



**TOBACCO  
CONTROL  
AND  
MASS MEDIA  
CAMPAIGNS**

**promoting  
a healthy  
australia**



**evidence brief**

THIS EVIDENCE BRIEF FORMS PART OF THE AUSTRALIAN NATIONAL PREVENTIVE HEALTH AGENCY'S EVIDENCE BRIEF SERIES WHICH AIMS TO DISSEMINATE INFORMATION AND INFORM DIALOGUE RELATING TO HIGH PRIORITY PREVENTIVE HEALTH ISSUES.

# promoting a healthy australia.

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## SUMMARY

The evidence reviewed in this document indicates:

- That tobacco control mass media campaigns reduce youth and adult smoking.
- Mass media campaigns have direct effects on smokers and youth by exposing them to messages that prompt quit attempts and avoidance of smoking. Campaigns also have indirect effects that support not smoking by more generally de-normalising smoking in society.
- Mass media campaigns require frequent population exposure – in every quarter of the year – to achieve optimal effects on smoking behaviour, otherwise competing pro-smoking influences take over.
- Achievement of adequate campaign intensity is especially important for vulnerable population subgroups, among whom pro-smoking influences are greater, with campaign withdrawal leading to rebound effects on prevalence in lower socio-economic (SES) groups.
- Exposure to an average of at least 1200 Target Audience Ratings Points (TARPs) per quarter produces detectable declines in smoking prevalence in youth and adults, and additional exposure in the range of 1800-2100 TARPs per quarter produces even greater behavioural impact.
- While lower campaign exposure increases recall, campaign effects on behaviour are only detected at these higher exposure levels.
- Because they have high reach into populations, mass media campaigns are highly cost-effective with savings from averted health care costs exceeding campaign investment.
- Emotionally intense messages emphasising the negative health effects of smoking using graphic images or testimonials consistently perform better (lead to higher ratings, more Quitline calls, higher quit rates) than advertisements generating lower levels of negative emotion.
- Frequent broadcast of negative health effects messages using testimonials or graphic depictions may work well across population groups of adults and youth, and may contribute to reductions in disparities between high SES smokers and smokers with some degree of disadvantage.
- Further research is needed to explore how best to integrate broadcast media, social media and new digital 'opt in' media channels of engagement to achieve optimal behavioural impact, without widening disparities in disadvantaged groups.
- Additional research is required to compare behavioural effects of exposure to high negative emotive campaigns in the presence and absence of positive emotion ads that support quitting.
- Further research is needed to examine the effectiveness of general and culturally targeted campaign messages among Indigenous Australians.

## INTRODUCTION

Australia has long been regarded as a world leader in the production and broadcasting of mass media campaigns to reduce smoking behaviour, having first employed tobacco control mass media campaigns in the 1970s, and with many subsequent campaign materials having been adapted for use in other countries. After the 'Sponge' campaign was aired in NSW in 1983, which used the image of a dirty sponge being wrung out to simulate the removal of black viscous tar accumulation in a smoker's lungs, a 1% decline in smoking was observed in Sydney, a significant change when compared with static smoking rates in Melbourne where the campaign did not run<sup>1</sup>. This study provided one of the first formal evaluations internationally of media campaign effectiveness. During the remainder of the 1980s through to the mid-1990s, a variety of state-based campaigns were run at different times, as well as a short-run federal initiative aimed at smoking in women<sup>2</sup>. In 1997, after a review of the evidence in response to plateauing smoking rates, the National Tobacco Campaign was launched as a truly collaborative effort between federal and state governments and non-government organisations. The campaign was developed from an overarching model of the role of campaigns in influencing behaviour<sup>3</sup> and through extensive focus testing and consultation with medical practitioners. It used graphic imagery to warn of the serious harms of smoking, such as fat being squeezed out of the artery of a smoker or blood oozing from a stroke in the brain, accompanied by encouragement to call the Quitline to access advice and resources to quit. The strategy proved highly successful<sup>4-6</sup> and the advertisements have since been adopted by many countries throughout the world, including Cambodia, Canada, Iceland, Mongolia, New Zealand, Norway, Poland, Singapore, various US states and Vietnam.

Over the past 15 years, tobacco control mass media campaigns in Australia at the state and Federal level has greatly benefitted from the lessons learned from past campaigns and a strengthening international evidence base. Mass media campaigns are recognised as a key strategy for reducing smoking prevalence in youth and adults in high income countries and are gradually gaining more traction in middle and low income countries. Indeed, ongoing investment in tobacco control mass media contributes to fulfilling Australia's obligations as a signatory to Article 12 of the Framework Convention on Tobacco Control, which advocates a focus on education, communication and public awareness<sup>7</sup>. This evidence brief reviews national and international evidence for campaign effectiveness in influencing smoking behaviour change.

## HOW DO MASS MEDIA CAMPAIGNS WORK TO CHANGE BEHAVIOURS LIKE SMOKING?

Mass media refers to a range of media channels able to reach large numbers of individuals within a population (e.g. television, radio, newspapers, magazines, outdoor advertising on billboards and transport, and point-of-sale advertising, as well as online media tools and mobile device applications). The majority of the evidence on tobacco control mass media campaigns is based on television-led campaigns with very little research available on the effectiveness of the other channels. This is largely because it is still the only channel that can ensure that the vast majority of smokers in the population are exposed to anti-smoking messages.<sup>8</sup>

Mass media campaigns can facilitate individual behaviour change by directly exposing smokers to messages designed to activate one or more of the five principles of behaviour change.<sup>9</sup> Tobacco control mass media campaigns can:

- increase **motivation** to quit through changing knowledge, beliefs and attitudes by presenting arguments, stories and evidence of the harms of smoking and/or benefits of quitting;
- build **skills and capacity** to quit by promoting resources such as Quitlines and websites that provide guidance about strategies to quit and reduce the likelihood of relapse;
- provide **modelling** of effective quitting strategies by presenting quitters' techniques for quitting and / or stories of success;
- **remind** smokers to keep quitting on top of their 'to do' list through frequent exposure to campaign messages; and
- **reinforce** the positive rewards of quitting and the negative consequences of smoking through regular exposure to campaign messages.

Tobacco control mass media campaigns can also have several indirect influences.<sup>10</sup> First, campaigns can increase awareness, concern and discussion about the harms and about quitting. Even those not directly exposed to the campaign may come in contact with new information about harms and witness others' quitting attempts, both of which can support their own quitting efforts. Second, increased awareness, concern and discussion among smokers' family and friends and across society more generally provides a more favourable climate for tobacco control policy change (for example, the implementation of smoke-free policies or tobacco marketing restrictions). These policies, in turn, reduce the ease or convenience of smoking and decrease social approval of smoking, thereby motivating smokers to quit and reducing initiation among youth.<sup>11, 12</sup> In aggregate, these indirect effects serve to further denormalise smoking.

Mass media campaigns rely for their effectiveness on the extent to which they achieve mass population reach. The ability to disseminate messages to the majority of the population repeatedly over time without individuals having to take any voluntary steps to be exposed is the pathway through which mass media can affect population-wide behaviour change. This means that most smokers—from those not thinking about quitting, to those making a quit attempt or trying not to relapse—are motivated, reminded and given reinforcement to quit or stay quit. Given this ability to reach such large and diverse audiences, mass media campaigns have a very low cost per person compared to other person-to-person methods of behaviour change, with simulation studies indicating savings from averted health care costs exceed campaign costs.<sup>13-15</sup>

## EVIDENCE FOR THE EFFECTIVENESS OF TOBACCO CONTROL MASS MEDIA CAMPAIGNS

Given the long history of tobacco control mass media campaigns, there have been a number of reviews summarising evidence of effectiveness,<sup>16-21</sup> some using narrower inclusion criteria<sup>22, 23</sup> than others. This evidence brief focusses on and updates the three most recent reviews of effects on youth and adults,<sup>24-26</sup> which include early field experiments (where an exposed community is compared to an unexposed community), as well as more recent population-based studies. Box 1 summarises the inclusion criteria for studies in the updated review.

### Inclusion criteria for studies in the updated review

- Studies of adults contain current smokers and studies of youth include those aged 12-25 years.
- Examine mass media in which exposure is incidental or involuntary (television, radio, print and/or outdoor advertising), rather than digital media channels which often require users to 'opt in' to be exposed.
- Campaign messages include encouragement to quit or not take up smoking, and so exclude campaigns which only inform about upcoming policy changes.
- Present quantitative data relating exposure to mass media message/s to an outcome indicating campaign impact (recall or recognition; campaign targeted attitudes and beliefs, cognitive and emotional advertising responses; physiological arousal; Quitline calls or website hits / registrations; and quitting-related intentions, activity and behaviour). Studies that do not relate changes in outcomes over the campaign period to changes over time in exposure are excluded.
- For the examination of overall campaign success, post-campaign-only surveys are excluded as they present a far weaker design compared with others that include pre-campaign assessments.
- Studies that use Quitline calls or website hits / registrations as the only outcome measure are only included in the examination of differences in the impact of message types, media channels, and population subgroups, but not as a measure of overall campaign success.
- For the examination of the effectiveness of different media channels (television, radio, print, outdoor), message types and population sub-group (socio-economic status, gender, age) studies must have explicit comparisons of the different channels, different message types and different sub-groups within each study. Studies that experimentally manipulate the inclusion or exclusion of only one particular element in a campaign message and therefore do not broadly compare different types of messages are excluded.

### BOX 1: INCLUSION CRITERIA FOR STUDIES IN THE UPDATED REVIEW

While early empirical studies of campaign effects employed controlled field experiment designs, this approach became unviable during the 1990s as large-scale campaigns became key components of comprehensive tobacco control programs.<sup>25</sup> The majority of population-based studies over the past 15 years have featured campaigns broadcast within entire states or countries, thereby excluding the possibility of a truly unexposed population. These more recent population-based studies have used innovative methods to examine effects, for example by comparing those with greater or lesser campaign exposure in natural experiment designs, and dis-aggregating the impact of campaigns from tobacco control policies. These 'real world' population-based studies are extremely valuable as they provide an assessment of the impact of large-scale campaigns that aim for population-wide change through activating both direct and indirect pathways of effect, unlike many of the earlier short-run and more localised campaign demonstration projects that were broadcast at more modest levels.

## OVERALL EFFECTIVENESS IN ADULTS

A comprehensive review of studies from 1970 through to May 2008<sup>25</sup> found strong consistent evidence of mass media campaign effectiveness for changing adult smoking behaviour, with 26 of 30 studies finding beneficial effects. The inclusion of additional published studies from May 2008 to December 2011<sup>26</sup> also found beneficial campaign effects on smoking behaviour (quit attempts, quit rates, smoking prevalence) in 7 out of 8 of these newer studies. The original review and the updated review both conclude that mass media campaigns can strengthen anti-smoking attitudes and quit intentions, promote quitting and reduce adult smoking prevalence, and that campaign reach, intensity, duration and the type of message are important determinants of the overall impact.

Since the most recent review,<sup>26</sup> there have been 5 new studies that have examined campaign effects in adults,<sup>27-31</sup> and all but 130 found reduced adult smoking behaviour (quit attempts, prevalence, reduced relapse). The one remaining study of young adults aged 18-24 years did not measure smoking behaviour, but found positive effects on campaign-targeted beliefs and a trend for greater quitting intentions.<sup>31</sup>

## OVERALL EFFECTIVENESS IN YOUTH

The evidence is also strong for effects on youth. Considering studies of campaign effects on youth smoking behaviour (initiation, cessation or prevalence) from 1970 to June 2008, a review conducted as part of the US Surgeon-General's Report on Preventing Tobacco Use in Youth and Young Adults<sup>32</sup> found 29 of 31 studies demonstrated intended campaign effects. It concluded that mass media campaigns can be effective in reducing youth smoking, but that there are certain factors and conditions required for success, including the use of formative research, use of an appropriate message theme and sufficient intensity and duration of exposure to campaign messages.

Since the Surgeon-General's review, 5 new studies have examined campaign effects on youth smoking initiation, cessation or prevalence, with 4 showing positive effects of campaign presence.<sup>33-36</sup> The fifth study found no specific intervention effects, but did show improvements in campaign targeted beliefs and smoking prevalence in both the intervention and an unexposed comparison community. The improvement across both communities was probably due to a concurrent national anti-smoking campaign overshadowing the influence of the study campaign's impact.<sup>37</sup> Of another 4 studies that did not specifically measure smoking behaviours, 2 showed effects on campaign targeted beliefs or reduced smoking intentions,<sup>38, 39</sup> 1 found a mediated effect through peer perceptions of media influence<sup>40</sup> and 1 low intensity poster-led school-based campaign found no effect on campaign targeted beliefs.<sup>41</sup>

## EFFECTS OF CAMPAIGN INTENSITY, DURATION AND TIMING ON SMOKING OUTCOMES

Mass media campaigns are expensive to mount, so it is important to determine the optimum frequency and length of time for broadcasting them. Observation of the reversal of declining smoking rates after reduced campaign funding in many jurisdictions (Florida<sup>34</sup>, California<sup>42</sup> and Australia<sup>43</sup>) indicates that effects are not permanent. Although previous reviews<sup>22, 25, 26</sup> conclude campaigns need to be aired at sufficient levels of intensity and duration, relatively little research has specifically examined what may constitute 'sufficient'. In considering this question, it is important to study the behavioural effects of campaign exposure, rather than simple recall of campaigns. Some recent Australian studies that have examined this question<sup>27, 44, 45</sup> indicate that campaigns need to be seen by most smokers approximately every quarter, with the rate of change in population smoking prevalence and quitting behaviour returning to normal after 2 to 3 months. One Australian study tracking monthly adult smoking prevalence from 1995-2006 found that campaign effects were detectable 2 months after exposure but returned to normal after this time<sup>44</sup>, while another longitudinal Australian study found campaign exposure on increased likelihood of making quit attempts could be detected up to 3 months after exposure but not beyond that.<sup>45</sup> A recent study continually tracking adults' responses to ongoing campaigns in NSW found increased thoughts about quitting appeared after 9 weeks of continual exposure and lasted up to 6 months, while increased quit attempts appeared after 6 weeks of continual exposure and lasted 3 months.<sup>27</sup> These findings are consistent with commercial product advertising research where campaign effects on behaviour are known to wear out more rapidly than memories and thoughts about campaigns.<sup>46</sup>

Getting the right level of campaign frequency or intensity while campaigns are on air is also crucial for optimising campaign investment, although again there is relatively little research to provide guidance. Cross-referencing the few studies that have explored this,<sup>27, 44, 47-50</sup> suggests an average of at least 1200 Target Audience Ratings Points\* (TARPs) per quarter, (or exposure of the entire adult population to around 12 anti-smoking ads over 3 months) is needed to change adult smoking behaviour, although greater effects are observed as the intensity increases. The linear relationship is illustrated by an Australian longitudinal study of recent quitters where the probability of staying quit after about 1 year was 41% when not exposed to any anti-smoking ads, 52% when exposed to approximately 1100 TARPs per quarter, and 74% when exposed to over 3500 TARPs per quarter, after holding other potentially influential factors constant.<sup>48</sup>

### \* Target Audience Rating Points explained

Target Audience Rating Points (TARPs) are also referred to as Gross Rating Points (GRPs). TARPs are a standard advertising industry measure of campaign reach and frequency. For example, 100 TARPs per quarter equates to, on average, 100% of those within a region exposed to 1 ad, or 50% exposed to 2 ads; 1000 TARPs per quarter equates to, on average, 100% of those within a region exposed to 10 ads, or 50% exposed to 20 ads, and so on...

Given the relatively low intensity of most tobacco control campaigns, there are few studies that have specifically examined how high campaign planners can go before effects begin to diminish. Some exceptions are in Massachusetts, California and NSW, which have had periods of moderate to high campaign intensity in the recent past. In California from 2001 to 2008, campaign recall began to 'wear-out' after campaigns reached approximately 700-1000 cumulative TARPs, indicating that the ability of the campaign to reach new viewers began to wane at that point.<sup>51</sup> In NSW, while levels of campaign recall began to plateau after 300 to 600 TARPs per quarter, quitting thoughts and quit attempts continued to increase with increasing exposure up to 1300 to 1900 TARPs per quarter.<sup>27</sup> In Massachusetts, the odds of quitting at 2-year follow-up increased by 11% for every 1000 TARPs, and there was no evidence of diminishing returns with an average exposure level of 2560 TARPs per quarter. The existing evidence<sup>27, 49, 51</sup> suggests that although a maximum level of recall throughout the population may be achieved fairly rapidly, additional exposure remains critical for motivating and reminding smokers to change their behaviour. To date, there is no evidence from population surveys to indicate there is a level at which tobacco control media campaign effects on adult quitting behaviours begins to diminish, with greatest behavioural impact seen with the highest levels of campaign intensity.

Campaign reach can be increased with strategic use of media advocacy to promote news coverage of campaign messages, especially during the launch phase of a campaign. News media coverage on tobacco issues plays a key role as a source of health information for the public, and can itself influence public opinion and health behaviour change.<sup>25</sup>

Few studies have examined the effects on smokers of timing campaign broadcasting to coincide with the introduction of particular tobacco control policies. For example, tobacco packaging regulations can provide health warnings that achieve extremely high reach among smokers, but feature static health warning messages. These messages can be communicated in more elaborate and engaging ways through electronic mass media channels.<sup>52</sup> To date, two studies<sup>53, 54</sup> have documented the benefits of exposure to both new graphic health warnings and televised mass media campaigns about particular warnings, rather than just one of these message channels, with both studies suggesting an additive impact of these two strategies being run concurrently.

## POPULATION SUBGROUP EFFECTS

Given certain population sub-groups have higher smoking prevalence, it is common for tobacco control practitioners to be called upon to tailor anti-smoking campaign messages to these groups. The development of tailored campaigns is however burdened by the increased cost of creating multiple campaigns to suit each sub-group, and the danger of creating public perceptions that the targeted sub-group are the only ones for whom the behaviour is a problem.<sup>55</sup> In deciding whether or not to tailor campaign messages, practitioners need to identify a distinct advantage of tailoring that outweighs these potential negative consequences, especially given mixed evidence for campaigns tailored to different sub-groups.<sup>26, 37, 56, 57</sup> Some campaigns targeted to specific ethnic groups have reported success, and other evaluations found general audience campaigns more successful than tailored campaigns.<sup>56, 58</sup> In contrast, evidence reviews and new studies indicate that widely broadcast mass media campaigns developed for a general audience have the potential to be at least equally effective across SES sub-groups, as long as each group has equal opportunity to be exposed.<sup>22, 24-26, 38, 56, 59-61</sup> Further research is required to examine effects in smaller sub-groups with particularly high levels of smoking such as those with a serious mental

illness, the homeless and those with substance abuse problems, who are difficult to recruit into evaluations, and so are not well represented in the existing research.<sup>56</sup> However, a mass-reach approach may not be efficient for reaching these smaller population groups, and more direct forms of communication (such as through health professionals) may be better.

The importance of continued campaign presence in reducing SES disparities and pushing down smoking rates in lower SES groups is often underappreciated. Previous reviews indicate many tobacco control media campaigns that have been unsuccessful with lower SES groups have suffered from poor levels of funding, intensity and duration.<sup>58</sup> This was seen in Australia during periods of low tobacco control funding when smoking prevalence among 12-15 year olds increased, and increased most among students from lower SES groups (see Table). In contrast, 12-15 year old smoking rates decreased equally across SES during the well-funded National Tobacco Campaign from 1997-2005.<sup>43</sup> Lower SES groups may be particularly vulnerable to inadequate mass media campaign exposure due to competing pro-smoking influences regaining prominence from their immediate social environment, where smoking is more normalised. Rather than tailoring campaign messages to lower SES groups, greater impact may be achieved by targeted media buying to preferentially expose lower SES groups—in other words airing general audience campaign messages during the programs and on channels popular with lower SES smokers.

SES QUARTILE	1987-1980 <i>MODERATE</i> ACTIVITY PHASE 1 (%)	1990-1996 <i>LOW</i> ACTIVITY PHASE 2 (%)	1996-2005 <i>HIGH</i> ACTIVITY PHASE 3 (%)
<b>ABSOLUTE CHANGE IN PREVALENCE IN MONTHLY SMOKERS</b>			
LOWEST	-1	+6	-12
SECOND	-2	+3	-10
THIRD	0	+1	-12
HIGHEST	-1	+1	-13

TABLE: SMOKING UPTAKE AMONG ADOLESCENTS DURING PERIODS OF HIGH VS. LOW MEDIA ACTIVITY <sup>43</sup>

It is often proposed that it would be wise to tailor campaigns to youth to stop them from taking up smoking, as ‘prevention is better than cure’. However, with the exception of the US ‘truth’ campaign, youth campaigns often include message themes known to be less effective (short-term consequences, humour, social norms<sup>32</sup>) and there is potential for these campaigns to promote the undesirable notion that smoking is something only youth in particular should avoid, and is not so much an issue for adults.<sup>32</sup> In contrast, general audience messages often include strong health message themes, can avoid promoting this misperception, and can offer a two-for-one impact. There is good evidence that youth respond similarly to general audience anti-smoking campaigns as adults,<sup>25, 32</sup> and strong evidence that general audience campaigns are associated with reduced youth smoking rates.<sup>28, 36, 43, 62, 63</sup> As most adolescents strive to be seen as at least young adults, the effectiveness of general audience campaigns for youth may be due to changing social norms by reducing smoking rates among parents and adults more generally, and thereby making smoking less socially acceptable.<sup>25</sup>

Previous reviews<sup>24, 26</sup> indicate mixed effects of campaigns across males and females and by different age groups, with no clear and consistent pattern of findings. Only 2 new population studies have examined effects separately by age and gender<sup>57, 60</sup> and these do not clarify the pattern of previous findings. However, the consistent evidence that general audience ads are equally effective for several important population subgroups such as youth and lower SES groups leads to the expectation that general audience ads would likely benefit most age groups and both sexes.

## EFFECTS OF MEDIA CHANNEL

Despite the increasing popularity of new media platforms, television still provides greatest reach into the population,<sup>8</sup> and the great majority of campaigns have used it as the primary or only channel to deliver mass media messages.<sup>25, 26</sup> Only 7 studies have compared channels for delivering adult campaign messages and all contrasted television with radio. Five found greater recall or quitline calls in response to the televised messages<sup>26, 64</sup> while one found similar cost effectiveness,<sup>65</sup> and another, similar perceived effectiveness ad ratings.<sup>66</sup> In youth, 4 studies comparing effects across media channels indicated televised messages outperformed radio messages on recall, ad ratings, prevalence and initiation.<sup>32</sup> The few studies that have compared effects across channels indicate greater effects of televised messages;<sup>26, 32, 64</sup> however, there is some evidence that particular strongly emotive radio messages may be equally effective for those who are exposed to them.<sup>65, 66</sup> Given the persistently greater population reach of television even in our increasingly digital world, other media (radio, print and outdoor) channels are likely to be a useful way of reinforcing television-led campaigns, but are not likely to be adequate by themselves as alternatives.

Social media (e.g. Facebook, YouTube) is widely used in Australia<sup>67</sup> and potentially provides a valuable adjunct method of exposure to campaign messages. The use of social media to complement television-led campaigns may complement or enhance campaign impact by providing a platform for interpersonal discussions and wider message dissemination. A recent study found conversations among personal and online social networks generated by a tobacco control campaign led to quit attempts in smokers who were not directly exposed to the campaign.<sup>68</sup> However, given the interactive nature and diffuse patterns of social media use and engagement, there are substantial challenges in social media message development, delivery and evaluation, and therefore, research in this area is still in its infancy.



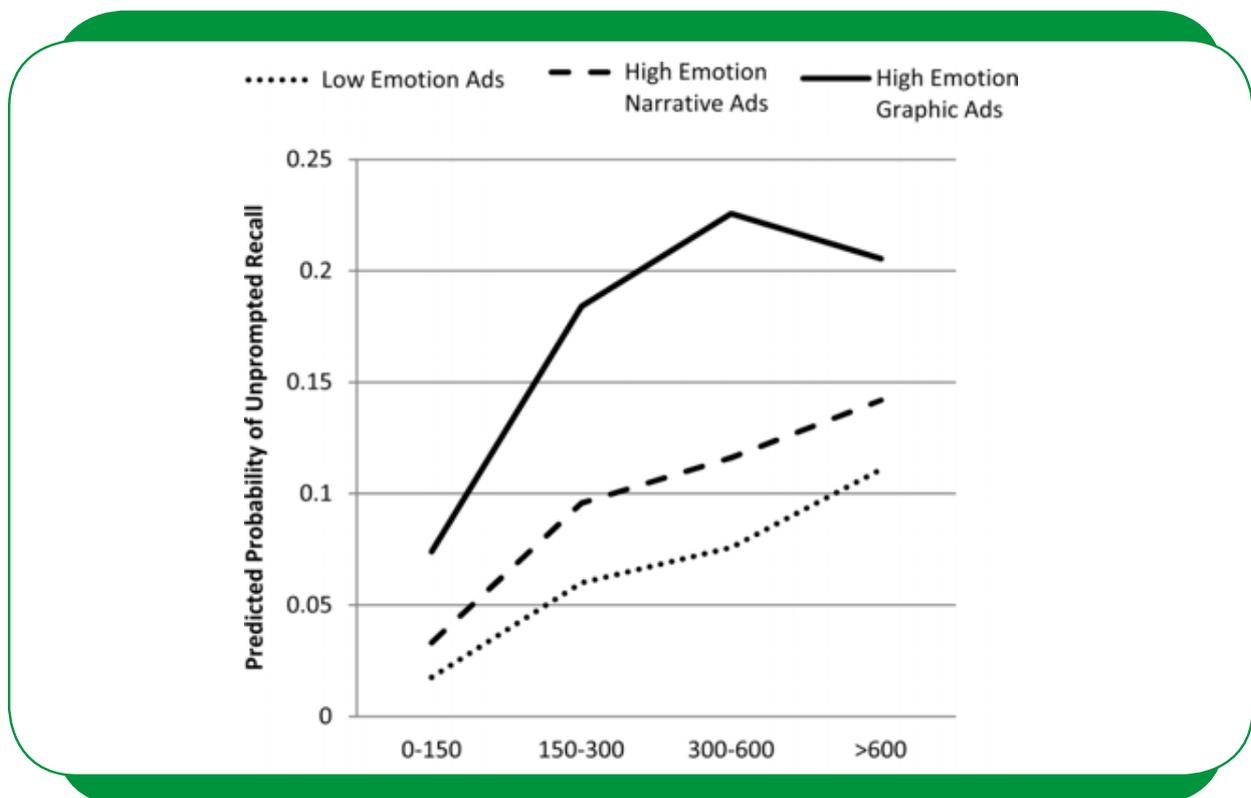
NATIONAL TOBACCO CAMPAIGN'S QUIT NOW: MY QUITBUDDY SMART PHONE APP

New media channels (i.e. smartphones, digital media) may be a useful and accessible way of providing quitting strategies, support and advice for those who are already interested in quitting<sup>69, 70</sup>. However, because of their opt-in nature, the use of these channels may be limited to those already actively searching for help to quit.<sup>26</sup> Some research warns that reliance on these new media may disadvantage low SES groups who are less likely to have such devices<sup>71</sup> and even if they do, are less likely to use these or engage with social media for this kind of purpose.<sup>72</sup> Further research is needed to explore potential synergies between broadcast media and these newer media channels.

## EFFECTS OF DIFFERENT TYPES OF CAMPAIGN MESSAGES ON OUTCOMES

Tobacco control mass media messages can differ along a number of dimensions, including theme (e.g. health effects, tobacco industry deception), purpose (e.g. motivational, supportive), method (e.g. graphic images, narrative), and emotional tone. Previous reviews<sup>21, 24-26</sup> have concluded that messages that evoke high negative emotion through the portrayal of personal stories or graphic depictions of the health effects of smoking are more effective than messages that are typically less emotionally evocative. Anti-industry messages have shown success in US adolescents<sup>24, 25</sup>, although there has been limited use of these types of ads in Australia, where tobacco industry marketing has long been far more restricted and the industry has less overt public presence.

Since these reviews, 3 new population level studies also found greater effects<sup>27, 29, 73</sup> for emotionally intense messages emphasising the negative health effects of smoking using graphic images or testimonials compared to ads generating lower levels of negative emotion. In addition, there is some evidence that emotionally intense messages may require fewer TARPs to be recalled than those lower in emotional intensity,<sup>44, 47, 74</sup> potentially making them a cheaper option for campaign planners (see graph).



GRAPH: HIGH EMOTION GRAPHIC ADS ACHIEVE GREATER RECALL AT LOWER TARPS<sup>47</sup>

Finally, one new quitline study published since the 2012 review<sup>26</sup> found that airing graphic ads motivated more smokers to call the Quitline who were less ready to quit or who had lower confidence in quitting.<sup>75</sup> They also found that exposure to anti-industry ads was associated with more calls from those with lower confidence, whereas why-to-quit testimonials, how-to-quit, other cessation, and second-hand smoke ads did not influence the type of quitline caller.

In the 7 new studies (reported in 8 papers) in which adult smokers rated a range of ads, negative health effects ads featuring graphic images were perceived to be most effective,<sup>45, 59, 76</sup> with narrative messages about the health effects of smoking receiving mixed ratings from Indigenous and smokers from low and middle-income countries<sup>45, 59</sup> but favourable ratings from smokers in a high-income country.<sup>76</sup> How-to-quit, positive or humorous ads were least likely to be perceived effective for motivating quitting.<sup>59, 76</sup> In addition, one of these studies indicated that How-to-Quit messages were rated higher on motivational response (motivated, hopeful, understood) than ads emphasising the health effects of smoking.<sup>76</sup>



NATIONAL TOBACCO CAMPAIGN “COUGHING” TV ADVERTISEMENT

In adolescents, many studies show that long-term health effects messages receive higher message ratings (appeal, beliefs, effectiveness, negative emotional response and smoking refusal self-efficacy) than messages about social consequences or norms,<sup>77, 78</sup> short-term effects,<sup>79</sup> negative life circumstances<sup>77</sup> and tobacco industry tactics.<sup>77-79</sup> There have been two exceptions. One study found that ads about smokers’ social standing rated similarly to ads about long-term health effects in predicting adolescent smokers’ reduced smoking intentions (after accounting for differences in ad comprehension).<sup>77</sup> One study of black-and-white cartoon based messages found social approval messages to be related to smoking attitudes and, in turn, intentions not to smoke, whereas messages about health effects and mental effects were not.<sup>80</sup>

In sum, the most recent studies are consistent with the findings of recent past reviews<sup>26,32</sup> that there is strong evidence for the use of highly emotive negative health effects messages to motivate changes in adult smoking behaviour and to reduce smoking initiation in adolescents. A single recent longitudinal study indicates that some supportive messages may motivate and increase hope, which in turn may prompt quit attempts.<sup>76</sup> Further research into these supportive ads and the potential role they may play in complementing or enhancing strongly emotive health effects ads is needed.

## EFFECTS OF DIFFERENT TYPES OF CAMPAIGN MESSAGES BY POPULATION SUB GROUPS

A previous review concluded that “widespread broadcast of negative health effects messages using testimonials or graphic depictions may work well across population groups and may contribute to reductions in disparities between high SES smokers and smokers with some degree of disadvantage.”<sup>26</sup> Two recent papers further support this conclusion, one finding that highly emotional or graphic negative health effects messages increased quit attempts most among the lower SES smokers<sup>29</sup> and another finding that graphic health effects messages were rated highest by Australian Indigenous smokers.<sup>59</sup> This review also highlighted some evidence that how-to-quit or keep-trying-to-quit messages may increase disparities.<sup>26</sup> In contrast to these findings, one new study of a supportive campaign aimed at lower SES smokers in the US found it was effective among some of the lower SES groups but not among the higher SES groups.<sup>57</sup> Clearly, further research into this question is required.

Given the consistently higher smoking prevalence among Indigenous Australians<sup>81, 82</sup> compared to the falling rates in the general population<sup>83</sup> there have been calls for culturally targeted mass media messages.<sup>84</sup> A recent review of anti-tobacco messages among Indigenous populations included examination of 559,<sup>85-88</sup> studies of Indigenous Australians among other studies of Indigenous populations in Western countries. This review concluded that there was early evidence of effective recall or recognition of generic messages among Indigenous populations, but qualitative evidence (mostly from health and welfare staff in the Australian studies) that Indigenous populations prefer culturally targeted messages.<sup>89</sup> The one Australian study that quantitatively examined the perceived effectiveness of a culturally targeted message found that this message was rated higher by Indigenous compared to non-Indigenous smokers, but that Indigenous smokers rated this advertisement lower than the generic graphic messages.<sup>59</sup> Given the targeted message examined in this study was not a high quality production, evaluation of the recent Australian government funded Break the Chain anti-tobacco advertisement<sup>90</sup> targeted to Indigenous Australians would provide invaluable information. It is also important to note that lack of success of mass media campaigns within particular communities may be due to factors aside from message content, such as lower exposure to the message and/or poorer access to behavioural support and/or medications in those communities.<sup>58</sup> Further research examining the extent to which anti-tobacco mass media messages are seen by regional and remote Indigenous Australians and the extent of quitting support available within these communities is also needed.

Across each previous review<sup>25, 26, 32</sup> there is very little evidence that age and gender moderate the effectiveness of different message types, with one review concluding that the differences between themes were much greater than those between population sub-groups.<sup>25</sup> Two new studies in adolescents also found no differences in message ratings across age and gender sub-groups, providing further support for this conclusion.<sup>73, 79</sup>

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