean it will be successful in another. The anti-industry campaigns run in the USA have been well funded; the impact of any anti-tobacco industry interventions will be associated with the population's perception of the quality and the quantity of the message. Furthermore, the USA based anti-industry campaigns have been part of a wider tobacco control programme comprised of complimentary elements.

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Appendix 1

Search strategy

No.	Term	Hits
1	Exp child/	1355357
2	Exp adolescent/	1374804
3	(young adj (person* or people)).ti,ab.	13009
4	(child* or adolescen* or kid or kids or youth* or youngster* or minor or minors or teen* or juvenile* or student* or pupil* or boy* or girl*).ti,ab.	1226962
5	Or/1-4	2537235
6	exp Smoking/	101836
7	(smok*).ti,ab.	142387
8	exp Tobacco/ae [Adverse Effects]	1410
9	exp Tobacco Use Disorder/th, et, pc [Therapy, Etiology, Prevention and Control]	2210
10	exp Tobacco Smoke Pollution/ae, pc [Adverse Effects, Prevention and Control]	5720
11	exp Tobacco, Smokeless/ae, sd [Adverse Effects, Supply and Distribution]	836
12	(Tobacco).ti,ab.	50159
13	(nicotine adj1 dependence).ti,ab.	2259
14	(tobacco adj1 dependence).ti,ab.	842
15	exp Smoking/pc [Prevention and Control]	12831
16	tobacco industry/	2901
17	(Tobacco adj (industry or industries or business or enterprise or manufactur* or distribution or company or companies)).ti,ab.	1528
18	Or/6-17	196944
19	(Denormalisation or Denormalised).ti,ab.	7
20	(Counter adj (marketing or advertis* or industry or industries or campaign)).ti,ab.	54
21	(Anti adj industry or industries). Ti,ab.	8574
22	(Truth adj campaign).ti,ab.	22
23	Or/19-22	8649
24	5 and 18 and 23	158
25	24 [Limit to: Publication Year 1990-2010]	158

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