Optimising tobacco control campaigns within a changing media landscape and among priority populations

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► Additional supplemental material is published online only. To view, please visit the journal online (<http://dx.doi.org/10.1136/tobaccocontrol-2021-056558>).

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Received 28 June 2021

Accepted 17 November 2021

ABSTRACT

Reviews published over the past decade confirm tobacco control campaigns can be effective for influencing adult and youth tobacco use behaviours, with strengthening evidence for high cost-effectiveness. Evidence is also accumulating for positive campaign effects on interpersonal discussions, social norms and policy support that can help motivate and sustain quitting and reduce uptake. Research needs over the next decade centre on the rapidly changing media environment and the equity of campaign effects among high smoking prevalence communities. The field needs specific evidence on: how to measure total campaign reach and frequency across the diverse range of media platforms and channels; the optimum mix of traditional, digital and social media to achieve behaviour change, especially among high smoking prevalence communities; the relative reach and impact of the wide variety of integrated, digital and social media message delivery methods; the relative effectiveness of messages that aim to build capacity to quit and optimum methods for combining motivational and capacity-building messages, especially for high prevalence groups who face additional barriers to staying quit; the ongoing effectiveness of traditional versus new versions of messages highlighting tobacco industry practices; the influence of e-cigarette use on tobacco control campaign effects; and the effectiveness of different types of campaigns aiming to prevent e-cigarette uptake and motivate e-cigarette cessation. Research is also needed to investigate the potential for campaigns to influence the public's understanding and support for endgame tobacco control policies and for campaign elements that may influence the social and environmental contexts surrounding smokers that support and maintain behaviour change.

Reviews published over the past decade confirm findings of previous reviews^{1–3} that tobacco control campaigns, when used as part of a comprehensive tobacco control programme, can reduce youth smoking prevalence, initiation and progression to established smoking,^{4–6} can increase adult quit attempts and smoking cessation, and can reduce smoking prevalence.^{6–7} There is also good evidence tobacco control campaigns can be highly cost-effective.^{8–15} Some reviews^{4–5} have noted a need to update previous evidence given the rapidly changing media environment with more pervasive use of online and social media. Recent reviews also indicate not all campaigns are uniformly effective^{4–5–7–16} and have mixed effects on reducing disparities in smoking prevalence.^{16–17} They call for more research

into the impact of campaigns among high smoking prevalence communities that are often marginalised or disadvantaged (eg, lesbian, gay, bisexual, transgender (LGBT); Indigenous communities; some racial and ethnic groups; those experiencing mental health issues; and socioeconomically disadvantaged communities).^{5–16–18–21}

The extent to which campaigns can change the smoking behaviour of a population depends on several factors, which can be broadly categorised into reach, impact and context (figure 1). Elements that affect campaign reach include the intensity, duration and regularity^{4–7} of exposure to the campaign and media channels used to deliver messages.⁵ Once the message has reached the audience, elements that may affect campaign impact include the message features,⁵ needs and characteristics of the audience,^{18–20} and again, media channels used. Once exposure has occurred and the audience has potentially been affected by the message, the degree to which exposure leads to behaviour change can be influenced by the social and environmental context.^{19–22} Campaign activity can also affect broader antitobacco social norms and public support for tobacco control legislation. In turn, tobacco policy changes can influence the broader social and environmental context, and together with increased antitobacco social norms, can support individual cessation, reduce uptake and prevent relapse.²²

This paper aims to provide guidance about specific research needs relevant to each of these factors, highlighting key recommendations from recent reviews and key studies published over the last decade.

CAMPAIGN REACH

Reviews indicate that campaign intensity and duration can strongly influence campaign effectiveness.^{2–4–7–23–24} Previous research suggested there may be a threshold of intensity needed to generate population-level behaviour change. This work, based on television ratings points data, indicated campaigns needed to achieve around four exposures per person in the target population per month,² or 8–12 exposures per person per quarter,^{25–26} to observe changes in adult smoking behaviours.²⁶ The exposure for reducing youth smoking uptake was found to begin at a lower level, around three exposures per quarter, with greater effects at higher levels of exposure.² Other work has shown that effects on behaviour decay rapidly when campaigns are defunded,^{27–28} suggesting sustained funding is needed to optimise campaign effects.

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To cite: Durkin SJ, Brennan E, Wakefield MA. *Tob Control* 2022;**31**:284–290.

Figure 1 Antitobacco campaign factors that influence effectiveness and elements that affect these factors.

Over the past decade, there have been diminishing audiences for broadcast television and increasing audience time spent viewing digital and social media, playing video games and streaming programmes, podcasts and music. The use of these new media is especially prominent among the digital native generations but has also grown substantially among generation X and boomers, although for those aged 50+ years broadcast television remains dominant.²⁹ In response, campaign planners now rely more heavily on online platforms (eg, Facebook, Instagram, Twitter, YouTube, Snapchat and TikTok) and channels (eg, catch-up television, preroll videos shown before online news and entertainment videos) in addition to more traditional channels (ie, television, radio, billboards and print) to expose target audiences to messages. The dispersion of online platforms and channels demand varying video and static formats and results in more fragmented, as well as more targeted and personalised exposure to messages.³⁰ Research is needed to examine the optimum thresholds and channel/platform mix to achieve population-level behaviour change and explore whether reaching 75% of the target audience is still the benchmark for detectable impact²⁶ or whether this has changed in the current fragmented and more targeted media environment.³¹

Campaigns can also use a variety of strategies to enhance population message exposure,³⁰ including storyline integration,^{29 32 33} sponsorship of 'must see' live television programmes like sport, delivery of messages targeted to postcodes via internet-connected televisions and via online and social media geotargeting, sponsoring 'news articles' linking to campaign webpages and messaging those who previously clicked on online campaign materials with additional messaging. Research is needed to examine how best to design and use these forms of campaign messaging.

New methods are urgently needed to measure the total reach of campaigns achieved across all platforms, channels and delivery methods. Currently, there are no objective methods for determining the proportion of a population exposed to a campaign's main video message/s across multiple channels, nor how many times each individual has been exposed.³⁴ Indeed, it

is difficult to objectively measure a single person's frequency of exposure within the digital sphere, and the decline of third-party cookies (see online supplemental file for definitions of online media tracking and metrics) will make this even more difficult.³⁵

Given research showing objective measures of exposure via televised target audience rating points were typically strongly associated with self-reported campaign exposure,^{36 37} one solution is to conduct studies to validate self-reported exposure to digital campaign messages against objective digital metrics (eg, impressions, video ads served and completed video views).^{34 38 39} Other approaches include regular monitoring of population campaign recall under various media mix scenarios over time.^{31 40}

Over recent years, the sharp rise in online content viewing and more expensive television airtime has driven an explosion in the use of shorter ads of 6 or 15 s, as well as ads that are 'skippable'. Research is needed to understand the effects on message reach and memorability of a greater proportion of a media buy being allocated towards shorter video messages. Research is also needed to understand the impact of 'skippability' on campaign reach and whether the lower cost is worthwhile. A recent study indicated the likelihood of youth recalling a YouTube anti-smoking message doubled with each *completed* ad view, but not with the number of ads *served*, with around three-quarters of the skippable videos served skipped.⁴¹ Other priority questions include: are some people, including audiences campaigns most want to reach, more likely to skip than others?; which kinds of messages are more likely to be skipped?; and is the decision to skip influenced by the channel, platform or context in which the ad is placed?

Another challenge is unpacking the meaning of the exposure and engagement metrics available for the wide variety of digital and social media. We know relatively little about the extent to which impressions and click-throughs relate to meaningful exposure. The aim of some tobacco control campaign messages is to drive information-seeking or traffic to a website where further information, resources, app download links, cessation advice and assistance are available.^{38 40 42} We need more information about

which platforms and channels are most likely to drive people to such websites and which are best at capturing the types of people who will engage with the website content. One recent study⁴³ indicated that the social media platform that had the best click-through rate had the least effective website engagement rate.

These issues of campaign reach and engagement are particularly pertinent when it comes to reducing disparities in tobacco use. Campaigns can *exacerbate* disparities when they have insufficient reach among priority groups, either because they are inadequately funded or delivered via channels that favour more socioeconomically advantaged groups.^{44–47} Campaigns could instead potentially *enhance* equity if delivered via channels that have the greatest reach among those in priority groups. More studies are needed to determine whether higher levels of exposure can increase equity among disadvantaged populations, given some evidence that increasing the intensity of exposure of a general mass media campaign within these communities may increase quit attempts to higher than those from less disadvantaged communities.^{48–49} There is also evidence that greater levels of exposure to youth antitobacco campaigns has been associated with more pronounced effects on lowering smoking rates among 10th and 12th graders from lower compared with higher socioeconomic backgrounds.⁴¹ Given the tobacco industry's targeting of Indigenous, black, LGBT and other ethnic minority communities,⁵⁰ achieving antitobacco campaign reach that exceeds that of other lower prevalence communities is particularly important. Allen and colleagues⁵ review urges that 'the media purchase should ensure exposure among racial/ethnic minority populations' and suggests it is important to '...supplement national media... through channels that reach a large proportion of at-risk minority individuals'.

CAMPAIGN MESSAGE IMPACT

Campaign messages can have varied aims depending on the needs of the population, including messages that aim to increase knowledge, change attitudes and beliefs, reduce uptake, build motivation or the capacity to change, reduce relapse or influence the broader policy and social context.^{22–51} Previous reviews and recent studies have provided strong evidence that antitobacco messages about the negative health effects of smoking using highly emotive imagery and stories are effective at motivating quit attempts and cessation help-seeking in adults.^{2–3–52–54} These types of messages are also effective in generating positive interpersonal discussions,^{55–58} influencing social norms⁵⁹ and policy support.⁶⁰ While most research has been conducted in high income countries, numerous studies in low-income and middle-income countries have also demonstrated the potential and actual impact of these types of campaigns.^{61–72}

Previous reviews found more limited effectiveness of other types of messages among adults, including how-to-quit messages.² However, recent studies suggest that more positively framed messages that provide reasons to quit and ways to quit^{52–73} and that encourage people to keep trying to quit⁷⁴ can be effective. Communications that increase confidence to quit and motivation to access cessation help could also contribute to quitting success,^{52–75} especially given the protective effect that quitting self-efficacy has in the first 3 months after a quit attempt.^{76–77} There is substantial room for further work exploring the potential of campaigns that aim to build hope, inspiration, self-efficacy and confidence,^{74–78} potentially leveraging the evidence regarding tobacco pack inserts.^{79–83} Research should explore whether campaigns can better motivate and sustain quit attempts by pairing or rotating strong

negative health effects messages with messages that build self-efficacy.^{74–78–84}

Research could also focus on which messages and message combinations are especially helpful for high prevalence subgroups. Socioeconomic and environmental factors contribute to more challenging living and working conditions and greater financial stress for those living in disadvantaged communities.⁸⁵ In such communities different dimensions of disadvantage (eg, socioeconomic, race/ethnicity and mental health) can cluster (ie, this is often termed intersectionality), and consequently, these communities tend to have higher rates of behavioural risk factors for disease, including higher tobacco use. Within this context, race and ethnicity should not be considered a cause of health disparities but as a '... socially constructed proxy for structural determinants such as degree of disadvantage, marginalization, colonization and the pervasive effects of racism...'.⁸⁶ Discrimination, racism and the social and environmental context may pose additional barriers to smoking cessation.^{87–89} Reviews published over the past decade have emphasised the need for more research exploring how to change smoking behaviours among high prevalence subgroups and communities.^{16–17–19} Lee and colleagues' review¹⁸ called for research into the best strategies for messaging to LGBT populations, pointing out that some cessation determinants may be unique or more common among LGBT individuals. Mosdøl and colleagues' review¹⁹ highlighted the need for studies of people in more disadvantaged contexts and ethnic minority populations with a different first language than the general population. Compared with smokers in lower prevalence communities, smokers in disadvantaged and high prevalence communities tend to be motivated and attempt to quit at the same rates as those in less disadvantaged communities, but their quit success rates are lower.^{76–89–93} This suggests a need for research on targeted messages to build quitting confidence and skills, to address common barriers to seeking cessation help in these groups and to deal with the personal, social and environmental contexts that promote smoking.

Recent reviews^{5–17–19–21} also emphasise that evaluation designs need to be funded, designed and powered to be capable of detecting effects in priority populations. Campaign evaluations must find ways to recruit large enough samples in smaller high prevalence populations to enable equity effects to be detected.^{19–91–94–96} This may be achieved through collecting and comparing survey data and/or qualitative interview data, or objective data such as quitline calls, from people within campaign targeted and non-targeted communities matched on sociodemographic factors.¹⁹ Campaign evaluations will likely benefit from involving communities and seeking their advice on potential evaluation designs, important contextual issues, recruitment options and appropriate incentives for participation.^{20–21} Systems perspectives and realist evaluation approaches that recognise the interactions between the mass media intervention and existing systems and social structures are likely to be particularly useful.¹⁷

Antitobacco campaigns are now being delivered in a context in which smokers are also using, or can use, electronic nicotine delivery systems (ENDS). Important issues to explore are whether dual users (or those intending to quit smoking by using ENDS) respond differently to antitobacco messages and whether availability of ENDS changes responses to antitobacco messages by influencing risk perceptions.⁹⁷ Given the widespread uptake of ENDS among youth in some countries,^{98–99} more research is needed to examine whether media campaigns about ENDS can prevent ENDS uptake among non-smokers, especially youth and young adults.^{100–103} Similarly, we need studies examining the impact of different types of messages that aim to prevent

e-cigarette uptake^{104 105} and that encourage and support those who wish to stop using ENDS, including addicted youth.^{104–106} Finally, what lessons apply from effective tobacco control campaigns to campaigns aimed at preventing and reducing ENDS use?

Allen and colleagues⁵ review of campaign effects among youth indicated the effectiveness of health consequences messages is mixed, although messages with a negative emotional tone tend to have a greater influence than messages with a positive or neutral tone. They concluded that industry manipulation themes may be effective in combination with health consequences messages. Youth culture has substantially changed since much of this evidence was gathered,⁵ necessitating studies to examine the ongoing effectiveness of these and other types of messages about tobacco industry practices. For example, can messages about environmental harms of tobacco growing, processing and waste be used to discourage youth from smoking? Research should also examine the effectiveness of messages that focus on the way the tobacco industry manipulates their products to make the smoke easier to inhale, more addictive and to give the illusion of lower harm^{107–110} and the effects of messages highlighting the links between the tobacco industry and e-cigarette manufacturers marketing their products to youth.¹⁰² As detailed previously, we also need to test new ways of delivering messages to youth via their preferred entertainment media, such as embedding messages within online games.^{5 30}

CAMPAIGN CONTEXT

In addition to exerting impact on individual smokers and recent quitters, campaigns can prompt discussions between family and friends, influence social norms and be aired at the same time as the implementation of tobacco control policies that can change the environment, improving opportunities and reducing barriers to change. These factors may be important in enabling smokers to translate campaign-prompted attempts into sustained cessation.⁵¹ However, the co-occurrence of these factors can make it difficult to isolate the effects of population-wide campaigns compared with other interventions. Due to this, many evaluations of major national campaigns (eg, Tips from Former Smokers campaign; The EX campaign; The Truth campaign; Australia's National Tobacco Campaign; Heartbeat Wales) and region-wide campaigns (eg, Massachusetts and Minnesota campaigns; North Karelia, Finland) have been excluded from Cochrane reviews.^{4 7}

In contrast to individual-campaign focused research, recent reviews^{16 17} suggest we '... require the kinds of 'messy' evidence produced by observational and ecological studies...' and that greater investment is needed in research designs that track how communities' social norms, antitobacco policy changes and related systems interact with tobacco control mass media intervention effects over time, especially to examine if inequities are being reduced in communities where various forms of disadvantage cluster.^{17 20 111 112} An exciting avenue to explore is whether messages developed and delivered by those in the smoker's local community to complement mass-reach campaign messages are effective. For example, can messages from local news outlets and local health professionals that endorse the primary messages of the mass-reach campaign help build an 'all-around' sense of a more non-smoking or cessation-supportive community and potentially help counteract prosmoking social norms that can promote taking up tobacco use or be a barrier to staying quit, especially in high

prevalence communities. Studies could also examine if motivational campaigns are enhanced by concurrently creating and promoting local 'quit together' groups and other social media cessation advice and support groups.^{112 113}

Research is also needed to explore the extent to which mass media campaigns influence an individual's social norms and contexts. By exposing tobacco users and their children, partners, friends and work colleagues, campaigns have been found to increase support and pressure from the individual's close social network²² and to generate social norm changes that can motivate smokers to quit and help them to stay quit.^{59 114} More research is needed to examine which types of campaigns and in which contexts such social norm changes⁵⁹ and campaign-prompted discussions⁵⁶ are most likely to occur. Given much consumption of digital media is solo and messages delivered via these channels are often targeted to the person who smokes, there may be fewer non-smoking family and friends concurrently exposed. It would be helpful to explore the frequency of campaign-prompted online versus face-to-face discussions between smokers and non-smokers and to examine whether online discussions have similar benefits as face-to-face conversations.^{115 116} Studies should also examine if there are positive effects of social media campaign message 'likes', 'shares' and 'comments' and identify the message characteristics most likely to promote such engagement.¹¹⁷

Relatively few studies have tested the theory that by exposing large segments of the population, including those who are part of the target audience and those who are not, mass media campaigns also increase broader public understanding and support for policy changes and that these policy changes can provide an environment that helps tobacco users change their behaviour and avoid relapse.²² One study found that large scale antitobacco campaigns increased support for indoor smoking bans,⁶⁰ while an experimental study indicated that messages that induced fear were associated with higher support for tobacco control policies among non-smokers but not smokers.¹¹⁸ Campaigns have also been found to complement or magnify the effects of policy changes, with studies in Australia and Mexico demonstrating the effectiveness of new graphic health warnings was increased among smokers who were also exposed to complementary mass media campaigns, and similarly, that campaign effectiveness was enhanced by concurrent exposure to graphic health warnings.^{70 119} Studies could usefully examine whether campaigns can capitalise on increased motivation to quit when prices/taxes are increased or certain product attributes are banned, for example, by providing links for motivated smokers to directly access cessation services, products and information.

As jurisdictions increasingly regulate the product (eg, menthol bans and flavour capsule bans), another important potential role for campaigns is to explain the rationale for these regulations in a way that both increases support for the change and encourages smokers to use the change as an opportunity to quit. For example, educating smokers about how menthol can increase nicotine dependence may not only increase support for a menthol ban but may mean smokers view its implementation as a compelling reason and opportunity to quit.

Campaigns are also likely to play a critical role as jurisdictions move towards various forms of endgame strategies,^{120 121} including explaining why an endgame for the industry is justified and in helping support high prevalence communities to move towards this goal. Research should guide the development of such messaging, for example, by studying whether there is value in highlighting the perverse situation where the tobacco industry gets a free pass to sell an unsafe product that other industries do not get.¹²¹ Research is also needed to guide communication of

the rationale for and evidence in support of specific endgame policies to the public and to stakeholder groups (eg, smokers and tobacco retailers). There will also be a need for research to guide messaging to effectively counter the likely misinformation from the tobacco industry about endgame policies.

CONCLUSION

In addition to directly influencing individual smokers, campaigns can prompt interpersonal discussions, change social norms and promote the implementation of tobacco control policies that can change the environment, thereby increasing opportunities to quit and reducing barriers to change. A decade ago, the dominance of traditional media channels typically meant that a large segment of the population could be reached by broadcasting a 30 s video message on television.^{122 123} With the growing popularity of digital and social media, campaigns must now deliver messages in more targeted ways across many different platforms and channels. This has resulted in a proliferation of newer message formats, including shorter video messages and multiple static images for digital and social media, and has provided more opportunities for online interaction with cessation services. These changes have implications for campaign reach and impact that need to be explored. Future research is also needed to examine the best ways of embedding messages in must-see 'live' programmes, streaming programmes and gaming storylines. In addition, much of the evidence about mass media campaigns comes from high-income countries and from campaigns intended to reach a broad cross-section of the smoker population.^{24 57} Hill and colleagues' review¹⁶ underscored the need for more research exploring how to improve the equity of campaign effects on low socioeconomic status and racial and ethnically diverse groups, while other reviews have focused on research needs for other groups who typically have high levels of smoking prevalence, such as LGBT¹⁸ and Indigenous communities.²⁰

The convergence of these media changes and an increased focus on the importance of achieving equity mean that the research needs for tobacco control campaigns over the next decade will centre on examining how we can best reach and exert impact in our continually evolving media environment, especially among high prevalence populations. This will likely require campaign developers and evaluators to attend to the campaign's influence on individual level behaviour change and to the influence of online and in-person social and environmental factors that surround the smoker and that can be leveraged to support and maintain behaviour change.

What this paper adds

- This paper outlines the tobacco control campaign research needs for the next decade, with a focus on factors that influence campaign reach, impact and context.
- Needs centre on the rapidly changing media environment and the equity of campaign effects among high smoking prevalence communities.
- Research is also needed to examine the potential for campaigns to influence the policy and sociocultural environment surrounding smokers.

Contributors SJD completed the first draft; all authors reviewed and edited subsequent drafts.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not applicable.

Ethics approval This study does not involve human participants.

Provenance and peer review Commissioned; externally peer reviewed.

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