Section IV
Societal Level Influences on Tobacco Use

Chapter 10
Communication, Marketing, and Tobacco-Related Health Disparities

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Introduction

Both pro-tobacco and anti-tobacco communication and marketing have helped shape the public's knowledge, attitudes, beliefs, and behaviors around tobacco. National Cancer Institute (NCI) Tobacco Control Monograph 19, *The Role of the Media in Promoting and Reducing Tobacco Use*, systematically documented the evidence related to the effectiveness of these efforts on the general population, and identified research questions about the mechanisms through which media operate to influence behavior.[1]

This chapter expands that body of evidence to examine the effects of tobacco-related communication initiatives on various populations, exploring how communication processes may differentially influence population groups to create, exacerbate, or reduce tobacco-related health disparities (TRHD). Communication inequalities may be defined as differences between social groups in their ability to generate, manipulate, and distribute information at the macro level and to access, process, and act on information at the individual level.[2] These communication inequalities may in turn play a role in poor health outcomes, including tobacco-related health outcomes. This chapter examines the evidence on the effects of pro- and anti-tobacco communication among disadvantaged groups, particularly racial/ethnic and low-socioeconomic-status (SES) groups.

Numerous mass media campaigns have been implemented with the goal of reducing tobacco use initiation among youth and encourage cessation among smokers. The literature provides strong evidence that anti-tobacco media campaigns can effectively reduce smoking prevalence among the general population. For example, NCI Monograph 19 concludes that "evidence from controlled field experiments and population studies shows that mass media campaigns designed to discourage tobacco use can change youth attitudes about tobacco use, curb smoking initiation and encourage adult cessation."[1,p.12] These conclusions were confirmed and extended in NCI Tobacco Control Monograph 21, *The Economics of Tobacco and Tobacco Control,*[3] the *Community Guide to Preventive Services*,[4] and the 2014 Surgeon General's report, *The Health Consequences of Smoking—50 years of progress*.[5] The CDC's *Best Practices for Comprehensive Tobacco Control* considers mass-reach health communication interventions one of the five key components of a comprehensive tobacco control program.[6]

However, less evidence is available about the effectiveness of mass media campaigns among specific population groups. Some campaign effects among whites, African Americans, Hispanics, Asians, and low-SES groups have been documented, but few studies have assessed campaign effects among lesbian, gay, bisexual, and transgender (LGBT), American Indian/Alaskan Native, or Native Hawaiian/Pacific Islander groups. Evidence on the effects of campaigns among specific population groups is somewhat mixed but overall indicates promising strategies for ensuring the effectiveness of health communication campaigns among disadvantaged groups. In addition, as discussed in NCI Monograph 19, campaigns that are complemented by additional state, community, or school-based tobacco control programming are most effective in supporting behavior change among youth and adult groups that experience disparities.[1]

An extensive literature shows that pro-tobacco marketing promotes tobacco use and related attitudes among the general population.[1] However, it remains unclear whether and to what extent these effects differ by race/ethnicity or SES. The few existing studies show that positive attitudes about tobacco advertising predict tobacco use among various subgroups. There is evidence that the tobacco industry uses event sponsorship, audience segmentation, and product development to effectively reach particular groups.[1] For example, the tobacco industry promotes tobacco products at the point of sale (POS) more

heavily in low-income and racial/ethnic minority communities, and makes pricing and placement decisions based on demographics. Studies show that African American and American Indian/ Alaska Native youths have more exposure to smoking imagery in television and movies, which may more strongly influence perceptions of smoking among these groups. On the other hand, some research suggests that racial minority youth may be more resistant to the influence of depictions of smoking in movies than white youths.[7–9] This chapter will discuss these and other examples of pro- and anti-tobacco communication, marketing, and promotion in detail.

The first section of this chapter outlines how communication-related factors fit within a broader theoretical framework of health inequalities to help explain differential health outcomes. Next, the chapter summarizes the evidence on how both anti-tobacco and pro-tobacco communication and marketing efforts could influence TRHD. Later, the chapter discusses the rise of online and digital technologies, which provide novel pathways to reach, amplify, and engage target audiences with pro- and anti-tobacco messages, and describes how TRHD may persist due to groups' varying ability to generate, manipulate, and distribute information as well as to access, process, and act on that information. Future directions for research and program implementation are identified.

Understanding Communication Inequalities

Theoretical Frameworks

The study of communication inequalities can be traced to theoretical developments in the fields of social epidemiology and media studies. This section discusses how social epidemiology, fundamental cause theory, social determinants framework, and the knowledge gaps hypothesis provide the basis for the Structural Influence Model (SIM) which helps explain communication inequalities. This section also discusses how communication inequalities operate at the individual and institutional levels, consistent with the socioecological model discussed in chapter 1. Communication inequality refers to differences in groups' ability to generate, manipulate, and distribute information as well as to access, process, and act on that information.[2] These communication inequalities might in turn play a role in poor health outcomes, including tobacco-related outcomes. What are the factors that underlie these inequalities?

Social epidemiology is the branch of epidemiology that studies the various mechanisms and pathways through which a person's social and environmental structures, such as SES, get "under the skin," leading to either health or illness.[10] The social-epidemiological approach contrasts with approaches that focus more narrowly on the biological causes of disease as well as with theories that emphasize the influence of individual lifestyles and stress profiles on health outcomes.[11,12] In recent years, researchers have recognized that peoples' ability to live healthy lives is influenced by social determinants of health, including SES, race/ethnicity, and gender; the social and physical quality of their neighborhoods, schools, transportation options, and workplaces; and their access to affordable, healthy food and appropriate medical care.[13–15]

Fundamental Cause Theory

Fundamental cause theory (FCT), which is consistent with a socio-epidemiological approach, postulates that persistent socioeconomic differences in health and mortality arise because people of higher SES possess a wide range of resources, including money, knowledge, and power, that can be used to their advantage.[16,17] This theory accounts for the observation that in social systems where diseases, risks, treatment options, and knowledge are constantly changing, people with greater access to social and

financial resources use them to avoid the risk of disease or to minimize its consequences. For example, scholars using FCT have demonstrated the emergence of a strong SES gradient in smoking behavior in the years following the release of scientific evidence on the adverse health effects of smoking. Those with greater resources were able to use this new scientific information to support their own cessation efforts, which disproportionately reduced their smoking prevalence, compared with people of lower SES.[18] FCT offers a clear advantage in explanatory power over earlier theories based on simple associations between individual risk factors and disease outcomes. Public health research has pushed this model further by reintegrating biological explanations for health outcomes within an even broader array of social and environmental influences on health.

Social Determinants Framework

Social epidemiology also encompasses the social determinants framework for understanding health inequalities. Social determinants, factors embedded in our social environments that determine the health status of individuals or populations[19] include social class, social networks, neighborhood conditions, and social cohesion. A social determinants approach can improve our understanding of the various pathways that lead to disease outcomes in certain population groups.[20,21] Although more research is needed on the causal pathways that connect social determinants with health outcomes, it is generally agreed that social determinants exert their influence through both proximal and distal factors such as access to material and intellectual resources, social support and living conditions, the unequal distribution of knowledge, and exposures to environmental stressors.[20,22]

Knowledge Gap Hypothesis

Media theories also inform present-day research on communication inequalities. Central to this tradition is the knowledge gap hypothesis, which emphasizes the role of the social environment in shaping how individuals are affected by content from the news and entertainment media.[23] Proponents of this hypothesis maintain that an increasing flow of information into a social system (e.g., from a media-based anti-tobacco campaign) is more likely to benefit groups of high SES than those of low SES.[24] Specifically, the knowledge gap hypothesis reinforces the concern that social group differences in income, education, and other factors could lead to disparities in health, such as those resulting from differences in tobacco initiation, use, and cessation, as well as disparities in the morbidity and mortality associated with tobacco consumption.[23] Differential access to knowledge by high- and low-SES groups is one mechanism that could mediate the link between SES and health disparities; that is, disparities in health can occur in tandem with disparities in access to information and knowledge.[2]

Structural Influence Model

The social epidemiological and media theories that help explain health disparities in general provided the foundation for the SIM that was developed to help explain communication inequalities. The initial definition of communication inequalities[2] was further developed as the SIM, shown in Figure 10.1, which posits that health communications are a critical pathway through which the larger social environment, particularly social determinants, influence proximal predictors of health, such as knowledge, attitudes, beliefs, and behaviors.[25,26]

Figure 10.1   The Structural Influence Model

Social determinants	Mediating/ moderating conditions	Health communication outcomes	Health outcomes
Socioeconomic position • Education • Income • Employment • Occupation **Race/ethnicity** **Place** • Neighborhood • Urban versus rural	**Sociodemographics** • Age • Gender **Social networks** • Social capital • Resources	• Health media use and exposure • Information seeking • Attention • Information processing • Knowledge • Comprehension • Capacity for action	• Health beliefs • Incidence health behaviors • Prevention • Screening • Treatment • Survivorship • End-of-life care

Source: Adapted from Viswanath et al. 2007.[26]

SIM proposes that social determinants (such as SES and geographic location) act through social networks and demographic characteristics (such as age and gender) to influence how individuals access and comprehend health information. Communication inequalities can arise from the ways in which members of different communities pay attention to, process, and act on health information.[27] Some groups could see certain kinds of health information as more relevant and attend to it sooner than others because of prior exposure. To the extent that such actions are influenced by the varying social capacity of the groups, health communication inequalities are more likely to emerge or be reinforced.

This model suggests that communication inequalities unfold over time, in line with the life-course perspective on health inequality. Life-course effects are the ways in which a person's health status at any given age reflects not only contemporary conditions but also prior living circumstances and the cumulative effect of biological and physical insults to the body over time.[28–30] For example, a number of studies have found that low SES during childhood can have long-term effects on smoking behavior. A prospective study of a multiethnic cohort of women found that blue-collar parental occupation at birth increases the risk of smoking, particularly for current smoking relative to former smoking.[31] Graham and colleagues[32] explain that children's socioeconomic circumstances strongly influence educational trajectories, which in turn are associated with knowledge about the harms associated with tobacco use and smoking uptake in adolescence, current smoking, heavy smoking, and quitting in adulthood. Graham and colleagues[32] also point out that education eliminates the effect of childhood circumstances on these dimensions of smoking status, which supports the idea that childhood conditions can be modified by education.

Individual- and Institutional-Level Inequalities

Communication inequalities operate at two levels that are integral to the socioecological model presented in chapter 1. At the individual level, communication inequalities refer to differences in individuals' ability to access and use information channels and services, attend to and process health information, and act on the information provided. At the systems or institutional level, communication

inequalities refer to differences among social groups in their ability to generate, disseminate, and use information.

Individual-Level Inequalities

Individuals may have differing abilities to access information insofar as they are members of groups that are characterized by different abilities to access information, use different media channels, and afford communication service subscriptions. In general, groups with more education and higher incomes are more likely to access and use the Internet, read newspapers, and actively seek information on health, all of which can increase exposure to more comprehensive and detailed information regarding health issues. Different racial/ethnic groups also use and rely on media differently. For example, data from 2014 show that, on average, African Americans watched more television and read more print magazines than the general population.[33] In 2015, 18% of Hispanic adults reported daily readership of a newspaper compared to 31% of whites and 27% of African Americans[34]; however, 97% of U.S. Hispanic adults reported listening to the radio weekly.[35] While there were no differences by race/ethnicity for Internet use in 2016, greater percentages of Hispanics (23%) and African Americans (15%) used smartphones to access the Internet compared to whites (9%). Individuals living in rural areas are less likely to use the Internet compared with those living in urban or suburban areas.[36] These media use patterns undoubtedly influence the likelihood of exposure to both pro-tobacco and anti-tobacco messages and thus influence tobacco use, initiation, and cessation.

Individual differences in attention to information and processing of information are an important dimension of individual-level communication inequality. Research reveals that in a cluttered information environment, advertisers often compete by selecting particular channels and developing messages that will "cut through the noise" and influence their intended audience.[2] Campaign planners, both pro-tobacco and anti-tobacco, focus their marketing research on the intended audience and the media outlets they use, and sometimes on the psychological characteristics of individual audience members.[37] A little more than a decade ago, scholars adopted a social–contextual view that suggested that audiences attend and react to mediated content based on the individual's location in the environment and the social roles they play.[2,38] Social characteristics, including SES, occupation, race and ethnicity, gender, and geography, may mediate or moderate the impact of messages through such factors as collective experiences, group membership, media access, and media preferences (see Figure 10.1).[2,26]

People also differ in terms of the literacy and numeracy skills they bring to the task of processing information.[39] Complicated language and the presentation of contradictory scientific findings in health communication messages can hinder information processing,[40,41] and elevated levels of chronic stress in disadvantaged population groups can amplify these difficulties.[42] A heavy burden of stress can undermine one's ability to learn new information and can influence decisions about seeking advice and support from medical professionals, family, and friends.[43] An individual's ability to process health information can also be impaired by information overload and perceived ambiguity about the information received—that is, the individual may feel uncertain or lack clarity about this information. The rise of the patient-centered "informed consumer" model of health care has been paralleled by a tremendous increase in the coverage of health-related information by the media and on the Internet.[44] For some people, the quantity of health information could overwhelm information-processing capabilities and lead to confusion.[40,45] In addition, health information in the media can be presented in a confusing or contradictory manner and could produce uncertainty and confusion about health recommendations. There is some evidence that ambiguity promotes pessimistic judgments about health

risks and risk-reducing behaviors and lowers rates of adopting healthy behaviors.[46] Research also suggests that people of older age, lower education levels, and non-white race are more likely to perceive the information they receive as ambiguous.[40,45,47] Because these same characteristics also identify population groups at risk for poor health outcomes, it is important to understand the mechanisms, direct and indirect, underlying the observed associations.[47,48]

Finally, differential ability to take appropriate action based on the successful processing of health information is a critical outcome of individual-level communication inequality (see Figure 10.1). The sheer complexity of many health communication topics poses a significant challenge for individuals not only in trying to learn and understand information, but also in acting on that information. The capacity to act on health information is also subject to an opportunity structure, including the built environment. For example, individuals may have difficulty acting on cessation information when they do not have access to cessation counseling in their community or when they are heavily exposed to tobacco advertising where they live.

Institutional-Level Inequalities

Important communication inequalities also exist at the institutional level. Although these inequalities have received less research attention than individual-level inequalities, there is evidence of system-level differences in the capacity to learn, use, and produce information.[2,49] For example, compared with academic medical centers serving higher SES populations, community-based health organizations that serve vulnerable populations might not have the cessation resources and information to support smokers interested in quitting. The effects of such system-level inequalities are compounded by the tobacco industry's targeted marketing to vulnerable populations.[1] Populations at greater risk of tobacco dependency are in greater need of community-based support.

Ultimately, both individual- and institutional-level communication inequalities need to be considered if TRHD are to be successfully addressed. The SIM provides a framework for understanding communication inequalities that may operate at the individual or institutional levels. This model presents a broad conceptual roadmap of how communication efforts related to tobacco use may differentially impact disadvantaged communities. The next sections focus on specific types of tobacco-related communication initiatives and the evidence of their efficacy among different populations.

Anti-Tobacco Communication, Marketing, and TRHD

Anti-tobacco communication and marketing campaigns are one type of public health communication campaign. Public health communication campaigns can be described as "purposive attempts to inform or influence behaviors in a large audience … using an organized set of communication activities and featuring an array of mediated messages in multiple channels generally to produce noncommercial benefits to individuals and society."[50,p.3] Anti-tobacco communication and marketing efforts are a critical component of comprehensive tobacco control programs designed to counter the marketing and promotional efforts of the tobacco industry. Although anti-tobacco campaigns primarily focus on changing individual behavior, such as motivating smokers to quit or encouraging youths to reject tobacco use, campaigns can also seek to shift attitudes and beliefs to modify social norms[51] or increase public support for tobacco control and related policies.[52] Anti-tobacco campaigns use mass media (TV, radio, print, etc.) to reach large numbers of target audience members and do not depend on person-to-person contact.[53] These campaigns are implemented at various geographic levels, from the local

neighborhood to the national level. Increasingly, campaigns employ websites, digital advertising, interactive social media, and mobile channels to disseminate messages and expand reach.[50]

As noted in NCI Tobacco Control Monograph 21, "well-designed and -implemented anti-tobacco mass media campaigns are effective in improving understanding about the health consequences of tobacco use, building support for tobacco control policies, strengthening social norms against tobacco use, and reducing tobacco consumption among youth and adults."[3,p.13] Similarly, the Community Preventive Services Task Force recommends "mass-reach health communications interventions based on strong evidence of effectiveness in: decreasing the prevalence of tobacco use; increasing cessation and use of available services such as quitlines; and decreasing initiation of tobacco use among young people."[4]

Anti-tobacco campaigns that use television can be a powerful tool to reduce TRHD, particularly since low-SES and racial/ethnic minority individuals generally have higher rates of television viewing, which increases their likelihood of exposure to anti-tobacco messaging compared with other groups.[54,55] However, the available evidence is inconsistent about the degree of effectiveness of media campaigns among socioeconomically disadvantaged populations, particularly the most highly disadvantaged.[56,57] For example, in their review of studies that analyzed the effectiveness of media campaigns by SES, Niederdeppe and colleagues found that "media campaigns to promote smoking cessation are often less effective, sometimes equally effective, and rarely more effective among socioeconomically disadvantaged populations relative to more advantage populations. Disparities in the effectiveness of media campaigns between SES groups may occur at any of three stages: differences in meaningful exposure, differences in motivational response, or differences in opportunity to sustain long-term cessation."[56,p.1343]

There is also less evidence on the efficacy of specific components of messages among those at highest risk of initiation and unsuccessful cessation. Evidence related to message effects—how the content and style of messages affect cognitive, attitudinal, and behavioral outcomes[38]—is inconclusive for the effectiveness of specific tobacco control message components among racial/ethnic minority and low-SES youth (see Box 10.1).[58–64] Studies indicate that graphic and emotionally arousing messages that evoke fear are associated with strong responses among adults in general[65] and may resonate more strongly among lower SES populations.[56,66–69] Additional research is needed on how the various elements of message construction influence the effectiveness of anti-tobacco advertising among disadvantaged groups, particularly among youth.[38]

Box 10.1: Message Effects Research

Most of the literature on message effects consists of forced exposure studies that examine self-reported perceived effectiveness of different types of advertisements or other cognitive measures of impact, such as memorability, liking, or attitude and belief changes. Other studies examine associations between different message types and behavioral outcomes such as quitline calls, quit attempts, or sustained cessation. As discussed in NCI Tobacco Control Monograph 19, studies consistently show that advertising using strong negative messages about health consequences is more effective compared with other message types, such as those using humor or emotionally-neutral content.[1] Research findings from studies that have examined message effects among low-SES adults or other diverse groups conclude that members of low-SES groups or other groups perceive advertisements portraying negative health consequences with graphic or emotional elements as equally or more effective and equally or more able to encourage quitting behavior.[66,68,69,459–461] A review of the literature on media campaigns aimed at reducing youth tobacco use

found that advertisements using personal testimonials; advertisements with a surprising narrative; intense images, sound, and editing were especially effective among youth. Evidence for the effectiveness of health consequences messages was mixed; anti-industry messages were effective when combined with health consequences messages. The evidence was insufficient to determine whether secondhand smoke or social norm messages were effective.[462] The authors conclude that youth "[anti-tobacco] media campaigns can be effective across racial/ethnic populations, although the size of the campaign effect may differ by race/ethnicity."[462,p.e71] A study examining youth smoking prevalence in the United States from 1998 to 2005 found that youth-targeted anti-smoking advertisements emphasizing health consequences to self and others and advertisements featuring deceptive tobacco industry practices were independently associated with reduced youth smoking rates.[463] Another study found that advertisements containing a personal testimonial or graphic visceral theme were more likely to be recalled, discussed with others, and thought about by 8th-, 10th-, and 12th-grade youth; these effects did not differ by race/ethnicity.[464]

Review of the Effects of Anti-Tobacco Media Campaigns on TRHD

The evidence presented in this section reflects a review of the literature on the impact of anti-tobacco campaigns among racial/ethnic minority and low-SES groups—specifically, campaigns aimed at preventing smoking among youth and promoting cessation among adult smokers. This review used two primary approaches. First, it examined major published campaign literature reviews and reviews of interventions among populations that experience TRHD. Second, additional information on published studies of specific campaigns was obtained from an online search using standard search tools and databases. Other potentially relevant articles were identified from the reference lists of review articles.

Literature searches were conducted in PubMed, Embase, Scopus, Web of Science, Communication & Mass Media Complete, Humanities and Social Science Indices, Humanities Full Text, Humanities International Index, and Academic Search Complete for the period 1990–July 2014, with a focus on studies conducted in the United States. Search terms included (adults OR youth OR "young adults") AND ("smoking cessation" OR "quit smoking" OR "prevent smoking" OR tobacco) AND ("community intervention" OR "targeted media" OR media OR "campaign" OR "self-help") AND (disadvantaged OR "socioeconomic status" OR SES OR "low education" OR "low income" OR poverty OR "blue collar" OR minority OR "racial group" OR "ethnic group" OR "African-American" OR black OR Latino OR Hispanic OR "Asian-American" OR "Native American" OR "Alaska Native" OR "foreign" OR "foreign-born" OR gay OR lesbian OR bisexual OR transgender OR homosexual).

This literature search yielded 792 articles, of which, 78 met the inclusion criteria (see Box 10.2). Published studies that examined the effects of general population campaigns on specific populations, campaigns targeted to specific populations, and campaigns that included unusually diverse samples in the evaluation were sought. All study designs, including controlled field trials and population-based studies, were included. Controlled field trials are campaigns designed as experimental or quasi-experimental research studies conducted specifically to carefully test the efficacy or effectiveness of mass media on certain outcomes, alone or with other program components (i.e., school-based programs). Population-based studies are large-scale interventions mounted on a regional or national scale, often funded by state or national government, and do not include planned experimental assessments, such as control or comparison groups.[1,70]

Box 10.2: Inclusion and Exclusion Criteria for the Review of Literature on Anti-Tobacco Communication and Marketing Campaigns

Campaigns

The review defined campaigns as "purposive attempts to inform or influence behaviors in a large audience … using an organized set of communication activities and featuring an array of mediated messages in multiple channels generally to produce noncommercial benefits to individuals and society."[50,p.3]

Channels include: television, radio, newspapers, billboards, posters, leaflets, booklets, and direct marketing intended to reach large numbers of people. Channels could not depend on person-to-person contact. They could have a digital component but could not be solely digital.

Inclusion Criteria

- Conducted in the United States
- Published between 1990 and July 2014
- Published in English
- Focused on some aspect of youth tobacco smoking prevention or adult tobacco smoking cessation. For prevention campaigns, youth must be the primary audience. For cessation campaigns, adults must be the primary audience.
- Should examine general population campaign effects among groups of interest, campaigns among unusually diverse populations, or targeted campaigns among groups of interest, which include any racial/ethnic minority groups (African American, Hispanic, Asian American, American Indian/Alaska Native, Pacific Islander, etc.), any socioeconomically disadvantaged groups (low income or SES, homeless, blue collar), foreign-born, or gay, lesbian, bisexual, or transgender identity

Exclusion Criteria

- Conducted outside the United States
- Published outside the stated time frame
- Published in languages other than English
- Focused on:
  - secondhand smoke, a policy objective, or media advocacy
  - smokeless tobacco
  - outcomes related to anti-tobacco advertising or exposure but not specific to an individual campaign
  - variation in receptivity to effects of varying messages across groups (i.e., either forced exposure or population-based message effects studies) rather than campaign impact or outcomes
  - campaigns that targeted tobacco as part of a broader anti-substance-abuse message, cardiovascular health, or cancer prevention or cancer screening campaign
  - campaigns targeted solely toward pregnant women
  - campaigns to encourage health care providers to help smokers quit
  - campaigns conducted solely on the Internet, via mobile phones, or as entertainment education

To understand the potential mechanisms through which communication disparities could arise across groups, the analysis focused on differences in (1) meaningful exposure to media messages (e.g., recall, awareness, comprehension), (2) motivational response (e.g., receptivity or perceived effectiveness,

information-seeking, treatment-seeking such as through quitline calls, impact on beliefs or attitudes, discussion about the campaign), and (3) opportunities to act (e.g., sustained abstinence, lower initiation, and other tobacco-related behavior change).[56] The following sections summarize the included studies and present data on these three potential sources of disparities for specific campaigns where data were available. This section also includes a discussion of several campaigns implemented after July 2014 (the cutoff date of the literature review).

Youth-Focused Anti-Tobacco Communication and Marketing Campaigns

Youth-focused anti-tobacco campaigns have been conducted at the national, state, and municipal levels with varying audiences, strategies, and outcomes. Common outcomes have included knowledge about the effects of smoking, attitudes toward smoking, beliefs about the tobacco industry, discussion of campaign messages with others, perceptions of peer smoking and smoking approval, intentions to smoke, and smoking behavior. Campaigns found to be effective among youth include those targeting the general population, including adults, and those that target children and youth ages 6 to 18 years. Most campaigns focus on the 12- to 18-year-old age group. Some research suggests that anti-tobacco campaigns have more reliable positive effects on youths in preadolescence and early adolescence,[61] and that different age-appropriate messages might be needed for older youths.

Although evaluations have found significant declines in smoking associated with several population-based youth campaigns, little peer-reviewed, published research has examined the impact of youth anti-tobacco campaigns among groups defined by race/ethnicity or SES. However, evidence of anti-tobacco campaigns directed toward specific population groups is available from studies of a city-based campaign in Chicago; state-based campaigns in Florida, Massachusetts, Indiana, and Minnesota; the national "truth" campaign; and several controlled field experiments that spanned multiple cities or states and included diverse populations. Table 10.1 summarizes the youth-focused anti-tobacco communication and marketing campaigns reviewed.

Table 10.1 Summary of Youth-Focused Anti-Tobacco Communication and Marketing Campaigns Reviewed

Group	Study Type and Number of Studies for Each Type	Effects on Targeted Smoking Behaviors*	Conclusions
Low SES	General population campaigns: 0 studies	N/A	No evidence
Low SES	Targeted campaigns in low-SES communities: 4 studies from one campaign	▪ Positive effect overall (media+school vs. school only)[86,88,89,90]	Evidence of benefit for the media+school arm
Racial/ethnic groups	General population campaigns: 5 studies	▪ Mixed effects for a media-only condition[102,103] and for a media+state tobacco control program[73,80] ▪ Positive effect overall and no differences for media+state tobacco control program[79]	Some evidence that large population-based media campaigns combined with comprehensive state tobacco control programs may benefit racial/ethnic minority groups

Table 10.1 continued

Group	Study Type and Number of Studies for Each Type	Effects on Targeted Smoking Behaviors*	Conclusions
Demographically diverse communities	Campaigns in racially/ ethnically diverse communities: 3 studies	▪ No effect overall and no difference by racial/ethnic groups (media only vs. no media)[94] ▪ No effect overall and no analyses by specific group (media vs. no media)[92] ▪ Positive effect overall (media+community and school interventions)[93]	No evidence of benefit for media campaigns only. Limited evidence for media+community and school interventions
African Americans	Campaign targeted to a specific population: 2 studies	▪ Media-only vs. media+school arms cannot distinguish media effect[71] ▪ Media in one community vs. no media in another community showed reduction in both communities[72]	Inconclusive evidence of benefit

Note: Some studies' campaigns are listed in several categories because they focused on several groups (e.g., racial/ethnic group, low-SES groups). n = 14. SES = socioeconomic status.
*Smoking behaviors considered among youth: amount or frequency of recent smoking and initiation.

Chicago Youth Campaign

A campaign to prevent smoking initiation among African American youth was aired in Chicago in 1989.[71] A study to evaluate its impact established two conditions: a media+school-based condition and media message–only condition. The media component for both conditions included a smoking prevention curriculum printed in the children's weekly section of a newspaper with a predominantly African American readership, eight public service announcements on a local radio station with a largely African American audience, billboards, and a community Smoking Prevention Rap and poster contest. Messages focused on raising awareness of the health risks of smoking and environmental influences that encourage youth to smoke.[71]

The intervention was carried out in all 6th- and 7th-grade classrooms from three public elementary schools located in largely African American neighborhoods. Schools were randomly assigned to conditions: two schools were assigned to the media+school arm (n = 175) and one school to the media-only arm (n = 101). Pre- and post-test surveys were conducted 1 week before and 1 week after the intervention, as well as an additional 6-month post-test, with follow-up rates of 94% for the 1-week post-test survey and 83% for the 6-month follow-up.

Ninety-nine percent of student respondents were African American. A relatively high proportion of youth in both arms were aware of some part of the media campaign, although awareness was higher among the media+school group, which prompted youth to engage with the media component as part of the school curriculum. Cigarette smoking knowledge was significantly higher from pre- to post-test in the media+school group compared with the media-only group. The two arms did not differ in smoking behavior at 1-week or 6-month follow-up, but results demonstrated that both arms significantly decreased smoking from pre-test to 6-month follow-up. The effects of the media intervention could not be determined due to the study design, and decreases over time in both arms could not be distinguished from broader secular time trends because the study did not include a no-media control arm for comparison purposes.[71]

Baltimore Youth Campaign

A media campaign with the goal of reducing cigarillo use among African American youth was implemented in Baltimore, Maryland.[72] The 18-month campaign was modeled after the national "truth" campaign described later in this section and was based on the theory of reasoned action and social inoculation theory. Messages were designed to increase awareness of both tobacco industry targeting and the health risks of cigarillos to promote negative attitudes toward the tobacco industry and toward cigarillos. Advertisements were run on radio, television, billboards, the Internet, on the sides of buses, at subways stops or in subway cars, and on abandoned buildings. Most of the advertising featured an 18-year-old African American teen, with language reflecting the vernacular of urban areas as determined by focus groups conducted with the target audience.

For the evaluation, a quasi-experimental design was used with an exposed city (Baltimore) and a comparison city with similar demographics (Philadelphia). The comparison city received one campaign advertisement randomly per day, and the exposed city received over 10 advertisements per day during after-school hours. The researchers selected a random sample of schools and public places frequented by the target audience and administered in-person pre- and post-surveys to youth ages 10–19. A significant decrease in cigarillo use (from 3.8 to 1.1 cigarillos per day) was found among respondents in the exposed city; cigarillo use also decreased significantly in the comparison city, although by a lesser amount (from 2.3 to 1.5 cigarillos per day). Given the design, effects could not be distinguished from broader secular time trends.[72]

Florida "truth" Youth Campaign

The Florida "truth" campaign, first implemented in 1998 to help teens reject smoking, included a comprehensive statewide anti-tobacco effort with a primary message highlighting the deceptive behavior of the tobacco industry (Figure 10.2).[73–78] (The national "truth campaign" is discussed later in this section.)

Figure 10.2   Advertising Image, Florida "truth" Campaign, 2001

Source: Centers for Disease Control and Prevention 2013.[465]

Cross-sectional analyses from the Florida Youth Tobacco Surveys from 1998 to 2000 demonstrated that non-Hispanic white and African American middle school students who previously experimented with tobacco products reported stronger intentions not to smoke, compared to Hispanic middle school students.[73] Overall rates of current smoking (having smoked within the past 30 days) and of frequent smoking (having smoked on 20 of the past 30 days) declined significantly among middle school and high school students during the campaign. However, this analysis found no significant declines in current smoking among African American high school students, and no significant declines in frequent smoking among Hispanic high school students or African American middle school or high school students. All population groups showed significant increases in never smoking as well as decreases in experimenting with tobacco products.[73] Whether these effects on smoking-related behaviors resulted from the campaign or from other components of the Florida Tobacco Control Program could not be determined.[73,75] Other longitudinal studies have demonstrated that the campaign lowered the risk of smoking initiation and progression to established smoking among students overall, but these results were not presented by race/ethnicity or SES.[77]

Massachusetts Campaign

Initiated in 1993 as a component of the Massachusetts Tobacco Control Program,[79] this media campaign was conducted primarily through advertisements on television, radio, newspapers, and billboards.[80] Rather than targeting youth specifically, this campaign was designed to expose a broad cross-section of the population to anti-smoking messaging, which highlighted tobacco industry practices and the health effects of tobacco use. Cross-sectional analyses indicated that 733 of the youth participants (96%) self-reported that they had been exposed to a Massachusetts anti-smoking advertisement in the past month, but exposure levels were not provided for specific groups. Results indicate that the advertisements were perceived as highly effective by the overall youth population.[58]

A subsequent longitudinal study of the Massachusetts campaign (592 youths, 4-year follow-up) found that exposure to the campaign was high, and was associated with less likelihood of progressing to established smoking. However, this effect was found only among youths who were ages 12–13 years old at baseline and not among those who were 14–15 at baseline. Differences in advertising awareness or in the likelihood of progression to established smoking were not found between non-Hispanic whites and other racial/ethnic groups.[79]

Another study of youth smoking prevalence in the state from 1996 to 1999 found significant decreases in lifetime and current use of cigarettes, cigars, and smokeless tobacco.[81] This study showed that cigarette use declined at a greater rate in Massachusetts than in the Northeast or in the nation as a whole, but declines in use differed across racial/ethnic groups. Lifetime and current use declined significantly among whites and African American middle and high school students. Declines in usage rates among Hispanic middle or high school students were not significant, possibly due to small sample sizes. This study could not distinguish the effects of the media campaign from other components of the Massachusetts Tobacco Control Program.[81]

Indiana Youth Campaign

In 2001, Indiana implemented an anti-tobacco campaign targeted toward youth that was designed to prevent smoking, encourage cessation, and change social norms. Campaign messages varied over time; early messages used anti-industry themes or emphasized negative health consequences of tobacco use. For example, the "Rick Stoddard" advertisement, originally created for the Massachusetts Department of

Public Health, told the story of a man who lost his wife to cancer.[82,83] After an early campaign run, a follow-up survey of 3,858 middle school students was conducted in four rural, three suburban, and three urban schools. Residents of the rural counties in the study had lower income and education levels than residents of the suburban and urban counties. Eighty-nine percent of youth reported awareness of the campaign; suburban and urban youths were more than three times as likely to report awareness compared with rural youths. The study did not control for the overall level of media exposure, so it was not possible to determine whether the differences were due to variation in actual exposure levels, given fewer information sources in rural areas, or to variation in the recall and processing of campaign messages across groups. Among youths who were aware of the campaign, there were no significant differences in receptivity; rural, suburban, and urban youths were equally likely to say the advertising made them think about not using tobacco in the future.[84]

A later study of 391 rural Indiana youth, including 58 American Indian/Alaska Native youth, found high levels of self-reported recall of and receptivity to graphic campaign messages, with no differences between white and American Indian/Alaska Native youth.[63]

Minnesota Youth Campaign

In 2000, the state of Minnesota implemented a multi-faceted anti-tobacco campaign ("Target Market") directed at youth. The campaign included three main components: paid advertising, a youth organization, and a website targeted to youth. Messages were based on an anti-industry, youth empowerment theme that encouraged youth to learn about and fight against tobacco industry marketing to teens. The campaign ended in July 2003 when funding for Minnesota's Tobacco Control Program was reduced from $23.7 million to $4.6 million.[85] Four cross-sectional surveys conducted from July 2002 to December 2003 found that awareness increased to 84.5% from July 2002 to July 2003, with a plateau during the summer of 2003 and a significant decline to 56.5% from July 2003, when funding was reduced, to December 2003. These changes in awareness were similar across urban and rural areas of the state. Additionally, after funding was reduced (July 2003–December 2003), youth susceptibility to smoking increased overall and by geographic area.[85]

Youth Campaigns in Vermont, New York, and Montana

In addition to the population-based studies described above, youth campaigns have included field-based experimental trials of mass media campaigns, some of which were paired with school-based interventions. From 1985 through 1989, researchers conducted a controlled non-randomized trial in which media messages were aired in matched pairs of lower income communities in the northeastern United States (Vermont and New York) and in Montana. The media campaign focused on reducing youth tobacco use by changing youth attitudes toward the advantages and disadvantages of smoking, teaching cigarette refusal skills, and altering perceived norms of peer smoking based on theories of health behavior change, including the theory of reasoned action and social learning theory and information processing models.[86,87] By using a variety of message styles, advertisements were customized for specific gender and age groups, and the diverse formats included comedies, cartoons, rock videos, and testimonials. There was also a strong focus on messages and media targeting high-risk adolescent girls.[88] The campaign did not use a specific logo or sponsoring agency name, on the hypothesis that young people at higher risk for smoking tend to shun authority. This unbranded campaign presented 12–18 different advertisements during each airing and ran for 4 years, with the goal of promoting widespread perceptions of a positive lifestyle.[86]

Two matched communities received media messages coupled with a school-based intervention, which was compared with a school-only intervention in the other two matched communities. The media and school interventions were not linked programmatically except in terms of general campaign objectives. Two pairs of standard metropolitan statistical areas were selected from a regional sample, with community samples matched through the selection of specific school districts and related demographic characteristics. "High-risk" communities were chosen based on census data indicating lower adult educational attainment and household income at the tract level for the catchment areas serving the schools.[86]

To evaluate the campaign's impact, a combined cohort of 5,458 students was surveyed at baseline in grades 4–6 and followed annually for 4 years. Individual- and community-level analyses at the end of the 4-year campaign found significant reductions in smoking and consistent effects on targeted mediating variables, including smoking attitudes and social norms, for the combination media+school intervention group compared with the school-only intervention group.[86] An additional follow-up survey, conducted 2 years after the campaign ended, found that the media+school intervention group had a 38% lower risk of smoking than the school-based-only intervention group, and the difference was significant.[89] The campaign had a stronger impact on attitudes, beliefs, and reductions in smoking among adolescent girls at both the end of the campaign and at the 2-year follow-up compared with boys.[88] Further analyses indicated that smoking prevalence was significantly lower among high-risk students in the media+school communities than for high-risk students in the school-only communities, with high risk defined as ever smoking prior to baseline or having two or more family members who smoked. The effects on low-risk students were similar but were only marginally significant.[90] The generalizability of the campaign results was limited primarily to lower income white populations, as the communities in which the interventions occurred were 96.5% white.[90]

California Youth Campaign

In 1986, researchers implemented the Television, School and Family Project (TVSFP), a large-scale school- and media-based tobacco use prevention and cessation project in Southern California, which was grounded in social psychological theories such as social influence theory.[91] The study included five conditions: a social resistance classroom curriculum, a media (TV) intervention, a social resistance classroom curriculum plus mass media intervention, and two control groups consisting of a health-information attention-control curriculum and a no-control condition. Forty-seven schools in Los Angeles and San Diego were randomly assigned to conditions within six school districts; the television conditions existed only in Los Angeles. The intervention conditions were designed to raise youths' awareness of social influences to smoke and social consequences of smoking. The TV conditions included broadcast of educational segments of *Feeling Fine*, a health issues component of the local evening news in Los Angeles. The segments focused on resistance skill modeling for students and cessation strategies for adults. All conditions included a family involvement component using homework assignments that required parent participation.

The evaluation included a pre-test of 7,351 7th-grade students in 340 classrooms from the 47 schools, an immediate post-intervention follow-up, and 1- and 2-year follow-ups. Respondents were 35.5% Hispanic, 33.3% white, 13.9% African American, and 17.3% other. A priori comparisons included a television versus no-television condition, as well as other condition comparisons. Findings at post-test follow-up demonstrated that the television campaign had a significant main effect compared with no campaign on targeted knowledge, attitudes, and beliefs, including awareness of peer and media

influences to smoke, strategies for resisting social influences, and perceived prevalence of adult and youth smoking. These effects did not persist at 1- and 2-year follow-ups, however. Neither the TV condition nor any other study condition had an effect on intentions to smoke or on current smoking behavior. The authors suggested that poor execution of the television programming component may have contributed to the limited effects.[92]

Texas Youth Campaign

The evaluation of a Texas youth prevention campaign based on cognitive social influence theory was designed to examine how the varying intensity of anti-smoking media campaigns and differing types of community- and school-based anti-smoking programs influenced tobacco use and attitudes among young adolescents (ages 11–12).[93] The quasi-experimental study was conducted in the year 2000 across 14 sites (each with a population of approximately 100,000 people), which were chosen based on having ethnically diverse populations and high rates of tobacco-related disease. Messages were delivered via an animated duck character and were focused on the addictiveness and unattractiveness of smoking. Approximately one-third of the cross-sectional pre-evaluation and post evaluation sample was white, one-third was Hispanic, 20% was African American, and 5% was Asian American. Results were not reported for specific racial/ethnic groups, but overall findings indicated that the most consistent decreases in tobacco use, susceptibility to smoking, and pro-smoking attitudes were achieved by combining an intensive media campaign with comprehensive community programs, including school-centered and community-oriented activities.[93]

The Program to Reduce Youth Smoking Through Media

The Program to Reduce Youth Smoking Through Media was an experimental trial designed to examine the influence of a mass media campaign on youth smoking prevalence across multiple states.[94] The audience was segmented into three age groups, grades 4–6, 7–8, and 9–12, with age-specific messaging and media. A prevention campaign was targeted toward each age group from 2002 to 2005, and a cessation campaign was targeted toward students in grades 9–12 from 2002 to 2004. The campaign included TV and radio messages that featured Hispanic, African American, and white youths, and it aired on targeted media channels popular among these racial/ethnic groups. Campaign objectives and advertising were based on behavior change theories such as social cognitive theory. The campaign objectives were to: decrease perceptions of smoking prevalence among young people; increase perceptions of smoking disapproval; increase confidence in the ability to refuse cigarettes; decrease positive outcome expectations for smoking; and increase negative outcome expectations for smoking. The campaign was not linked to interventions in schools or communities. One-third of messages reflected Hispanic casting and lifestyle, one-third African American, and one-third white, and media programming was targeted by age, gender, and race/ethnicity. Advertising formats included dramas, comedies, testimonials, and cartoons.[94]

Using an experimental community trial design, the campaign was conducted in four matched pairs of communities across four states (Florida, South Carolina, Texas, and Wisconsin) from 2001 to 2005, with communities and study samples selected for their racial/ethnic and socioeconomic diversity. Communities were matched, and one community of each pair was randomized to receive the intervention. School districts within the Designated Media Areas were recruited based on low-income and education populations, and surveys for grades 7–12 were conducted at baseline and 4 years later. The study samples ranged from 53%–58% non-Hispanic white, 23%–27% African American, 13%–15% Hispanic, and 5%–10% "Other" across conditions.[94]

Evaluation studies demonstrated favorable and significant changes in tobacco-related beliefs among Hispanic and African American youths but not among white youths. A significant favorable effect for some campaign-related beliefs was found for students in grades 7 and 8, and a trend was found for students in grades 9–12, but these effects did not translate into behavioral changes in most cases. No differences were found in intentions to smoke, in past-30-day and 7-day smoking, and in overall smoking prevalence between intervention and comparison communities at the 4-year follow-up. The findings suggested a trend in reduction of past-30-day smoking among Hispanics only. Researchers speculated that the effects among Hispanic students could have been due to the novelty and relevance of campaign messages specific to a traditionally underserved population. The overall lack of campaign effects on behavior might have been due to a ceiling effect of mass-media-based interventions, given that this trial was conducted during the same time as the period of highest exposure for the national "truth" campaign.[94] Further, the authors suggest that the absence of a school or community component may have undermined the campaign's impact.[93,94] Such additional program components may be needed, especially when targeting disadvantaged or diverse youth populations.

The National "truth" Youth Campaign

The national "truth" campaign of the Truth Initiative (formerly the American Legacy Foundation), created in 1998, was a branded campaign aimed at preventing youth smoking by influencing youth "sensation-seekers," ages 12 to 17 years, at greatest risk of smoking (Figures 10.3 and 10.4). Early campaign messages were delivered primarily via television, with supplemental advertisements on radio, on the Internet, and at other locations (e.g., on outdoor billboards, street furniture, transit), and were characterized by an edgy and rebellious message strategy with an anti-tobacco-industry theme.[95,96] The campaign was successful in reaching young people: 75% of all U.S. youths reported awareness of at least one "truth" message 10 months after the campaign first launched,[95] and awareness averaged approximately 70% over the first 3 years of the campaign.[97]

Figure 10.3   A "truth" Body Bags Campaign Message, 2000
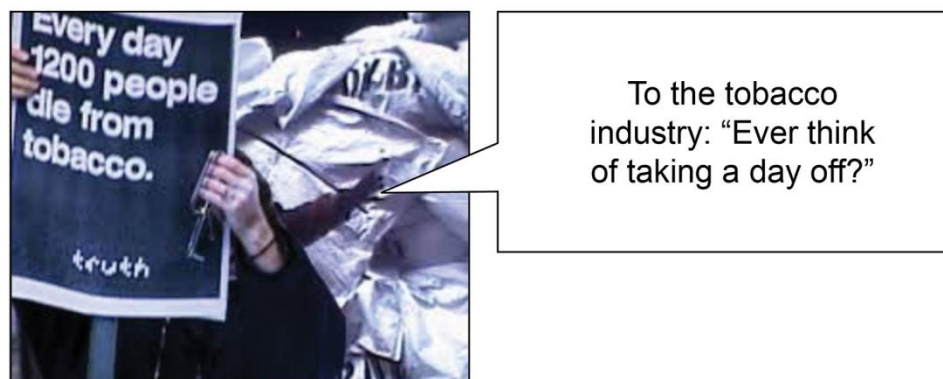
Source: Truth Initiative 2000.[466]

Figure 10.4   A "truth" Singing Cowboy Campaign Message, 2006
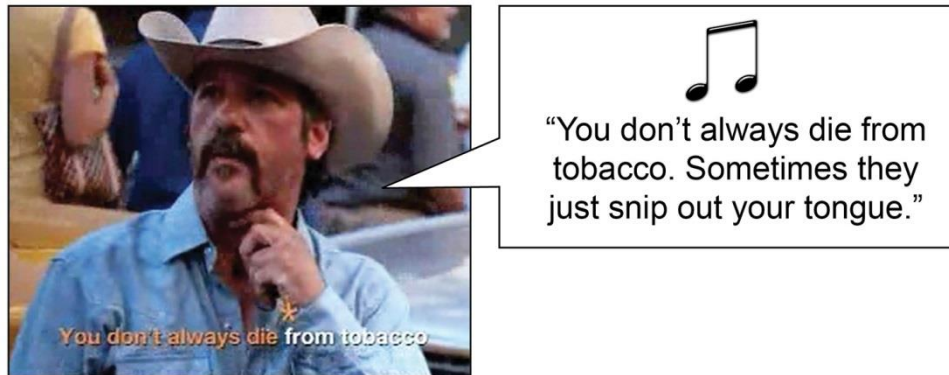
Source: Truth Initiative 2006.[467]

Evaluation studies of the "truth" campaign examined differences by SES and geographical location. One study pooled seven waves of repeated cross-sectional data from the 2002–2004 Legacy Media Tracking Survey (LMTS) to assess the impact of "truth" by SES. The study found that youths from low-income ZIP Codes had lower awareness of the campaign but similar levels of receptivity compared with youths from higher income communities.[98] A small cross-sectional survey of youth in five rural high schools in western Pennsylvania found relatively high awareness of the campaign (56%) several years after the campaign ended. Of those who were aware, 88% perceived the campaign to be effective.[99]

Duke and colleagues[100] examined the impact of an enhanced media delivery initiative of the "truth" campaign in a quasi-experimental study in rural and low-population-density communities. Eight communities were assigned to receive supplemental "truth" advertising, and another eight comparison communities received less than the national average of "truth" messages. A longitudinal analysis of 2,618 youths over more than 5 months found that rural youths in the supplemental media markets had significantly higher confirmed awareness of "truth" than youths in comparison rural markets receiving lower doses of "truth." Rural youths were also found to be highly receptive to the advertisements. These results suggest that targeted supplemental media efforts in rural communities could increase the awareness of anti-smoking advertising and could overcome potential limitations in media delivery sources for rural youths. Enhanced media targeting of youths in low-income areas could have a similar effect. These data also suggest that exposure to campaign messages was one of the key elements influencing the success of the campaigns.

Evaluation studies of "truth" have also analyzed campaign outcomes with respect to race/ethnicity. Advertisements featured youths from all racial/ethnic groups and targeted a portion of advertising toward media channels popular among racial/ethnic minorities.[96] Analyses from 2002 based on a pre-campaign wave of the LMTS and a 9-month cross-sectional follow-up found high levels of confirmed awareness and receptivity to the campaign among youths and young adults but did not analyze by race/ethnicity.[95] A subsequent analysis using LMTS data pooled across seven waves from 1999 to 2003 revealed some differences in the influence of the campaign on targeted attitudes, beliefs, and intentions to smoke by race/ethnicity. Specifically, associations between campaign exposure and changes in industry-related beliefs and attitudes were significant among whites and African American youths, but not among Hispanic or Asian American youths.[101] Further analyses found variations in the impact of specific messages[101] and the processes through which campaign messages influenced attitudes and

smoking behavior.[102] Further, the impact of the campaign on intention to smoke among never-smokers was strongest for African American youth.[101]

A study by Hersey and colleagues[102] found that exposure to the "truth" campaign negatively affected progression to established smoking by strengthening counter-industry attitudes and beliefs, and this relationship was significantly stronger among African Americans than among all other racial/ethnic groups evaluated. Evans and colleagues[103] also looked at mediators of "truth" messages. Controlling for peer influence, cigarette price, and personal independence, these researchers found that having a positive attitude toward being tobacco-free and toward nonsmoking social imagery made progression to smoking less likely. This pathway differed by race/ethnicity: The role of peer influence on the formation of nonsmoking social imagery was significantly stronger among whites and African Americans than Hispanics.[103] Together, these studies suggested that although exposure had a favorable impact on tobacco use across demographic groups, the salience of messages and the pathways of influence can vary across racial/ethnic groups.

In 2014, the Truth Initiative launched *truth FinishIt*, which targets youth and young adults ages 15–21 via social media. The campaign was designed to develop a relationship with the 92% of nonsmoking teens to reduce their intentions to smoke and affect longer term smoking behavior.[104]

Food and Drug Administration Youth and Young Adult Education Campaigns

The Real Cost

The Food and Drug Administration (FDA) launched its first federally funded U.S. anti-tobacco public education campaign in February 2014, targeting youth ages 12–17 who are open to trying smoking or already experimenting with cigarettes. Advertisements appeared on television, radio, print, digital, and out-of-home displays and focused on the cosmetic health effects of smoking, loss of control caused by addiction, and the toxic mix of chemicals found in cigarette smoke.[105] An evaluation of the campaign conducted between 2014 and 2016 found that high levels of campaign exposure during this time were associated with a 30% decrease in the risk of smoking initiation, and prevented nearly 350,000 youth ages 11–18 from initiating smoking.[105] In April 2016, The Real Cost brand expanded to include new advertising targeting rural male youth ages 12–17 at risk of smokeless tobacco use in 35 targeted U.S. markets.[106] At the time of this writing (2017), the campaign was ongoing and an outcome evaluation measuring the impact of campaign exposure on tobacco-related knowledge, attitudes, and beliefs was under way.[107]

Fresh Empire

The Fresh Empire campaign was launched in May 2015 in select southeast U.S. markets and expanded to additional markets in October 2015. The goal of the campaign was to prevent and reduce tobacco use among at-risk youth ages 12–17 who identify with hip-hop culture, specifically targeting African Americans, Hispanics, and Asian Americans/Pacific Islanders.[108] The campaign messaging highlighted the disconnect between the ideal image hip-hop culture promotes (e.g., fashionable, authentic) and the consequences of tobacco use. Traditional media advertisements aired during programs most popular among the hip-hop peer crowd. The campaign also engaged with the target audience through multiple digital platforms and outreach at the local level. Brand ambassadors attended local hip-hop events that linked back to social media promotions to increase campaign reach.[109] At the time of this writing (2017),

the campaign was ongoing and an outcome evaluation measuring the impact of campaign exposure on tobacco-related knowledge, attitudes, and beliefs was under way.[108]

This Free Life

FDA launched its This Free Life campaign in May 2016 to prevent and reduce tobacco use among LGBT young adults ages 18–24 who use tobacco occasionally. The campaign connected LGBT young adult shared values and the desire to be "free" as it related to their lives and experiences to the importance of being tobacco free. Print, digital, and out-of-home advertisements and local outreach events were the primary campaign dissemination vehicles in 12 U.S. markets. At the time of this writing (2017), the campaign was ongoing and an outcome evaluation measuring the impact of campaign exposure on tobacco-related knowledge, attitudes, and beliefs was under way.[110]

Adult-Focused Anti-Tobacco Communication and Marketing Campaigns

As with youth-focused campaigns, adult-focused campaigns have directed campaign strategies toward diverse segments of the smoking population in varying geographic areas. Adult cessation campaigns commonly address outcomes such as effects on knowledge, campaign-related beliefs, quit intentions, information-seeking or treatment-seeking (e.g., calling a quitline), reductions in cigarettes smoked per day, quit attempts, sustained abstinence, and reductions in smoking prevalence. The adult campaigns reviewed in this section include large national or state-led general population campaigns with paid mass media and extensive reach as well as smaller, targeted, community-based campaigns with earned media (unpaid coverage) or direct-marketing efforts combined with local campaign activities (Table 10.2).

Table 10.2   Summary of Adult-Focused Anti-Tobacco Communication and Marketing Campaigns Reviewed

Group	Study Type and Number of Studies for Each Type	Effects on Targeted Smoking Behaviors*	Conclusions
Low SES	General population campaigns: 15 studies	- No difference in effects between low and high SES[143,178,179,192] - Positive effect for low SES[68,118,153,160,174,190,191] - Mixed effects[171,468] - Negative effect for low SES[138,154]	Evidence of benefit for campaigns with graphic themes or campaign components targeted to low-SES groups, but studies vary widely No evidence of benefit for campaigns with primarily printed self-help-focused components
Diverse populations	Targeted campaigns: 14 studies	- No effect[111,128,129,133,134] - Positive effect[114,115,120,121,122,126,132,139,140]	Some evidence of benefit for intensive, multicomponent, culturally- and language-appropriate community-based campaigns targeting specific populations Relevant social support (e.g., counseling, peer support) may also be beneficial as part of these campaigns

Table 10.2 continued

Group	Study Type and Number of Studies for Each Type	Effects on Targeted Smoking Behaviors*	Conclusions
Racial/ethnic groups	General population campaigns: 11 studies	■ No difference between racial/ethnic minority groups and other groups[192] ■ Positive effect for racial/ethnic minority groups[174,175,178,190] ■ Mixed findings[171,172,179,191] ■ Negative effect for racial/ethnic minority groups[127,138]	Some evidence of positive effects for large mass media campaigns combined with additional tobacco control program or policy components. Effectiveness varied by campaign and by racial/ethnic group.
Racial/ethnic groups	Targeted campaigns: 18 studies	African American ■ No effect[111,133,134] ■ Positive effect[114,115,130] Hispanic ■ No effect[129] ■ Positive effect[113,126,132,139] ■ Mixed effects[125,131] Asian American ■ No effect[128] ■ Positive effect[120,121,122,140]	Some evidence of benefit for intensive, multicomponent, culturally- and language-appropriate community-based campaigns targeting specific populations, including immigrant populations Relevant social support (e.g., counseling, peer support) may also be beneficial No evidence of benefit for campaigns with primarily self-help focused components Some evidence of benefit for Spanish-language media campaigns promoting quitlines combined with enhanced phone counseling and/or nicotine replacement therapy

Notes: Some studies' campaigns are listed in several categories because they focused on several groups (e.g., racial/ethnic minority group, low-SES group). n = 36. SES = socioeconomic status.

Smoking behaviors considered among adults: quit attempts, abstinence, and smoking prevalence.

Large-Scale Anti-Tobacco Campaigns and Racial/Ethnic Minority Adults

A number of large-scale anti-tobacco campaigns provide insights into campaign effects among racial/ethnic minority adults.[111–140] Most of these campaigns were conducted between 1990 and 2000, with some exceptions,[113,122,127,139,140] and many were community-based. They included mass media combined with a variety of local intervention activities.[111,112,114–117,119–138,140] Many also focused on lower socioeconomic groups. Most of these campaigns were targeted to or included large racial/ethnic minority populations, including African Americans,[111,112,114–117,119,130,133–138] Latinos,[113,123–127,129,131,132,135,139] and Asian American/Pacific Islanders.[120–122,128,135,140] The campaigns employed broadcast TV, radio, and out-of-home advertising; self-help materials, including audiotapes and videotapes; print materials for telephone and group cessation counseling; peer support networks; and community advocacy efforts.

Although evaluation studies varied in terms of study design, intervention components assessed, and outcomes measured, some common themes emerged. Findings from several studies suggested sufficient exposure to campaign messages[117,119,120,123–125,132,134,135,137,139] as well as strong indicators of motivational response among low-SES and racial/ethnic minority target audiences, as evidenced by increased calls to informational and smoking cessation counseling quitlines.[112,113,121,139] Studies also found receptivity to

counseling calls[111] or intervention materials,[131] intervention engagement,[115,118] increased quit attempts,[116] quit knowledge,[123,125,139] and movement along the stages of change for quitting—for example, with more intensive interventions moving smokers from pre-contemplation to contemplation and from preparation to action.[134,136] In terms of opportunities to act or actual behavior change, several studies found modest increases in cessation rates and declines in prevalence among the target audience.[113–115,120–122,126,127,131,138] One study found a reduction in disparities,[140] and two provided evidence that tailored smoking cessation counseling via telephone quitlines increased quit rates compared with standard counseling for smokers recruited through media campaigns.[130,139]

Campaigns to Promote Cessation Among Low-SES Adults

A 2008 review of media campaigns by Niederdeppe and colleagues[56] documented the evidence related to the effectiveness of campaigns to promote cessation among socioeconomically disadvantaged adults age 18 years and older. The review primarily covered studies conducted in the United States, as well as a few studies from Australia, Great Britain, and Canada. In a sample of 50 published studies that used different study designs to evaluate 31 separate mass media campaigns, the analysis examined several intermediate- and long-term campaign outcomes and identified three potential sources of disparities in response to smoking cessation media campaigns: message exposure or recall, motivated response (i.e., quitline calls, quit attempts), and opportunities to act (i.e., abstinence, quit success). The authors used these three stages of campaign response to assess whether a study was more, less, or equally effective in reducing disparities across SES groups.

Specifically, studies that showed lower levels of exposure/recall, motivated response, or quit success among low-versus high-SES populations were considered to increase disparities and thus be less effective. Studies that showed equivalent levels of response at all three stages among low- and high-SES populations were considered to maintain disparities and thus be equally effective. Studies that showed higher levels of response in at least one of the three stages without showing lower levels in another stage were considered likely to reduce disparities and thus be more effective.[56] Of the 18 campaigns designed for a general audience,[138,141–157] Niederdeppe and colleagues concluded that 9 were less effective, 6 were equally effective, and 5 were more effective among a lower SES audience. Of the 13 campaigns that specifically targeted a low-SES audience,[111,115,125,126,129,133,134,139,158–162] 8 generated mixed or inconclusive results in effectiveness for reducing disparities, and 5 were less effective among a low-SES audience.[56]

Niederdeppe and colleagues[56] emphasized the importance of sufficient exposure to the campaign to ensure awareness and enhance effectiveness among low-SES populations, including utilizing multiple strategies such as paid, earned, and donated media as well as direct marketing to reach smokers. Simple self-help or quit-to-win contests, in isolation, were not found to benefit low-SES populations or attain sufficient reach. To increase awareness and improve low-SES smokers' motivational response to campaigns, the authors emphasized the need for formative research to understand the preferences of low-SES smokers, including literacy needs, language preferences, and cultural values of targeted groups. The authors also state that "media campaigns appear most effective among low SES smokers when they are implemented alongside larger tobacco control programs that include community mobilization, free NRT [Nicotine Replacement Therapy], telephone counseling, social support, or policy changes to change the social and structural context of cigarette use."[56,p.1352] In addition, Garrett and colleagues[161] note that the literature suggests that mass media campaign advertisements "featuring emotional/personal testimonies and graphic images of the health effects of tobacco that evoke strong negative emotions are

more likely to be effective in promoting smoking cessation among low-SES populations in comparison to ads that solely provide information on how to quit without the use of testimonials."[163,p.895]

Cessation Campaigns Analyzed by Race/Ethnicity or SES: Massachusetts, California, and New York

Reviews by Bala and colleagues[53,164] on the effectiveness of media cessation campaigns identified only two general campaigns with relevant, if minimal, analyses by race/ethnicity or SES among adult smokers: the Massachusetts and California campaigns. Additionally, relevant findings from campaigns implemented in New York State and New York City are described below.

Massachusetts. The Massachusetts campaign, implemented in 1993, was focused primarily on television media and utilized graphic and emotional advertising to relay information on the health consequences of tobacco use. Data indicated that awareness of the campaign was high among the overall population, but awareness levels were not examined for specific population groups.[165] A longitudinal population-based study found that smokers with lower educational attainment were somewhat more receptive to the campaign than more highly educated smokers.[165] However, a cross-sectional study of recent quitters found that smokers with a high school education or less and Hispanic smokers were not more likely than more highly educated and non-Hispanic smokers to report an anti-smoking TV ad as helpful in quitting.[142] In terms of actual behavior change, time-series analyses comparing smoking prevalence in Massachusetts with 41 other states that had limited tobacco control programming found that declines in prevalence among Massachusetts smokers were more pronounced among those who had graduated from high school but not college, and among non-Hispanic whites compared with smokers of other racial/ethnic groups.[53,164] These analyses could not separate the impact of the media campaign from the other components of Massachusetts's tobacco control program.

California. The California media campaign, launched in early 1990, was designed to promote a social norm of "not accepting tobacco" and included messages on the role of the tobacco industry in promoting tobacco use, the hazards of secondhand smoke exposure, addiction, and other topics.[166] Over time, the campaign also directed advertising and other efforts to specific ethnic populations, incorporating culturally relevant messages in a number of languages.[167] Early analyses indicated higher campaign awareness among Hispanics than other racial/ethnic groups analyzed.[168] Analysis of data (1992–2009) showed higher use of the California Smokers' Helpline (state quitline) by African Americans compared with other racial/ethnic groups.[169] Quitline use was also higher among ethnic minority or low-income young adults.[170] When the campaign targeted Hispanic and Asian American/Pacific Islander populations with language-specific media, quitline call rates among these groups increased.[157] This strategy also resulted in more calls from proxies—individuals who called on behalf of family and friends. In general, non-English-speaking populations were referred to the quitline at much higher rates than English-speaking populations, but low-education populations were less likely to call the quitline than more highly educated groups.[157]

Increased quitline call volume is an important indicator of interest in cessation, but data are not available to determine how quitline calls from smokers or proxies translate into successful quit attempts for specific population groups. Men's smoking prevalence in California between 1989 and 2000 declined equally across racial/ethnic groups, but smoking prevalence declined at a greater rate among Hispanic and white women than among African American women during the same period.[53] In contrast, a 1996–2002 study estimating changes in cigarette consumption using cigarette sales and self-reported survey data found greater increases in quitting among non-Hispanic whites and African Americans, and these

quits were more likely to be among women in these groups.[171] Another study, a cross-sectional analysis, compared declines in prevalence in 1992-1993 and 2001-2002 among non-Hispanic whites and African Americans in California with declines in prevalence in states that did not have comprehensive tobacco control programs. This study found significant declines among non-Hispanic whites in California only, but African American prevalence declined similarly across all states.[172] Differences in cessation by education varied by sex as well; the greatest declines in prevalence were among college-educated men and among women who did not graduate from high school.[53,164] In California, as in Massachusetts, these analyses could not separate the effect of the media campaign from other tobacco programming efforts delivered by the state health department.

New York. From 2003 to 2009 the New York State Tobacco Control Program invested $75 million in paid advertising on television and radio, in print, on the Internet, and in other venues, with messages designed to encourage smokers to quit by increasing their awareness of the health effects of smoking and the dangers of secondhand smoke. The campaign primarily used advertisements with strong emotional and graphic elements, such as those from the Massachusetts Department of Public Health "Pam Laffin" series (which shows the family of a young mother who died from emphysema due to smoking) and advertisements from Australia's "Every Cigarette Is Doing You Damage" campaign (which features stark, graphic images of the health effects of smoking). These graphic and emotional advertisements were supplemented by advertisements intended to enhance self-efficacy for quitting by providing resources and information on how to quit.[173]

Analyses comparing 6 years of cross-sectional data from New York State found that smokers' exposure to the state's anti-tobacco advertising increased from 6% to 45% over time, and quit attempts increased from 46% to 62%.[173] During that same period (2003–2009), smoking prevalence declined at a higher rate in New York (18%) than in the United States as a whole (5%). These data were not analyzed by specific group and, as with campaigns in states such as Massachusetts and California, the analyses could not distinguish the effects of the media campaign from effects of other components of the state's tobacco control program.[173] However, later analyses of cross-sectional data from the 2003–2010 New York Adult Tobacco Surveys demonstrated that exposure, as measured by confirmed awareness and gross rating points (GRPs) in separate models, was positively associated with increased odds of making a quit attempt. GRPs are a measure of the percentage of the population potentially exposed to advertisements (reach) and the average number of times they may have seen the advertisements (frequency) over a time period. The positive association between awareness and GRPs with quit attempts held true for all smokers, smokers who wanted to quit, smokers in low-income (<$30,000 per year) and high-income brackets (≥$30,000 per year), and smokers at lower education levels (high school degree or less and at least some college). Exposure to advertisements without graphic images or strong emotions had no effect among adult smokers.[68]

Additional analyses based on cross-sectional data from 2003 through 2011 among 9,408 smokers found that anti-smoking advertising, as measured by GRPs and confirmed awareness, was associated with increased quit attempts among non-Hispanic black and Hispanic smokers and those with lower levels of income and education. Nonnemaker and colleagues[174] noted that this was partially attributable to emotionally arousing and graphic advertisements. Findings also indicated that anti-smoking advertising, including graphic advertising, did not promote quit attempts among individuals with poor mental health.

The Roswell Park Cancer Institute, in Buffalo, New York, collaborated with local organizations in Erie and Niagara counties in upstate New York to run a Quit & Win contest and a NRT voucher giveaway

program to encourage cessation. This program was extensively promoted through the media and tailored to racial/ethnic minority group smokers. Studies conducted during the 2002 campaign found that the local minority population was receptive. A higher percentage of racial/ethnic minority group individuals chose to participate in the three components of the program (i.e., the Quit & Win contest, the NRT voucher giveaway, and a combination of the two) relative to their proportion in the local population. While behavioral outcomes were not examined by specific group, quit rates across the three intervention groups were high, ranging from 26% to 29% at 4- to 7-month follow-up.[175]

New York City also implemented public education campaigns as part of the city's comprehensive tobacco control program. In addition to intensive media promotions and anti-tobacco advertising, free NRT products were widely distributed to smokers. Studies show these efforts had significant success in increasing awareness and prompting responses from disadvantaged smokers. In 2003, a 6-week NRT giveaway program via the New York state quitline gave free NRT to an estimated 5% of all eligible smokers in New York City; 64% of these recipients were non-white, foreign-born, or resided in low-income neighborhoods. Foreign-born smokers in this program had higher quit rates than any other group.[148] During a 2006 NRT giveaway campaign, approximately 60% of the city's smokers reported program awareness, with awareness above 50% in each racial/ethnic, education, income, and nativity-based group and fairly evenly distributed across all groups.[176] A cross-sectional survey of 1,000 randomly selected city residents was conducted after the campaign and assessed whether those who were not aware of the campaign would have been receptive if they had been aware. The researchers found that receptivity among those who were not aware was highest for Spanish-speakers and the foreign-born.[148,176] A later 2008 NRT distribution campaign reached an estimated 3% of the city's adult smoking population; in areas with high smoking prevalence, uptake was higher in low-income neighborhoods, compared to higher income neighborhoods.[177]

Studies also examined smoking prevalence during the period when the New York City graphic anti-tobacco advertising campaign was conducted in conjunction with the city's multicomponent tobacco control program. Analyses from 2002 to 2003 found that smoking prevalence declined significantly overall and among all age, race/ethnicity, and educational groups, including U.S.-born and foreign-born individuals. Most of this decline was attributed to tobacco tax increases and smoke-free policies implemented as part of the broader city program.[178] Data collected after expansion of the campaign in 2006 demonstrated a significant decline in smoking among men and Hispanics in that year but not among other groups or overall.[179]

National Anti-Smoking Campaigns

Following the Fairness Doctrine period (1967–1971), which ended with passage of the Public Health Cigarette Smoking Act banning cigarette advertising on television and radio, there was little or no national anti-smoking advertising in the United States.[151,180] The following sections describe several recent large-scale efforts to use mass media to highlight the hazards of tobacco use, with encouraging results for groups that experience TRHD.

The "BecomeAnEX" Campaign

In 2008 the Truth Initiative, along with the National Alliance for Tobacco Cessation, launched the "BecomeAnEX" (EX) campaign, the first national branded adult cessation mass media campaign. This campaign targeted the general population but included an explicit focus on promoting cessation among

lower income and blue-collar smokers of diverse race/ethnicity who were thinking about quitting (Figure 10.5).[181]

Figure 10.5   Print Advertisement, EX Campaign, 2007

Source: Truth Initiative 2007.[469]

The campaign's message strategy was to empathically encourage smokers to "relearn" life without cigarettes by disassociating certain daily activities, such as driving or drinking coffee, with smoking. This strategy was based on recommendations from the literature regarding effective mass media campaigns and behavior change theory.[181–189]

After extensive formative research and a pilot study, the profile of the target audience was refined to smokers ages 25–49 of low-to-moderate income who were thinking about quitting. Subtle visual and behavioral cues were used to realistically portray the challenges of a lower income smoker's daily routine while attempting to quit (Figure 10.6). Media plans for the campaign focused on airing messages on networks and during programming popular among the target audience.[181,190]

Figure 10.6   EX Advertisement: Image of a Blue-Collar Worker Trying To "Relearn" Drinking Coffee Without Cigarettes, 2007

Source: Truth Initiative 2007.[470]

An evaluation of the EX campaign's effect by race/ethnicity and level of education found evidence that the campaign was effective at increasing smokers' favorable cognitions about quitting and quit attempts.[190] This evaluation was based on a national cohort of 4,067 smokers, of which 74% were non-Hispanic white, 11.5% were non-Hispanic African Americans, 7.4% Hispanic, and 7.0% were classified as "Other." Participants were interviewed at baseline and 6-month follow-up. African Americans reported the highest levels of campaign awareness. Over the study period, campaign exposure markedly increased favorable cessation-related cognitions among Hispanics and quit attempts among African Americans; campaign exposure also increased cognitions and quit attempts among respondents with lower educational attainment.[190]

In a subsequent path analysis of EX campaign effects based on the same data, the results for the sample overall indicated that campaign awareness had a direct effect on quit attempts and that campaign awareness also indirectly affected quit attempts by creating positive changes in how participants thought about cessation.[191] The effects differed, however, when examined by race/ethnicity and education. Only among African Americans did awareness of the EX campaign have positive, significant effects, both direct and indirect, on quit attempts. Within educational strata, positive and significant direct and indirect effects were found only among individuals with less than a high school education.[191] Later analyses that attempted to control for differences in awareness of the campaign via propensity score matching found that campaign awareness was not significantly associated with cessation-related cognitions or quit attempts at 6-month follow-up among the sample overall. Excluding the 217 smokers who had quit at follow-up, analyses indicated a positive and significant effect on both outcomes. No differential effects were found after examining the data by race/ethnicity and education, contradicting results from the earlier studies.[192]

Tips From Former Smokers[TM]

In 2012, the U.S. Centers for Disease Control and Prevention (CDC) launched "Tips From Former Smokers" (*Tips*[TM]), the first-ever paid national tobacco education campaign in the United States. This multi-year campaign was developed to increase public awareness of the health consequences of smoking

and exposure to SHS, encourage smokers to quit, and make free help available; encourage smokers not to smoke around others; and encourage nonsmokers to protect themselves and their families from SHS exposure[193] through powerful emotional messaging, a national quitline portal, and a smoking cessation website. The campaign featured testimonials, or stories told by real people, from former smokers who described real-life experiences in graphic and realistic terms, including the consequences of living with diseases and disabilities caused by smoking. The advertisement development process and media purchasing strategy were designed to address TRHD and reach at-risk populations of smokers, including American Indian/Alaskan natives, members of the military, people with mental health conditions, people from LGBT communities, and others. The initial *Tips* campaign television advertisements ran for three months (March to June 2012) complemented by print, radio, billboard, digital, and website advertisements in English and Spanish (see Figure 10.7).[194]

Figure 10.7   Advertising Image, CDC's *Tips From Former Smokers*™

Source: Centers for Disease Control and Prevention 2017.[193]

An evaluation of the 2012 campaign included baseline assessment and 3-month follow-up among a longitudinal cohort of smokers (n = 3,051) and nonsmokers (n = 2,220) from a probability-based nationally representative online sample. Seventy-eight percent of smokers and 74% of nonsmokers recalled seeing at least one *Tips* advertisement on television, and quit attempts among smokers increased by about 12%, from 31.1% to 34.8%, during the broadcast period. An estimated 1.64 million additional smokers made a quit attempt as a result of the campaign, with an estimated 220,000 remaining abstinent at follow-up, and approximately 100,000 were estimated to stay quit for at least 6 months. There were no interaction effects between pre–post changes in quit attempts and smokers' characteristics before and after the 2012 *Tips* campaign, but stratified models indicated significantly more quit attempts among African American smokers than white smokers, and among those with less education compared to those with at least some college education.[194] Additionally, an analysis of the 2012 *Tips* campaign found that it succeeded in reducing smoking-attributable morbidity and mortality, and was a highly cost-effective mass media intervention.[195]

The 2013 *Tips* campaign aired for 16 weeks with similar creative content to the 2012 campaign but also included supplemental media buys in randomly selected local markets to increase exposure to campaign advertising. These higher dose markets were exposed to three times the advertising of standard-dose markets. Overall, the incidence of quit attempts was greater in higher dose markets relative to standard-dose markets. Researchers found that the relative increase in quit attempts associated with the additional dose was markedly higher among African American smokers, with those in higher dose markets reporting a significantly higher rate of quit attempts than those living in standard exposure markets (50.9% vs. 31.8%).[196]

After the launch of the 9-week-long 2014 *Tips* campaign, 1.83 million smokers attempted to quit smoking and an estimated 104,000 Americans quit smoking for good. The quit attempt rate among smokers increased by 17%, and an additional 1.73 million intended to quit within 6 months.[197] The authors concluded that "these data provide further justification for the continued use of tobacco education campaigns by federal and state health agencies to accelerate progress toward the goal of reducing adult smoking in the United States."[197,p.5]

In addition, an evaluation of 2014 *Tips* campaign advertisements found that the advertisements' perceived effectiveness, a measure of audience receptivity calculated by taking the mean of respondents' advertisement ratings on 6 items (memorable, attention-grabbing, informative, powerful, meaningful, and convincing) varied by race/ethnicity. Non-Hispanic black and Hispanic smokers responded significantly more favorably to the advertisements than white smokers, irrespective of the race/ethnicity of the person in the advertisement. As the authors note, the study "provides further support for previous research showing that hard-hitting, general population anti-smoking media campaigns can be used across a variety of demographic subpopulations," and that "in developing antismoking ads, a greater focus on compelling message content irrespective of the race/ethnicity of ad participants is prudent."[198,p.6–7]

Evaluating the Effectiveness and Methodology of Cessation Campaigns

A review by Guillaumier and colleagues[57] examined the effectiveness and methodological quality of adult cessation mass media campaigns among socially disadvantaged groups —including racial/ethnic minorities and people who were mentally ill, homeless, low income, and less educated—and by occupation. The authors reviewed 17 relevant studies (including many reviewed in this chapter) from the United States, Australia, and New Zealand. Eleven of these studies used specific group analyses in their evaluations of general anti-tobacco campaigns, and six studies focused on campaigns that targeted disadvantaged groups. The authors concluded that, "while socially disadvantaged smokers may be less likely to recall general population campaigns compared with more advantaged groups, they may be equally likely to perceive these campaigns as effective and to quit in response."[57,p.705] The researchers also noted that when general-population and targeted campaigns were aired nationally, disadvantaged smokers were more likely to recall and respond favorably to them, suggesting that these campaigns have the potential to be effective with disadvantaged groups. Another finding was that most studies examined campaign effects among low-to-moderate SES groups, rather than highly disadvantaged groups or those who experience multiple forms of disadvantage (i.e., indigenous populations, people who are homeless, and people with substance abuse disorders). Guillaumier and colleagues[57] also examined the methodological strength of the evidence for these campaigns. According to the criteria of the Effective Public Health Practice Project Quality Assessment Tool,[199] only 4 of the 17 studies were rated as "strong" or "moderate" for all applicable assessment items. Guillaumier and colleagues[57] determined

that weak study designs and selection bias limited strong conclusions regarding campaign effectiveness. While acknowledging the practical limitations of implementing more rigorous designs, the authors emphasized the need to raise the minimal level of evaluative evidence required to assess the effectiveness of cessation campaigns among disadvantaged populations. Specifically, the authors recommended the use of controlled time-series, sequential randomized trials, and pilot randomized controlled trials, where feasible, before widespread dissemination.

Evidence Review: Anti-Tobacco Communication and Marketing Campaigns

Overall, studies find that media campaigns aimed at the general population and those targeted toward racial/ethnic groups and socioeconomically disadvantaged populations are effective, especially when combined with state, community, and/or school-based programs that complement campaign efforts.

Youth Campaigns

Among youth, population-based and controlled field-based studies undertaken with specific group analyses or targeted toward specific groups provide limited evidence about the effectiveness of campaigns on reducing smoking behavior across racial/ethnic groups. The national "truth" campaign evaluations suggested that anti-tobacco campaigns can be effective in reaching and engaging various groups of youths, and in influencing knowledge, attitudes, beliefs, and behaviors; however, the types of campaign messages and pathways that would effectively influence attitudes and behaviors may differ by race/ethnicity. The strongest effects on attitudes and intentions were found among African American youth. The findings on awareness of the "truth" campaign and receptivity to its messages among low-SES and rural youths are promising, but given the limited work in this area, further research and analysis on behavioral outcomes among SES groups are needed.

Field-based controlled trials with sufficient duration and intensity conducted in low-income white or racially/ethnically diverse communities have shown mixed results. The literature search of studies published between 1990 and July 2014 did not identify studies on youth prevention mass media campaigns with analyses among LGBT youth or among foreign-born youth. However, for a number of national campaigns launched between 2014 and 2016 targeting LGBT youth and youth of specific racial/ethnic groups, outcome evaluations are planned or under way.

Studies also find that young people living in rural areas are receptive to anti-tobacco youth prevention campaigns, but supplemental media efforts may be required to overcome media delivery challenges in these areas. Studies evaluating the influence of youths' exposure to any anti-smoking advertising provide evidence that anti-smoking advertising can be effective among racial/ethnic groups; in some cases, anti-smoking advertising may be more effective among racial/ethnic youth than among white youth. However, these studies are unable to determine the effects of specific campaigns or types of advertising on smoking behavior among youth.

Adult Campaigns

The numerous studies examining the influence of adult cessation campaigns on diverse populations provide a nuanced and multifaceted view of the effects of anti-tobacco mass media campaigns. Data suggest that targeting specific populations with linguistically appropriate media can enhance receptivity to campaigns and stimulate treatment seeking, although the extent to which this activity translates into behavior change is not well established. Campaigns targeting specific low-SES and racial/ethnic groups

with materials in their own language and tailored to their culture have shown some positive effects, particularly among African American, Hispanic, and some Asian ethnic groups. Evaluation of the CDC's *Tips From Former Smokers* campaign has shown that emotional and graphic testimonials about living with the health consequences of smoking are broadly effective and may have a greater impact on quit attempts by African Americans and people with less education. In contrast to these campaigns, studies of the national EX campaign provided promising but somewhat mixed findings regarding the role of a supportive how-to-quit message in generating awareness, receptivity, attitude changes, and behavioral outcomes among racial/ethnic minority and low-SES populations.

In addition,

- Among adults, some evidence indicates that cessation campaigns with graphic themes or those targeted toward low-SES populations are effective for these groups. Mass media campaigns combined with state or community-based programs that complement campaign efforts may be most effective in increasing cessation among low-SES adult populations.

- There is little to no evidence of benefit for cessation campaigns consisting primarily of printed self-help materials for low-SES or racial/ethnic minority populations.

- There is some evidence of effectiveness for intensive, multicomponent, culturally and linguistically appropriate community-based campaigns that target specific populations, such as low-SES and/or specific racial/ethnic minority groups (African American, Hispanic, Asian American), including immigrant populations. Relevant social support via telephone counseling or peer support may also be needed to ensure campaign effectiveness.

- There is some evidence of benefit from large media campaigns combined with additional tobacco control program or policy components for racial/ethnic minorities, but effectiveness may vary by campaign and by racial/ethnic group.

- Some evidence supports the use of Spanish-language media campaigns promoting quitlines, combined with enhanced phone counseling and/or NRT.

- Strongly promoted NRT giveaway campaigns may be effective in reaching low-SES and racial/ethnic minority populations, including immigrant groups, but studies are needed to examine quit outcomes resulting from these campaigns.

- Differences in public awareness of campaigns, such as among non-English-speaking immigrant groups, may reflect structural differences in access to media and health-related information due to geographic, language, education, or income-related factors. Such disparities align with the knowledge gap hypothesis, which holds that social environment and social group differences in income, education, and other factors can lead to disparities in information that can influence longer term health behavior and health.

- Variation in campaign effects across racial/ethnic groups may reflect differing pathways through which campaigns influence behavioral outcomes among minority groups. These differences may be influenced by social or cultural factors and may result in communication inequalities if campaign messages do not resonate with specific groups. Formative research to examine factors that influence racial/ethnic minority groups' receptivity to media campaigns is critical to ensuring campaigns have the intended effect.

- As suggested by fundamental cause theory, low-SES and racial/ethnic minority populations may be least likely to benefit from health education campaigns, not only because of differential access to knowledge but also because of limitations in material and social resources that can support

behavior change. Media campaigns combined with multicomponent state, community, or school-based activities, including relevant social support components, show some benefit among low-SES and racial/ethnic minority populations, suggesting that additional social and structural support can help address the fundamental causes that limit health behavior change efforts among disadvantaged groups.

Pro-Tobacco Communication, Marketing, and TRHD

Advertising and promotion of tobacco products, brands, and corporate identities are intended to increase sales, influence social norms about tobacco use, and foster positive attitudes about tobacco companies.[1,200,201] An extensive body of research demonstrates that the industry's use of advertising and marketing practices does indeed have an effect. For example, NCI Tobacco Control Monograph 21 concludes that "the weight of the evidence from multiple types of studies done by researchers from a variety of disciplines and using data from many countries indicates that a causal relationship exists between tobacco company marketing activities and tobacco use including the uptake and continuation of tobacco use among young people"[3,p.258] and NCI Tobacco Control Monograph 19 concludes that "targeting various population groups…has been strategically important to the tobacco industry."[1,p.170]

This review of the literature on the effects of pro-tobacco communication and marketing effects on specific groups was carried out in two phases: an examination of major published literature reviews in this area, and a search using standard search tools and databases to identify any other relevant publications. In the first phase, reference lists of the review articles were searched and potentially relevant articles were examined. The second phase consisted of a search of MEDLINE, Embase, PsycINFO, Web of Science, Academic Search Complete, and the Cochrane Library for articles published between January 1, 2000, and July 1, 2014. The search was limited to publications in English, with a focus on studies conducted in the United States. Search terms included: (tobacco OR cigarette OR smoke OR smoking) AND (marketing OR media OR advertising OR channel OR newspaper OR magazine OR movies OR television OR industry OR company OR targeting OR promotion OR regulation OR control OR discount OR coupon OR purchase OR sponsor OR sport OR concert OR event OR "point of sale" OR pack OR packaging OR "warning label" OR labeling) AND (youth OR adolescent OR ethnic OR disparity OR disparities OR inequality OR disadvantage OR race OR racial OR minority OR "African American" OR black OR Latino OR Hispanic OR Asian OR "Native American" OR "Alaska Native" OR economic OR socioeconomic OR SES OR low-income OR poverty OR gay OR lesbian OR bisexual OR transgender OR homosexual). This literature search yielded 946 articles, 45 of which met the inclusion criteria (Box 10.3).

**Box 10.3: Inclusion and Exclusion Criteria for the
Review of Literature on Pro-Tobacco Communication**

Inclusion Criteria

- U.S. studies only
- Published between January 1, 2000, and July 1, 2014
- Published in English
- Focused on the effects of pro-tobacco communication and marketing among groups of interest, which include any racial/ethnic minority groups (African American, Hispanic, Asian American, American Indian/Alaska Native, Pacific Islander, etc.), any socioeconomically disadvantaged groups (low income or SES), or foreign-born, or gay, lesbian, bisexual, or transgender identity

Exclusion Criteria

- Conducted outside the United States
- Published outside the stated time frame
- Published in languages other than English

A 2011 Cochrane Collaboration review identified 19 longitudinal studies that followed more than 29,000 youths (age 18 or younger) who were not regular smokers at baseline. In 18 of the 19 studies, the nonsmoking youths who were more aware of tobacco advertising, or were receptive to it, were more likely to experiment with cigarettes or become smokers by the 30-month follow-up.[202] Only one study, however, examined effects by race or ethnicity; it concluded that exposure to tobacco advertising was associated with susceptibility to smoking among white and African American youths but not among Hispanic youths.[203] Similarly, research demonstrates statistically significant relationships between adults' exposure to advertising and cigarette cravings (including urges to start smoking among recent ex-smokers), impulse purchasing,[204] cigarette consumption by adults,[205–207] increased market share,[208] and intentions to quit.[209] However, little existing literature specifically and rigorously examines these effects by race/ethnicity or SES. One of the few studies with an adequate sample size to report results by racial/ethnic groups found that media exposure (i.e., exposure to commercials or Internet advertisements) was an important factor influencing smoking initiation among all racial/ethnic groups.[210]

Greater exposure to advertising has been associated with higher perceived prevalence and positive attitudes about tobacco use among adolescent populations overall, but the evidence is limited on racial/ethnic minority youths and adults.[211] Research has also demonstrated links between advertising exposure and youth susceptibility,[207,212,213] experimentation,[202] initiation,[214,207] and smoking status.[202] Exposure to tobacco advertising has a well-established association with smoking attitudes and behavior among both youth and adults.[1,202,207,209,215–220] The few studies among targeted populations (i.e., African American, American Indian/Alaska Native, youth of Mexican origin, younger audiences) have found that positive attitudes about tobacco advertising,[221] exposure to pro-tobacco messages,[222] and increased perceptions of smoking prevalence among others[223] are predictors of tobacco use. It is important to better understand how exposure to industry advertising and promotion practices influences tobacco use behavior, particularly among vulnerable groups.

Both the Surgeon General's report *Tobacco Use Among U.S. Racial/Ethnic Minority Groups*[200] and NCI Tobacco Control Monograph 19, *The Role of the Media in Promoting and Reducing Tobacco Use*,[1] describe tobacco industry advertising and promotional practices that target or disproportionately expose low-income individuals, racial/ethnic minorities, and other minority populations. This section draws from these important sources and summarizes more recent evidence on how pro-tobacco communication and marketing efforts could influence TRHD among these groups.

The following sections highlight a process of advertising and promotion that is extremely responsive to the changing economic, policy, and social environment as well as to the changing tobacco consumer. A key component of the industry's strategy is its use of audience segmentation to effectively reach particular groups, such as youths, African Americans, Hispanics, and women, as well as the development of tobacco products with appeal to particular market segments.[200,224–226] As NCI Tobacco Control Monograph 19 notes, "targeting various population groups—including men, women, youth and young adults, specific racial and ethnic populations, religious groups, the working class, and gay and lesbian populations—has been strategically important to the tobacco industry."[1,p.11] Internal tobacco industry documents describe a sophisticated, data-driven process through which manufacturers identify a target audience, come to intimately understand the audience's experiences and needs, and use that information to develop and target products, brands, advertising, and promotions toward that audience.[1]

Pro-Tobacco Advertising and Promotional Channels

The tobacco industry's process of advertising and promotion makes effective use of a variety of communication channels,[227,228] each selected based on its ability to reach an identified audience.[1,229] Because race/ethnicity, SES, and geography influence exposure to tobacco marketing,[1,19,230,231] these factors are specifically considered within an overall media plan. Variations in tobacco prices, products, placement, and promotional strategies are employed based on detailed information related to the targeted demographic groups.[1] Evidence indicates systematic differences in the strategies used, particularly in the marketing of menthol products for urban, low-income, and often predominantly African American communities.[232] Industry terms such as "focus communities" have sometimes been used in internal tobacco industry documents to refer to these communities.[233,234]

Over time, restrictions have been placed on tobacco advertising and promotion (see Box 10.4). With each limitation on its ability to reach consumers, the tobacco industry has placed greater emphasis on other forms of product and brand promotion. The following sections address how the landscape of industry advertising and promotions has changed and what is known about how these practices affect different racial/ethnic and low-SES communities and populations.

Box 10.4: Regulation of Tobacco Industry Advertising and Promotion in the United States

As described below, restrictions on the tobacco industry's advertising and promotion practices have been implemented over time. Restrictions on industry practices often result in the transfer of resources from regulated to unregulated venues. The tobacco industry's advertising and promotion practices have also changed in response to the evolving consumer marketplace.

1965: Congress passes the Federal Cigarette Labeling and Advertising Act, requiring a health warning on all cigarette packages.[180,p.671]

1970: Congress enacts the Public Health Cigarette Smoking Act of 1969 (passed in 1970), banning cigarette advertising on television and radio and requiring a stronger health warning on cigarette packages.[180,p.672]

1973: Congress enacts the Little Cigar Act of 1973, banning little cigar advertisements from television and radio.[180,p.674]

1984: Congress enacts the Comprehensive Smoking Education Act, requiring rotational health warnings on cigarette packages and advertisements.[180,p.677]

1986: Congress enacts the Comprehensive Smokeless Tobacco Health Education Act of 1986. Requires rotation of three health warnings on smokeless tobacco packages and advertisements and bans smokeless tobacco advertising on broadcast media.[180,p.678]

1998: The Master Settlement Agreement (MSA) between 46 states, 5 U.S. Territories, and the District of Columbia imposes restrictions on participating manufacturers' marketing practices, including: (1) forbidding direct or indirect tobacco marketing to youth; (2) prohibiting tobacco advertisements on public transit and on billboards; (3) prohibiting the use of cartoon characters in cigarette advertising, promotion, and packaging; (4) eliminating paid tobacco product placement in media outlets; (5) restricting tobacco company sponsorship of sports, arts, and cultural events; and (6) restricting free samples to adult-only facilities.[266]

2009: The 2009 Family Smoking Prevention and Tobacco Control Act gives the Food and Drug Administration broad authority to regulate the manufacture, marketing, and distribution of tobacco products. The legislation required FDA to reissue a regulation it had issued in 1996 which, among other things, prohibits manufacturers, distributors, and retailers from sponsoring sporting and other cultural events with the brand name or other indicia of product identification similar to, or identifiable with, that used for any brand of cigarette or smokeless tobacco, while permitting sponsorship of these events in the name of the corporation.[471]

Television, Movies, and Tobacco Imagery

Studies indicate that many young people in the United States are exposed to tobacco imagery on television in the context of programming and movie trailers.[235–238] One longitudinal study found that youths' recall of people smoking in television programs was associated with increased odds of ever smoking at baseline.[239] Other research demonstrates that exposure to images of tobacco use in movies or by celebrities has a clear causal link with youth smoking.[1,217,240,241] Specifically, studies have shown that exposure to smoking in movies is associated with trying smoking but not with smoking intensity or faster progression to established smoking following initiation.[242–245] Studies have also indicated that exposure to smoking in movies has increased cravings and smoking behavior in adults.[242,246–249] Finally, the 2012 Surgeon General's report *Preventing Tobacco Use Among Youth and Young Adults* concluded "that there is a causal relationship between depictions of smoking in the movies and the initiation of smoking among young people."[19,p.10]

Television and movie consumption differs among adults and youths by race/ethnicity and income, which can influence exposure to certain types of tobacco products and imagery. For example, a 2015 national study of media use among youths ages 8 to 18 illustrated the potential for televised tobacco images to affect low-SES and racial/ethnic minority youths more than white youths. On average, among 8- to 12-year-olds, African Americans and Hispanics spent significantly more time watching television or videos (3 hours and 40 minutes and 3 hours and 14 minutes, respectively) each day, compared with

white youth (2 hours and 29 minutes).[250] Among 13- to 18-year-olds, African Americans reported 4 hours and 33 minutes of television watching compared to whites (2 hours and 56 minutes). Significant differences were seen in the average time per day watching television between youth with family incomes of less than $35,000 (3 hours and 40 minutes among 8- to 12-year-olds and 4 hours and 14 minutes among 13- to 18-year-olds) and those with incomes of $100,000 or more (2 hours and 9 minutes and 2 hours and 41 minutes, respectively). Significant differences were also observed between youth whose parents had a high school education (3 hours and 20 minutes among 8- to 12-year-olds and 4 hours and 4 minutes among 13- to 18-year-olds) and those whose parents had a college degree (2 hours and 22 minutes and 2 hours and 42 minutes, respectively).[250]

There is some evidence that the effects of depictions of tobacco use in television and movies on adolescent smoking behavior can vary by race/ethnicity and can be moderated by environmental variables. Some research has suggested that African American youths, and to a lesser degree Hispanic youths, are more resistant to the influence of smoking imagery overall than white youths.[7–9] The results of one study indicated that although the smoking behavior of white youths was affected by seeing white and African American actors smoking, African American youth smoking behavior was affected only by seeing African American actors smoking (and showed reduced media effects overall).[8] A national study found that African American and American Indian/Alaska Native youths reported significantly more exposure to smoking imagery on television and in movies and reported watching more hours of television per day compared with white youths.[223] These factors contributed to perceptions among African American and American Indian/Alaska Native youths of higher smoking prevalence,[221] and cross-sectional and longitudinal studies provide evidence that perceived smoking prevalence is highly predictive of smoking initiation among youths.[223,251–253]

Tobacco Advertising in Magazines and Newspapers

Tobacco advertising in magazines and newspapers decreased after the Master Settlement Agreement (MSA) was reached in 1998, with magazine advertising expenditures in particular declining steadily between 1999 ($377.4 million) and 2011 ($23.3 million).[227] However, recent years have seen an increase in magazine advertising ($50.0 million in 2014).[225] By 2005 the only major cigarette brands advertised in magazines were menthols (e.g., Newport, Salem, and Kool) or products with a prominent menthol brand presence (e.g., Camel).[254] Between June 2012 and January 2013, Newport and American Spirit spent an estimated $9.4 million on print advertising for menthol cigarettes.[255] Magazine advertising for smokeless products increased from to $7.9 million in 2009 to $11.1 million in 2010, then fell to $4.9 million in 2011, before increasing to $18.9 million in 2014.[228]

Youth

Healthy People 2020, which delineates 10-year national objectives for improving the health of the U.S. population, set a goal of decreasing the proportion of youth in grades 6 through 12 who are exposed to tobacco marketing in magazines and newspapers from 48.6% to 19.3%.[256] National data from the 2011 National Youth Tobacco Survey showed that 48.2% of middle school students and 54.0% of high school students reported being exposed to pro-tobacco advertising in magazines. The rate of exposure to magazine advertising among middle school students who were categorized as susceptible to smoking (22.5% of all middle school students) declined from 71.8% in 2000 to 46.1% in 2009, then increased to 55.4% in 2011.[257] Overall prevalence of exposure to pro-tobacco advertisements in newspapers and magazines among middle and high school students decreased from 65% in 2000 to 36.9% in 2012.[212,257]

Available data on magazine readership suggest that young people in racial/ethnic minority groups are more likely to be exposed to tobacco advertising in magazines than whites. Kaiser Family Foundation data from a 2008-2009 nationally representative survey of students ages 8–18 show that African American youths spend, on average, 11 minutes per day reading print (rather than online) magazines, whereas Hispanic youths spend 10 minutes, and white youths spend 8 minutes.[55] As of 2013, 46.2% of non-Hispanic whites, 46.8% of Hispanics, and 48.3% of African American youth reported exposure to pro-tobacco advertisements through these channels.[256]

Morrison and colleagues[258] used national magazine advertising and readership data from 1992 to 2002 to assess the level of smokeless tobacco advertising in popular magazines with a large youth-based audience. Despite the reduction in industry magazine advertisement spending, they concluded that youths' exposure to smokeless tobacco advertisements remained high and might even have increased post-MSA partly due to advertising in adult magazines. A study of national magazine advertising and readership data from 1998 to 2006 supported the conclusion that youths continued to be exposed to smokeless tobacco advertisements through adult and men's magazines but suggested that youths' exposure had declined since the MSA.[259] A 2013 study on smokeless tobacco products found that discount snuff advertising tended to be published in magazines with a high youth readership and roughly corresponded to the increased popularity of this product type among male adolescents.[260]

Adults

As of 2014, 52 percent of African Americans read magazines, a figure that is far higher than the general population (22%).[33] GfK Mediamark data from 2010 also indicate differences in magazine reading by race/ethnicity; African American adults read, on average, 3.9 magazines per week, Hispanics read 3.1, and whites read 2.6.[54] Respondents in each education group read, on average, three magazines per week.

Researchers found that magazines with high African American readership had more cigarette advertisements overall (Figure 10.8) and more advertisements for menthol cigarettes than magazines with larger white readership.[261,262] Magazines tailored to Hispanics were also found to have more menthol advertising than those tailored to whites.[262] In the late 1990s, Philip Morris and R.J. Reynolds (RJR), launched their own "lifestyle" magazines, which used style and content elements to promote smoking and their own products.[263]

Figure 10.8   Advertisement for Salem Menthol Cigarettes, *Maxim* Magazine, March 2004

Source: Rutgers School of Public Health 2004.[472]

Newspaper advertising has declined dramatically since the 1970s and early 1980s, when newspapers represented a major channel of communication for the tobacco industry, accounting for 20% or more of advertising spending in any given year.[227] Since 1992, newspaper advertising has represented less than 1% of all tobacco industry cigarette advertising and promotional spending; in 2011 the industry spent $549,000 on newspaper advertising. Newspaper spending data are not available for 2012 through 2014 because only one company reported spending in this category.[227]

Evidence from the period leading up to 1990 indicates that spending on newspaper advertising may have been aimed at creating support in the African American community for policies favorable to the industry. A 2012 study analyzed information from the archives of the National Newspaper Publishers Association and tobacco industry documents from 1968 through 2004, and concluded that "in exchange for advertising dollars and other support, the tobacco industry expected and received support from Black newspapers for tobacco industry policy positions" prior to 1990.[264,p.739] Indeed, historically, African American newspapers have received revenue from tobacco industry advertising and other forms of support to sustain circulation,[264] and contemporary readers of publications with a large African American audience can experience a higher level of exposure to tobacco advertising than readers of publications addressed to a more general audience.[265] A content analysis of African American and general audience newspapers from 2004 through 2007 showed that African American newspapers were more likely to include tobacco product advertising than general audience newspapers, although in both types of newspapers, advertising promoting commercial goods/services to stop smoking was more common than advertising for tobacco products.[265]

Outdoor Advertising

The MSA (signed in 1998) banned what was then the primary form of outdoor tobacco advertising—tobacco advertisements on outdoor billboards larger than 14 square feet.[266] As a consequence, spending for this category decreased significantly, from $294 million in 1998 to $53.9 million in 1999.[267,268] Industry spent $2.2 million in 2014 on outdoor cigarette advertising[227] compared to $1.1 million on outdoor advertising for smokeless tobacco products.[228]

There is some evidence that outdoor tobacco advertising may be disproportionately targeted to minority and low-income communities. Studies conducted before the MSA found more tobacco billboards in African American and low-income areas than in other areas,[269–273] and determined that a large proportion were placed near public schools.[274] Studies have also found that cigarette advertising in African American, Latino, and low-income communities[232,275] tends to be larger and more likely to be located within 1,000 feet of a public school than in other communities; it also tends to promote menthol products and display lower prices.[234]

Packaging

The importance of the cigarette package itself as a form of cigarette advertising has increased, as restrictions on advertising through traditional media have become more common.[276] Cigarette packaging is used to communicate certain characteristics of a brand or product to consumers.[225,276–281] In turn, consumers use the pack to communicate their brand choice to peers.[278,281] A recent study suggests that packaging contributes to brand selection among youths,[279] an important consideration given that brand selection is highly correlated with race/ethnicity.[282] In addition, the color and shape of a cigarette pack can indicate a masculine or feminine product, luxury or value product, and menthol or non-menthol product. Product displays have been heavily used in urban areas to promote menthol products.[233]

Attractive and prominent packaging displays may also undermine cessation among adults.[180] For example, in a study of tobacco purchasing, 25% of current smokers reported purchasing cigarettes on impulse after seeing cigarette displays, and more than one-third of former smokers and those attempting to quit reported experiencing an urge to buy cigarettes on encountering a retail display.[283]

Packaging design also influences the consumer's perceptions of risk. In the United States, a provision of the Family Smoking Prevention and Tobacco Control Act of 2009 bans use of the terms "light," "mild," or "low," or similar descriptors, without a marketing authorization from the FDA.[19] The court in *United States of America v. Philip Morris USA, Inc.* also prohibited the defendants and other covered persons and entities from using misleading descriptors such as "low-tar," "light," "mild," and "natural."[284,p.938] In response, tobacco companies have moved to distinguish among brands by color; studies have shown that consumers are able to distinguish between "regular" and "light" cigarette products in the absence of text labels.[279,285–288] Indeed, numerous studies have shown that the color of cigarette packaging is associated with risk perceptions among smokers, with lighter packages conveying reduced risk.[285,287–293] Adults and youth are significantly more likely to rate "silver" and "gold" packs as lower tar and lower health risk; adults are significantly more likely to say it is easier to quit smoking these "silver" and "gold" packs; and youths are significantly more likely to say a "silver" or "gold" pack is their top choice if trying smoking for the first time.[291,294,295]

Health warnings on cigarette packages, particularly warnings with large pictorial images, are effective across diverse populations.[296] For example, a 2012 experimental study involving a large diverse population found that graphic pictorial warnings were more effective than text-only versions, and smokers indicated that the warnings were more impactful and credible and had a greater effect on their intentions to quit. The stronger impact of pictorial warnings was consistent across race/ethnicity, education, and income.[297] Similarly, a study by Thrasher and colleagues[298] found that labels with graphic imagery were more effective for groups of various races/ethnicities and levels of health literacy than text or other types of imagery. NCI Monograph 21 noted that:

> Studies have assessed the ability of health warnings to reduce differences in knowledge and smoking behaviors between population subgroups, particularly between advantaged and disadvantaged groups within countries. In general, these studies indicate that pictorial warning messages have very wide reach, and can be a broadly effective tool in improving knowledge and reducing health disparities. For example, a study comparing the impact of pictorial warning labels with text-only labels among U.S. adult smokers found that the pictorial warnings were more effective across diverse racial/ethnic and socioeconomic groups, concluding that 'pictorial health warning labels may be one of the few tobacco control policies that have the potential to reduce communication inequalities across groups'.[3,p.290,297,p.1]

In addition, the importance of revising warnings over time to avoid "wear-out" is now well recognized.[3,299]

Australia became the first country to implement plain (standardized) packaging for all tobacco products (December 2012). Under the law, all tobacco products sold in Australia must have a standardized "drab dark brown" package with the brand name and variant name shown in a standard font, style, and size on the front of the package.[300] The law also standardized the appearance and color of the tobacco products and increased the size of the required pictorial health warnings.[301] As noted in NCI Monograph 21,

"plain (standardized) packaging (i.e., devoid of logos, stylized fonts, colors, designs or images, or any additional descriptive language) reduces the appeal of tobacco products, enhances the salience of health warnings, minimizes consumers' misunderstanding of the hazards of tobacco, and has contributed to a decline in tobacco use in Australia, the first country to implement plain packaging."[3,p.303] As other countries implement plain packaging, this will provide the opportunity to examine its effects among diverse population groups.[302]

Advertising at the Point of Sale, Price Discounts, and Other Promotional Channels

As other venues for tobacco advertising have been increasingly restricted, the tobacco industry has directed its marketing dollars to point-of-sale (POS) advertising, promotions, and price discounts. In the 10 years after the MSA was implemented, tobacco companies spent a total of $110 billion, or 92% of their total marketing expenditures for cigarettes and smokeless tobacco products on advertising, promotions, and price discounts in convenience stores, gas stations, grocery stores, and other retail outlets that sell tobacco.[303] In the face of increasing advertising regulation, the retail context has become an important channel through which tobacco companies communicate with their target audience.[233,304]

Point-of-Sale Advertising

Tobacco companies and retailers often use POS displays, along with complementary tactics such as promotional discounts, to attract consumers (Figure 10.9).[280] Tobacco industry spending on POS advertising, separate from price discounts and promotions, totaled $138.2 million for cigarettes and $33.0 million for smokeless tobacco products in 2014.[227,228] Analysis of the 2011 National Youth Tobacco Survey found that 81.5% of middle school students and 86.9% of high school students reported exposure to pro-tobacco advertising in stores.[212] The study also found that African American students were somewhat less likely than white students to report seeing store advertisements. Overall, middle school and high school students' exposure to pro-tobacco advertisements at retail stores declined from 87.8% in 2000 to 76.2% in 2012.[257]

Figure 10.9   Displays of Tobacco Brand Prices at the Point of Sale, Including Special Discounts, 2011

Source: Truth Initiative 2011.[473]

Data from other studies suggest that advertising at retail POS has increased disproportionately in disadvantaged neighborhoods since the passage of MSA restrictions.[230,231] Numerous studies of individual communities have demonstrated a greater concentration of stores selling and advertising

cigarettes in African American and Hispanic communities,[305–313] although not all studies were consistent.[312,314] One study of New York City community districts found that the density of tobacco retailers in the community and their proximity to schools co-varied with population density, commercial land use, and indicators of social disadvantage such as health insurance coverage.[315] A national study examining density and sociodemographic factors across 64,909 census tracts in the continental United States found that tobacco outlets were more concentrated in urban areas and in tracts with larger proportions of African Americans, Hispanics, and women with low levels of education.[316]

Retailer density has in turn been associated with young people's self-reported exposure to point-of-sale advertising.[307] Research has also shown a greater amount of in-store tobacco advertising in neighborhoods that are predominantly lower income and African American.[317–320] One study found a greater proportion of menthol advertisements in neighborhoods with larger African American student populations.[317] Census block groups with larger African American,[321] Asian, low-income, and young populations have also been shown to have more advertisements for menthol brands.[322]

The results of a longitudinal school-based study of an urban, racially diverse California community showed that African American youths were three times more likely than youth of other racial groups to recognize the Newport brand and less likely than other racial groups to recognize the Marlboro brand. After adjustment for shopping frequency and other risk factors, youths who recognized the Newport brand at baseline were more likely to have initiated smoking at 12-month follow-up, regardless of race.[323] Research on other tobacco products has found that little cigars and cigarillos are more likely to be available, advertised, and less expensive in Washington, D.C., communities with a greater proportion of African Americans than in other communities.[324]

More than one in four African Americans are younger than age 18 (27.8%) compared with about one in five among the white population (21.7%); this indicates that a larger fraction of the African American population than the white population is at risk for tobacco marketing aimed at youth.[325] Studies have shown that POS cigarette displays are associated with greater brand recall by youths[326] and with unplanned or impulse purchases.[283,327] For example, a study conducted in New York State using observational estimates of exposure found that, for youths, living in counties with more retail cigarette advertisements was associated with having positive attitudes toward smoking.[328] Other studies have shown that youths' exposure to POS advertisements was associated with more positive perceptions of people who use the product,[329] a weakened resolve not to smoke in the future,[202,323] and experimental smoking and smoking initiation.[308,330–332]

Another youth-focused study found that exposure to retail advertising was linked with increased odds of ever smoking at baseline and that pro-tobacco media and advertising at the POS increase susceptibility to smoking over time.[239] One study showed that Hispanic youths were more likely to be exposed to retail tobacco advertising than other youths (76% vs. 60%, respectively) and that the odds of ever smoking increased 50% among youths who were exposed to retail tobacco advertising, after controlling for other factors.[333]
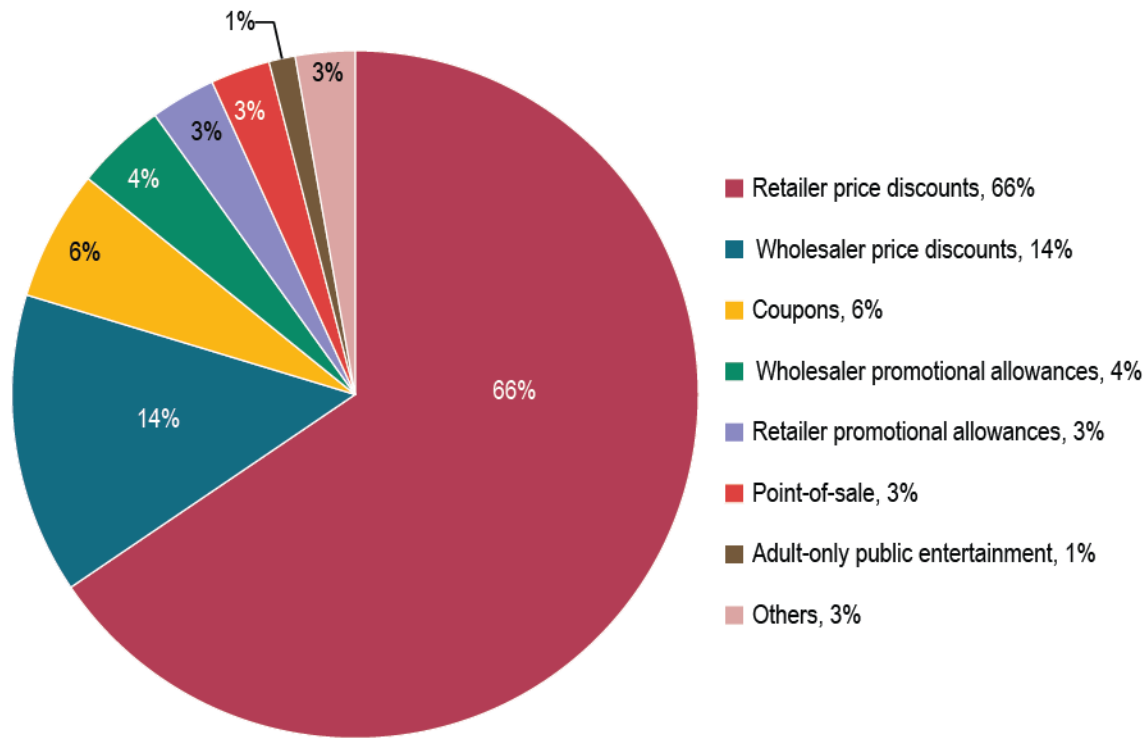
Price Discounts and Promotions

Price discounts are defined as payments made to the retailer or wholesaler to reduce the price consumers pay for tobacco products; in doing so, they counteract the impact of significant tax and price increases to reduce smoking and encourage cessation. Price promotions to retailers (e.g., payments for cigarette

stocking, shelving, displaying, incentives) and wholesalers (e.g., payments for volume rebates)[227] help maintain a pro-tobacco environment by ensuring prominent selling space for tobacco products and by creating strong financial bonds with retailers.[3]

Price discounts have represented the largest category of spending on cigarette advertising and promotion since 2002 when the FTC began reporting these expenditures as a separate category.[227] Price discounts accounted for approximately 80% ($6.8 billion) of total U.S. tobacco industry spending on cigarette advertising and promotion in 2014, with 66% ($5.6 billion) spent on retailer price discounts and 14% ($1.2 billion) on wholesaler price discounts.[227] Similarly, for smokeless tobacco products, price discounts were the largest category of promotional expenditures, accounting for 59% ($357.2 million) of total promotional spending for smokeless products in 2014, with 43% ($257.3 million) spent on retailer price discounts and 17% (99.8 million) on wholesaler price discounts.[228] Promotional allowances paid to wholesalers, coupon expenditures to lower the cost of tobacco products, and promotional allowances paid to retailers are the next largest advertising and promotional expenditures reported by U.S. cigarette and smokeless tobacco manufacturers (Figures 10.10 and 10.11).

Figure 10.10 Distribution of U.S. Cigarette Advertising and Promotional Expenditures, 2014

Legend:
- Retailer price discounts, 66%
- Wholesaler price discounts, 14%
- Coupons, 6%
- Wholesaler promotional allowances, 4%
- Retailer promotional allowances, 3%
- Point-of-sale, 3%
- Adult-only public entertainment, 1%
- Others, 3%

Note: "Others" include magazines, direct mail, non-branded specialty item distribution, company website, outdoor, branded specialty item distribution, other promotional allowances, telephone, and all others (newspapers, sampling distribution, and other Internet).
Source: Adapted from Federal Trade Commission 2016.[227]

Figure 10.11 Distribution of U.S. Smokeless Tobacco Advertising and Promotional Expenditures, 2014

- Retailer price discounts, 43%
- Wholesaler price discounts, 17%
- Wholesaler promotional allowances, 7%
- Coupons, 7%
- Retailer promotional allowances, 6%
- Point-of-sale, 6%
- Others, 6%
- Magazines, 3%
- Non-branded speciality item distribution, 3%
- Adult-only public entertainment, 1%
- Sampling, 1%
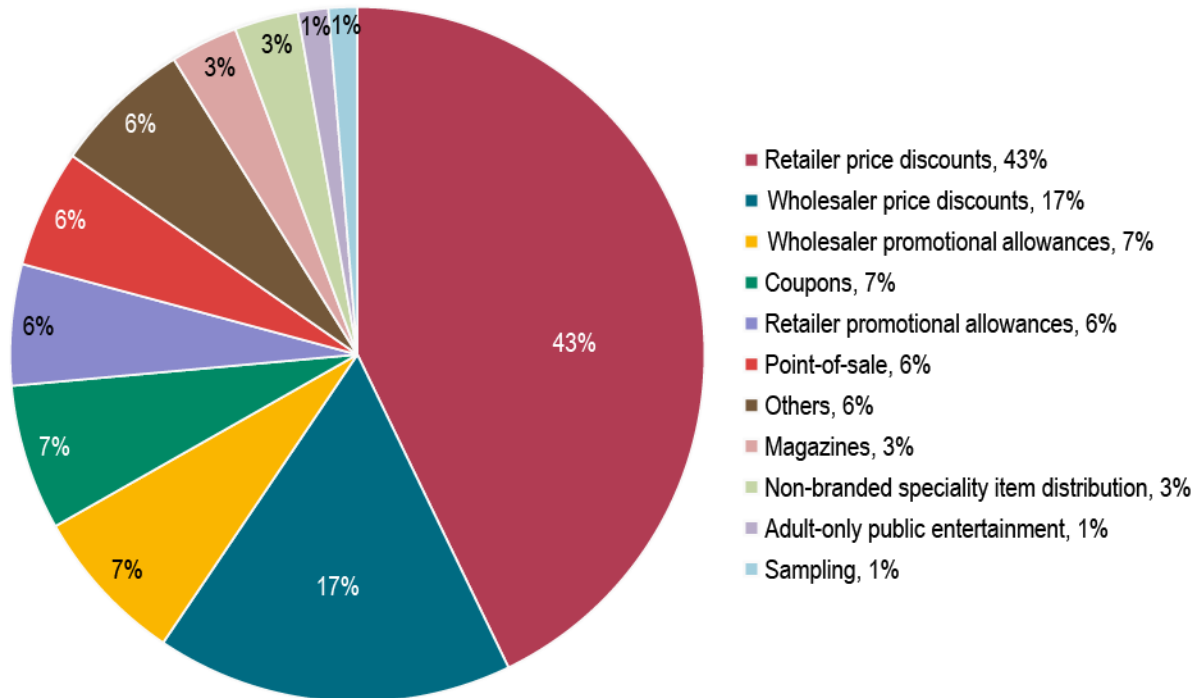
Note: "Others" include direct mail, company website, outdoor, Internet – other, other promotional allowances, and all others (newspapers, retail-value-added—bonus smokeless tobacco product, and social media).
Source: Adapted from Federal Trade Commission 2016.[228]

Price discounts disproportionately affect low-income and racial/ethnic minority smokers, who are more sensitive to price[334] and more likely to take advantage of promotional offers.[282] Tobacco companies have used price discounts to increase the menthol cigarette market in low-income, predominantly African American urban communities (Figure 10.12).[233,317] Interviews with a former Brown & Williamson trade marketing manager revealed systematic differences in the application of price discounting; the former employee could offer retail outlets in low-income African American urban communities—referred to as "focus" communities—greater price discounts than would be offered to outlets in "non-focus" or white suburban communities. These discounts resulted in lower prices for consumers, primarily for the purchase of menthol products.[233]

Figure 10.12 Salem Menthol Print Advertisement With Coupon, 2003

Source: Rutgers School of Public Health 2003.[474]

In addition, the availability of store-advertised promotional offers (multipack discount, other discount, or gift with purchase) for Newport cigarettes was related to school/neighborhood demographics: Promotional offers were more available and Newport cigarettes were less expensive in neighborhoods near high schools with more African American students.[317] Less evidence is available regarding differences in price discounts by race/ethnicity for little cigars and cigarillos. A study of tobacco retailers in Washington, D.C., found that price per cigarillo decreased significantly with increasing proportion of African American residents.[324] Price discounts and promotions and possible differential exposure and response to these strategies are important examples of the structural-level communication inequalities that can lead to TRHD.

Other Promotional Channels

Direct-to-consumer tobacco marketing, through mail, Web, email and mobile marketing platforms, allows tobacco companies to reach consumers to distribute price promotions (coupons and "give-aways"), to offer brand-loyalty programs, and to target specific market segments.[255,335–339] A 2014 study found that 12% of 15- to 17-year-olds and 26% of 18- to 23-year-olds were exposed to direct-to-consumer tobacco marketing, and racial/ethnic minority nonsmoking respondents were more likely than nonsmoking whites to see tobacco websites.[340]

The tobacco industry may also reach consumers through sponsorship of a variety of different events (although both the MSA and the Family Smoking Prevention and Tobacco Control Act limit event sponsorship) and through promotions at venues such as bars and nightclubs. Studies analyzing tobacco industry documents find that the tobacco industry expects bar promotions to help develop or maintain brand equity among young adults.[345–346] Research indicates this tactic is successful; young adults report a high level of exposure to direct marketing practices in nightclubs and bars, including in-person interactions with tobacco marketers and the distribution of free gifts. Initiation[344] and progression to established smoking are significantly more likely among youths who attend adult-only venues and report being exposed to tobacco marketing.[345,346] Results from a 2005 cross-sectional study of young adults from a Web-enabled Knowledge Networks panel found that advertising in bars was associated with current smoking and having not made a serious quit attempt, independent of alcohol use.[347] Essentially no research describes the prevalence of exposure or the effects of these events by SES or race/ethnicity, but some campaigns, such as the Kool Mixx campaign, appear specifically designed to appeal to African Americans and followers of hip-hop culture.[1,348]

Industry Advertising and Promotion to the LGBT Community

It is well established that LGBT populations are at elevated risk for tobacco use relative to their heterosexual peers.[349–353] And although most literature on pro-tobacco advertising and promotion and most surveys of media consumption do not report specifically on the LGBT community, evidence supports the idea that tobacco company targeting of this group contributes to this disparity.[354]

The tobacco industry was among the first large industries to advertise in LGBT publications and collaborate with LGBT organizations through sponsorship and philanthropy, beginning in the early 1990s.[355,356] For example, researchers interviewed leaders of 74 LGBT organizations and publications in the United States and found that 22% had accepted tobacco industry funding.[357] In part as a result, LGBT individuals are more likely than heterosexuals to encounter tobacco advertisements and promotions and may be more receptive to such marketing efforts (Figure 10.13).[358] The response of the LGBT population to tobacco industry targeting has been mixed: Although some people have expressed concern, others have viewed it as a positive development for LGBT equality and inclusivity.[355,356]

Figure 10.13 Advertisement in *OUT* Magazine, January 2002
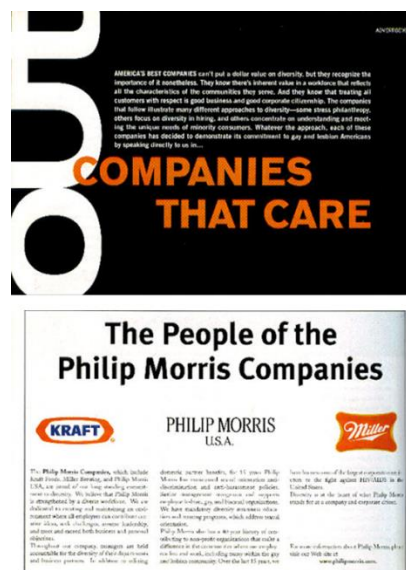
Note: Text at the top of the page states: "Whatever the approach, each of these companies has decided to demonstrate its commitment to gay and lesbian Americans by speaking directly to us in … Companies that Care."
Source: Rutgers School of Public Health 2002.[475]

Tobacco industry documents clearly show the industry's interest in the LGBT population. The Phillip Morris and RJR document collections include information on several LGBT publications, such as *Out*, *The Advocate*, and *Venus*, with data on readership demographics, circulation, advertisement prices, and other related information. These collections also include letters from publications (e.g., *Venus*, *HeatStroke*) thanking the tobacco company for its interest in advertising in their magazines. Direct mentions of targeting the LGBT community appear in marketing strategy documents, such as a marketing document for the Eclipse brand; Project SCUM (subculture urban marketing), which targeted gay and homeless populations[359]; and PRISM, a gay and lesbian employees group, which proposed activities such as building awareness of gay and lesbian marketing data and fostering relationships with gay and lesbian business associations.

Based on their study of industry documents and marketing materials produced by tobacco companies, Stevens and colleagues outlined four key strategies used by the industry to market to LGBT populations: (1) direct advertising in LGBT publications (Figure 10.14); (2) indirect advertising in mainstream publications with high LGBT readership, such as alternative newsweeklies; (3) community outreach and promotions (e.g., LGBT bar nights featuring cigarette brands and support of HIV/AIDS causes); and (4) event sponsorships (e.g., LGBT film festivals and pageants).[359]

Figure 10.14 Advertisement from a 1995 Issue of *OUT* Magazine

Note: A 1995 issue of *Rolling Stone* contained an ad nearly identical to this one except that it omitted the seated man.
Source: Rutgers School of Public Health 1995.[476]

A 2002 article identified other key industry strategies for targeting LGBT communities, particularly youths, and described the industry's targeting of geographical areas popular among LGBT young people[357] and its attempts to take advantage of the LGBT bar culture through its marketing investment (e.g., distributing free cigarette samples, buying free drinks).[356,360–363]

LGBT communities are also exposed to pro-tobacco messaging through movies. One study found that 87% of movies with LGBT themes or characters depicted tobacco use, showing an average of four occurrences of tobacco use per hour. Only 3% of these incidents conveyed a sense that any harm was caused by tobacco use.[364]

Evidence Review: Pro-Tobacco Communication and Marketing

An extensive body of research and the conclusions of many major reports document a causal relationship between tobacco industry advertising and promotion and increased tobacco use.[1,3,19] The discussion below highlights the information available on the effects of tobacco advertising and promotion on smoking behaviors by race/ethnicity or SES.

- There is some indication that the effects of depictions of smoking on television and movies on youth smoking may differ by race/ethnicity; differences may be attributable to groups' varying degrees of exposure and to attributes of the characters engaged in smoking. This is consistent with the SIM, which holds that social determinants and sociodemographic factors can impact media use and exposure as well as information processing, which in turn can affect health outcomes.

- Studies show that youth (overall, and of all races/ethnicities) continue to be exposed to advertisements for cigarettes and smokeless tobacco products. African American youths' exposure to tobacco advertising in adult magazines is greater than that of white youths. Studies have also documented that outdoor tobacco advertising at retail outlets is more common in African American and low-income communities compared with predominantly white or higher SES communities. These institutional-level inequalities may well exacerbate TRHD; few studies have been conducted in the United States that examine links between outdoor retail advertising and youth or adult smoking behavior. A longitudinal study of outdoor advertising in combination with indoor advertising suggested a dose–response relationship between the frequency of exposure to branded cigarette advertising at retail outlets and smoking initiation.

- Pictorial health warnings on cigarette packages are effective across diverse populations. Research on the potential effects of components of packaging other than warning labels on various racial/ethnic groups is limited.

- Studies of the density of POS advertising have had mixed results, but evidence suggests that stores selling tobacco products are more concentrated in urban areas and in neighborhoods with larger proportions of African Americans, Hispanics, and women with low levels of education. These institutional-level inequalities likely intersect with individual-level inequalities to contribute to TRHD. Evidence is accumulating that low-income neighborhoods that are predominantly African American or Hispanic tend to have more in-store tobacco advertising, including more advertisements for menthol brands. Studies have shown that exposure to retail tobacco advertisements is linked to a variety of outcomes among youth, from positive attitudes and improved perceptions of people who use the tobacco product (brand user imagery) to increased susceptibility and experimental smoking and higher odds of ever smoking.

- Price discounts, defined as payments made to the retailer or wholesaler to reduce the price consumers pay for tobacco products, are an important promotional strategy for the tobacco industry. Because low-income smokers are more sensitive to price, they are disproportionately affected by price discounts.

- Research on the impact of event sponsorship by the tobacco industry is limited. Some evidence suggests that initiation and progression to established smoking are more likely among young adults who attend bars and nightclubs and report being exposed to tobacco marketing. However, the prevalence of exposure to industry-sponsored events or their effects by SES or race/ethnicity is not known.

The News Media and Tobacco Communications

Like anti-tobacco media campaigns, the news media can draw attention to the negative effects of tobacco use, promote smoking cessation, and affect tobacco-related knowledge, attitudes, and behaviors in a multitude of ways. For example, one study found that each time a newspaper's number of tobacco-related articles increased by 10 over a 5-month period, the likelihood would increase that readers would perceive great harm from smoking and disapprove of smoking, and the odds of perceiving most or all friends as having smoked in the past 30 days would decrease.[365] A study examining newspaper coverage of the Florida Tobacco Control Program found that news coverage of the program, particularly coverage of youth advocacy efforts, contributed to observed declines in current smoking after controlling for alternate explanations, leading the study authors to conclude that newspaper coverage of health communication campaigns might represent a meaningful indirect source of campaign effects.[366] Research on news coverage about drunk driving suggests that the impact of news coverage on behaviors

is often indirect rather than direct: News coverage can drive policy actions which in turn impact behaviors.[367]

The strategic use of news-making through TV, radio, and newspapers can increase awareness about the health effects of tobacco, promote public debate, and generate community support for changes in tobacco-related community norms and policies. However, health journalism often fails to meet these goals. A study of news coverage (newspapers, new magazines, and TV newscasts) in the United Sates over a 2-year period (2002–2003) found that coverage of tobacco topics was only modest and that tobacco's negative health effects were rarely mentioned; however, when newspapers did cover a tobacco story, it was accorded relatively high prominence.[368] Additionally, an extensive analysis of cancer coverage in the media by Stryker and colleagues suggested that although articles often discuss tobacco as a major risk factor for disease, only 8% of these stories treat tobacco as a primary focus of prevention.[369]

These findings highlight the role that individuals and organizations play in shaping news about the link between tobacco and health outcomes such as cancer.[370] Stories offered by media channels are products of the interaction between news sources and media professionals. Journalists routinely gather information that is used to create news[371] from established or organized sources, including spokespersons for government agencies, businesses, diverse professionals, organized community groups, and others.[372,373] These sources can perform the key role of identifying topics and bringing them to the media's attention.[374] Sources also compete for public attention and for the chance to define and increase the public profile of their issue. Community-based, grassroots efforts often lack the resources and media savvy to compete with tobacco industry–funded efforts, which in effect limits their ability to influence whether and how tobacco-related issues are covered as a broader public health concern.[375] The tobacco industry has also used diverse strategies to influence media coverage of smoking and health in ways favorable to their interests.[264,376–379]

Evidence Review: The News Media and Tobacco Communications

- News media coverage can contribute to promoting or preventing tobacco use. Both the tobacco industry and tobacco control advocates attempt to influence news media coverage.

- Limited studies show that increased coverage of tobacco issues or anti-tobacco campaigns can have positive effects on tobacco-related attitudes and behaviors, though it is possible these effects may disproportionately benefit those of higher SES, in accordance with fundamental cause theory and the knowledge gap hypothesis. However, health journalism often fails to reinforce the health reasons for tobacco control efforts or to feature tobacco use as a primary focus of prevention.

- Studies have shown that the tobacco industry often makes claims that are featured in news stories or deploys industry-supported consultants who respond in the news media to stories related to tobacco. Communication inequality frameworks suggest that disadvantaged groups may have less ability than other groups to distinguish between objective news sources and claims made by the tobacco industry.

New Communications Technologies: The Web and Beyond

Over the past decade, digital media and communications technologies have evolved to offer novel ways to reach diverse audiences. The terms "new media," "social media," and "Web 2.0" are often used

interchangeably to refer to these new technologies.[380,381] Web 2.0, the term used in this chapter, may be described as "a set of economic, social, and technological trends that collectively form the basis for the next generation of the Internet, a more mature, distinctive medium characterized by participation, openness, and network effects."[381,p.1,382]

Compared with the more static and unidirectional focus of the first generation of the Internet (Web 1.0), Web 2.0 is multidirectional and interactive, enabling previously unimaginable degrees of user-generated content and sharing. Web 2.0 applications that are being used to promote smoking prevention and cessation include websites, social networking platforms[383] such as Facebook and Twitter, photo and video creation and sharing platforms, discussion forums, blogs, video conferencing, mobile applications, online and mobile games, and combinations of these channels. These same channels are also being used extensively by the tobacco industry and others to promote tobacco use, and pro-tobacco norms.[384–393]

This section reviews evidence on access and use of Web 2.0 applications, and how the effects of pro-tobacco and anti-tobacco content accessed through new media channels are mediated by age, gender, race/ethnicity, and SES. The literature on these subjects was searched through electronic databases such as PubMed, Embase, PsycINFO, and Web of Science. Search terms related to Web 2.0 included ("social media" OR "digital media" OR "new media" OR online OR mobile OR YouTube OR Facebook OR "video games" OR "online gaming" OR "mobile gaming") AND ("public health" OR "tobacco prevention" OR "tobacco control" OR "tobacco promotion" OR "tobacco industry" OR "tobacco companies") AND (minority OR "African American" OR black OR Latino OR Hispanic OR Asian OR "Native American" OR "Alaska Native"). Information on different definitions and terms related to Web 2.0 was derived from systematic reviews and overview articles on social network sites and on new media. Due to the interdisciplinary nature of the topic, the literature search was supplemented with additional resources: national media use surveys by the Pew Research Center, the U.S. Department of Commerce, the Kaiser Family Foundation, and others. This literature review focuses on evidence published between 2008 and 2014. Where applicable, sections have been updated to reflect trends seen at the time of publication (2017).

Internet and Social Media Access and Use Patterns

Internet access has increased rapidly in the United States; as of 2016, only 13% of Americans reported they do not access the Internet. Analyses have found that Internet non-access is correlated with age, educational attainment, household income, and community type. For example, rural Americans are twice as likely to report never using the Internet compared to their urban or suburban counterparts.[394] Although progress has been made in shrinking the digital divide, disparities persist, particularly among low-income groups[395] as shown in Table 10.3.

Table 10.3   Internet Access and Use Patterns in the United States, 2015–2016

Access Vehicle	General Population	White	African American	Hispanic	Annual Household Income <30K
Home high-speed broadband Internet penetration, 2016[36]	73%	78%	65%	58%	53%
Mobile phone ownership, 2016[396]	cell phone: 95% smartphone: 77%	cell phone: 94% smartphone: 77%	cell phone: 94% smartphone: 72%	cell phone: 98% smartphone: 75%	cell phone: 92% smartphone: 64%
Social networking site use (e.g., Facebook, Twitter, Instagram, LinkedIn), 2016[401]	69%	69%	63%	74%	60%
Gaming, 2015[403,477,478]	adults: 49% teens: 72%	adults: 48% teens: 71%	adults: 53% teens: 83%	adults: 51% teens: 69%	adults: 46% teens: 70%

Web 2.0 platforms can be accessed from a multitude of channels and devices in this digitally connected landscape. Smartphone ownership rates are comparable across races/ethnicities, with rates among non-Hispanic African Americans and Hispanics being slightly lower than rates for non-Hispanic whites.[396] However, 12% of Americans access the Internet only via their smartphones because they do not have home high-speed broadband Internet.[396] Among smartphone users, higher percentages of racial/ethnic minorities, low-SES groups, and younger age groups say that they usually access the Internet via their cell phones.

Researchers have cautioned against assuming that increasing mobile access lessens the digital divide, pointing out that a variety of services, such as video on demand, telemedicine, and Internet classrooms, require reliable high-speed connections rarely found through wireless and mobile channels.[397] In addition, activities that require a great deal of typing can be difficult on a hand-held device, and monthly data caps can prohibit such activities as downloading large video files; all of these factors contribute to meaningful differences in what various demographic groups are able to do online.[397] Moreover, although technology ownership requires only a one-time purchase, continuing access to services such as data plans are a recurring expenditure, and maintaining a subscription can be a challenge for disadvantaged groups.[398,399] In 2015, 48% of smartphone-dependent people reported they have had to cancel or turn off their cell phone service because the financial cost to maintain it was too great.[400]

Use of social networking sites (e.g., Facebook, Twitter, LinkedIn) generally is more prevalent among females and young people, but more older adults are also adopting use of these sites, particularly Facebook. Overall, 69% of U.S. adults use social networking sites[401] and 68% use Facebook, the most popular social networking platform, followed by Instagram (28%), Pinterest (26%), LinkedIn (25%), and Twitter (21%).[402] These sites vary in their uptake among certain audiences; for example, Twitter and LinkedIn tend to be more popular among those with college degrees—29% of Internet users with college degrees use Twitter and more than 50% use LinkedIn.[402]

A greater percentage of African American teens report playing video games compared to white and Hispanic teens.[403] Another survey found that gaps can be seen in relation to parents' education level among groups in time spent playing games on computers, gaming consoles, or mobile devices. On average among youth ages 8–12, those with high-school-educated parents spent an average of 2 hours

and 17 minutes per day playing any type of video game compared to an average of 1 hour and 42 minutes per day among those with college-educated parents.[250]

## Use of Web 2.0 for Anti-Tobacco Communications and Marketing

Web 2.0 applications are currently used as a broadcasting platform to amplify messages from traditional media sources, such as television or radio, and as a new way to reach and engage target audiences.[404] In the realm of health promotion, Web 2.0 applications can allow practitioners more direct access to target populations, enabling the consumer to be part of the promotional process. For example, tobacco control organizations may hold contests in which participants develop commercials to promote tobacco prevention and smoking cessation, and the winning entry is produced and aired.[405] They may also use viral or word-of-mouth marketing, through which friends encourage their social network to participate in a wide array of health-promotion interventions.[405] Web 2.0 applications can also be used to gauge audience members' beliefs about a subject, such as tobacco use, or to provide an outlet for audience members to support one another in achieving a behavior change, such as smoking cessation.[406]

Web 2.0 can facilitate and mobilize direct action supporting or opposing particular policies. A series of case studies emerging from a tobacco control Facebook group illustrate how tobacco control advocates used Web 2.0 applications to mobilize people to take action.[407] In one example, advocates encouraged group members to post messages urging a celebrity to drop tobacco sponsorship from her concert and to join a Facebook page with the same message; ultimately, the sponsorship was withdrawn. In another example, advocates created a petition on the Web that requested a major music festival drop tobacco sponsorships, and encouraged people to make their messages to band members immediate and public by posting their comments on the band members' Facebook and Twitter pages.[407]

Usage demographics make it clear that advanced mobile applications are a promising channel for reaching underserved groups, because they incorporate social network and other Web 2.0 tools and are increasingly prevalent among minority populations who generally have less access to high-speed broadband Internet.[400,408] Public health–related mobile applications are often used with websites to support behavioral monitoring, social support networks, and feedback,[409] all of which can play a role in tobacco control and cessation efforts. A systematic review of one-way and Web 2.0 mobile phone interventions for smoking cessation conducted in 2010 indicated that mobile phone–only interventions can be effective both in the short and long term, but three of the five interventions examined included studies that found no effect.[410]

The Smokefree.gov Initiative (SFGI) developed by NCI provides free Web- and mobile-based quit smoking information to the public, including targeted resources specific to populations with unique information needs and/or higher smoking rates (see Box 10.5).

Box 10.5: The National Cancer Institute's Smokefree.gov Initiative
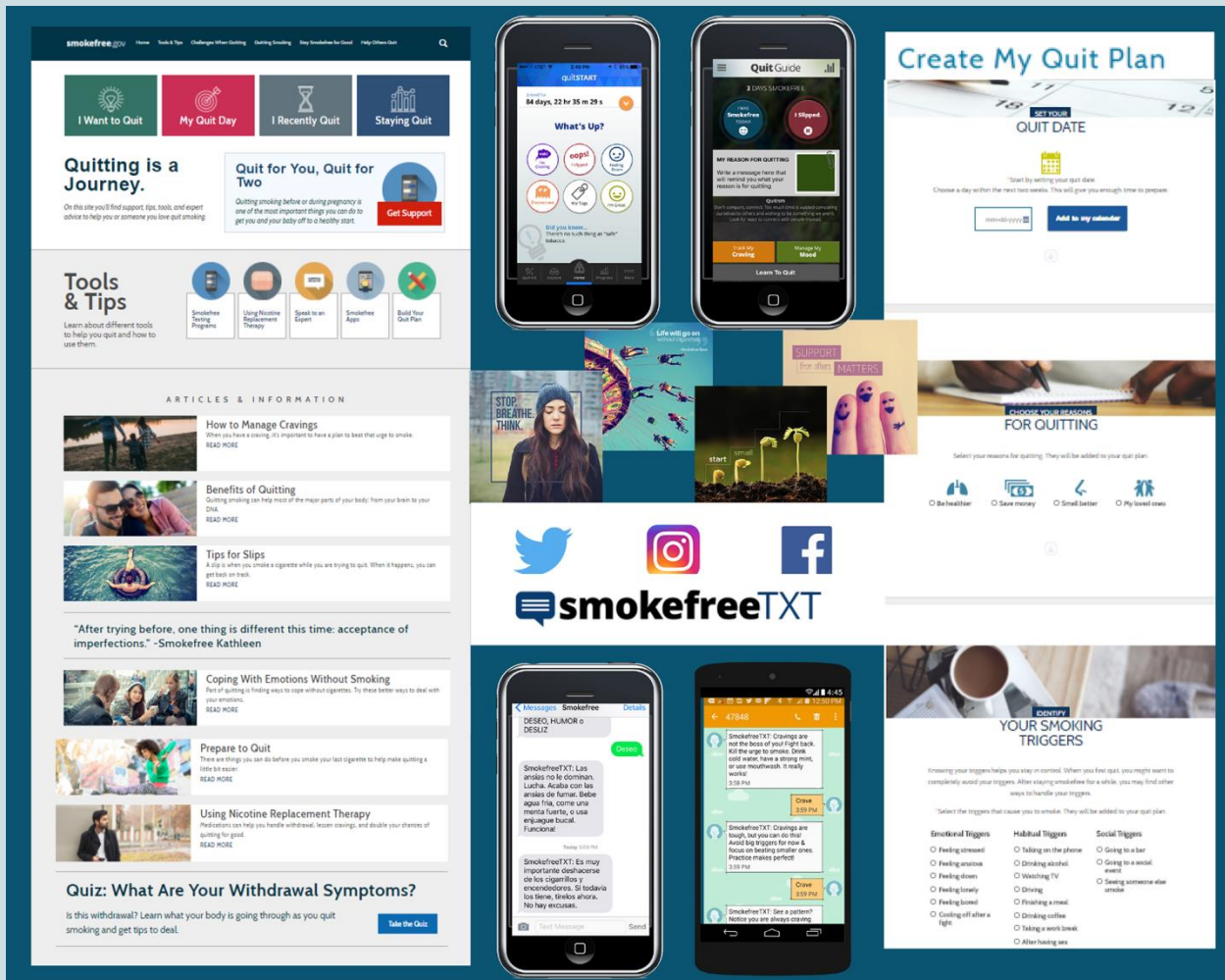
Source: National Cancer Institute 2017.[479]

The Smokefree.gov Initiative (SFGI) offers a variety of traditional Web-based and interactive tools including 6 websites, 2 mobile applications, 6 social media accounts, as well as 15 text messaging–based programs to help teen and adult smokers quit using tobacco and live healthier lives. Across these platforms, the SFGI serves the general public and audiences with specific information needs including women of reproductive age and pregnant women, teens, veterans, Spanish speakers, LGBT groups, and older adults.

Smokefree.gov Websites

The Smokefree.gov website (https://smokefree.gov) anchors the SFGI and provides smokers with evidence-based cessation advice and support, including information about preparing to stop smoking, effective quit methods, and challenges to quitting. The website serves as an entry point for all SFGI mHealth resources and tools, as well as NCI's telephone and online smoking cessation counseling services (https://smokefree.gov/tools-tips/speak-expert).

Smokefree.gov employs a variety of interactive features, tools, and resources to provide highly relevant information to smokers seeking cessation information and support. A quit plan builder guides smokers through the steps to prepare for and undertake a successful quit attempt. Quizzes help users assess topics

such as their nicotine dependence, stress level, or withdrawal symptoms to inform their quit experience. Videos and user-generated testimonials from social media accounts offer firsthand advice and encouragement for smokers and former smokers to quit permanently. The SFGI encourages smokers to join supportive online Smokefree.gov communities on Facebook, Instagram, and Twitter to get inspiration and motivation from smokers and former smokers.

Text Messaging Programs

The SFGI offers general and audience-specific text messaging programs for smoking cessation and other health behavior changes. The Smokefree.gov text messaging programs are designed as interactive tools to provide personalized, on-demand support and information. SmokefreeTXT (https://smokefree.gov/Smokefree-Text-Messaging-Programs) offers a 6-8 week text messaging–based smoking cessation intervention to smokers trying to quit. Smokers can choose from a variety of other cessation-focused text messaging programs, depending on their support needs (e.g., building quitting skills vs. cessation). Smokers can also choose programs to address healthy eating, physical activity, or weight management.

Smartphone Apps

The SFGI supports two free interactive smoking cessation smartphone apps (https://smokefree.gov/tools-tips/apps). QuitGuide for adults and quitSTART for teens are designed to help users prepare to quit smoking and build the skills needed to become and stay smoke free. These tools offer personalized cessation support by allowing users to track their cravings and moods, tag specific locations and times of day that trigger their tobacco use, get personalized information that matches their smoking history and quitting goals, request on-demand help, and monitor their progress toward smoke-free milestones. Both apps are available for download in iOS and Android.

Other types of mobile phone interventions are also being used for tobacco prevention and control. One emerging area is the combined use of video, online, and mobile games to encourage smoking prevention and health promotion. Games across a variety of platforms are now a dominant form of media that is enjoyed by a variety of demographic groups,[411] and evidence indicates that playing games designed for prevention and health promotion purposes can lead to positive health-related changes.[412]

Researchers are beginning to explore the use of video, online, and mobile gaming for tobacco prevention and control. For example, *QuitIT*, attempts to integrate the principles of smoking behavior change and relapse prevention.[413] The "truth" campaign launched a free-to-play iOS and an Android mobile game, *Flavor Monsters*, which attempts to prevent youth smoking by revealing the tobacco industry's use of appealing flavors to entice young people to initiate tobacco use (Figure 10.15).[407] An evaluation of the game found that after adjusting for age, gender, and whether someone had ever tried cigarettes, player status was a significant positive predictor of tobacco-related knowledge, and level of engagement was a positive predictor of the number of correct responses. Playing *Flavor Monsters* was found to be a significant positive predictor of anti-tobacco industry attitudes and beliefs, after controlling for baseline anti-industry attitudes and other factors, but player status was not a predictor of intention to smoke at follow-up.[414]

Figure 10.15 Screenshot from *Flavor Monsters* Game

Source: Truth Initiative 2013.[480]

Other mobile applications are also being used for tobacco prevention and control purposes, as evidenced by a 2011 study that examined 47 iPhone applications for smoking cessation. This study found, however, that these applications rarely adhered to evidence-based guidelines for smoking cessation interventions,[415] suggesting that efforts to use mobile tools to affect tobacco-related behavior are in the early stages. More strategic development of these tools and more extensive evaluation of their impact are necessary to determine how mobile devices may complement tobacco prevention and control programs and campaigns.

Few studies examine the use of Web 2.0 for anti-tobacco efforts targeting specific populations (see Box 10.6). One Web-based intervention, SmokingZine, was found to have promising results: Intentions to try a cigarette declined from 16% to 0% among nonsmokers in the intervention group and increased from 8% to 25% in the control group.[416] A version of this game was adapted to influence smoking-related attitudes and intentions among American Indian/Alaska Native youths, who indicated in focus groups that they wanted a website oriented toward their cultural images.[417] Another study examined online advertising for the evidence-based BecomeAnEX Internet cessation program to reach and engage Spanish-speaking Latino smokers. Although this study found that the online advertisements were effective and cost-efficient, the advertisements' message-framing and cultural-targeting efforts did not make a significant difference in terms of clicks, click-through rates, and registrants.[418]

Box 10.6: Web 2.0 and Message Tailoring

Web 2.0 applications can also point to new directions in message tailoring—that is, computer- or Web-based individualization of messages to correspond to the user's personal data. Evidence suggests that tailored messages in computer-driven applications can be effective for underserved populations.[481,482] As with message effects research, research on message tailoring has focused on individual psychological or cognitive factors, including health behavior, stages of change, risk factors, and information needs.[481] It is important to understand how these individual-level factors are moderated by racial/ethnic, social, and structural variables to influence message awareness, receptivity, and response. Lastly, the Internet makes it possible to target cessation interventions to many different demographic groups at low incremental cost.[483]

Use of Web 2.0 for Pro-Tobacco Communications and Marketing

The tobacco industry has turned to Web 2.0 for many of the same reasons that public health professionals have—to engage consumers and influence their attitudes, behaviors, and purchases.[384] Researchers have noted the potential impact of the increased interactivity available online, observing that "a viewer would probably spend far more time browsing and interacting with a pro-smoking website than viewing a static cigarette advertisement in a magazine."[419]

Tobacco imagery and other forms of advertising and promotion are common across a variety of Web 2.0 applications, which have been created and posted by both the tobacco industry and other often difficult-to-identify sources (see Box 10.7). A literature review of the effect of the Internet on teen and young adult tobacco use noted that most descriptive studies found that (1) pro-smoking Internet content was more prevalent than anti-smoking content, (2) most smoking content was viewed on what appeared to be user-generated Web pages as opposed to explicitly industry-generated sites, and (3) evidence on a relationship between exposure to smoking imagery online and tobacco use behavior was limited. Also, Internet content appeared to suggest that minors could easily obtain tobacco products online.[420]

Box 10.7: E-Cigarette Advertising on the Internet

Interest in electronic cigarettes (e-cigarettes) is driven at least in part by Web 2.0 platforms. Use of the term "electronic cigarettes" in Google searches increased by more than 5,000% between January 2007 and January 2010. Beyond typical Internet advertising and promotion (see example below), e-cigarette companies have used marketing strategies through which product users become distributors and earn profits by recruiting customers. Companies provide promotional materials, Web forums for distributors to share strategies to maximize online presence, and podcasts on search engine optimization for their websites. A study found that the vast majority of top Web search results for "electronic cigarette" are e-cigarette shops.[484]

E-cigarette virtual user communities may also be contributing to the increased interest in this product. E-cigarette users (who often refer to themselves as "vapers") and retailers indicate that such forums are invaluable for new users; communities formed online are often complemented by in-person communities.[485]

Website Promotion of Blu E-Cigarettes, October 2011

Source: Rutgers School of Public Health 2011.[486]

An analysis of data from the 2011 National Youth Tobacco Survey found that about 40% of middle school and high school students were exposed to tobacco advertising online, and that tobacco advertising seen online by high school students who had never smoked but were open to trying cigarettes increased from 26% in 2000 to 45% in 2011.[212] Another study found that racial/ethnic minority status and younger age were associated with receiving tobacco promotions via Facebook/MySpace and text message.[390] Overall prevalence of exposure to pro-tobacco advertisements online among middle and high school students increased from 22.3% to 43.0% between 2000 and 2012.[257] On occasion, tobacco products have been promoted on social media through celebrity endorsements, such as Snoop Dogg's promotion of Executive Branch cigars on Instagram.[391] The FTC issued a compulsory order in 2011 requiring tobacco companies to report social media expenditures for tobacco products since 2009.[228] Social media expenditures reported to the FTC show no spending on cigarette advertising through this medium.[227] Expenditures were reported for smokeless tobacco but were not published separately because only one tobacco company reported spending in this category.[228]

Tobacco industry websites can serve as a direct form of promotion and advertising and can include forums with product reviews and other commentary that can urge buyers to purchase certain brands or try certain tobacco products.[384] In 2014, the U.S. tobacco industry's expenditures for advertising on company websites was $16.6 million for cigarettes[227] and $6.4 million for smokeless tobacco.[228] Tobacco industry websites also encourage user-generated content and mimic social media sites in format and features, using online participation to generate offline engagement and purchases.[421] On their websites, tobacco companies have used other marketing strategies, such as "open-source marketing," in which companies engage with consumers online to design new tobacco product flavors and packages; this practice illustrates how Web 2.0 can blur the lines between market research and marketing.[422] Niche pro-tobacco websites and blogs are another source of online tobacco marketing.[384] The most far-reaching impact online, however, is probably achieved by tobacco brand and product promotions on widely accessed websites such as Facebook, Instagram, YouTube, and Twitter.[384,392,423] A study of a small, representative longitudinal panel of 200 young adults in Connecticut found that viewing social media depictions of tobacco use predicted future smoking, even after controlling for exposure to television and movie depictions of smoking.[424]

Several studies have also conducted content analyses of YouTube videos, which collectively have generated millions of pro-tobacco message viewings.[425–429] YouTube is intended as a forum to share consumer-generated content, but the authenticity of these tobacco-related videos has sometimes been questioned. A study of tobacco-related videos on YouTube found 200 "smoking-fetish" videos, which eroticize smoking.[429] Researchers have also found YouTube videos (n = 163) that depict tobacco brand images or a brand name, most of which (71%) could be characterized as "pro-tobacco" in tone.[426] In 2011, a study found 78 YouTube videos showing smokeless tobacco, and 74% of these portrayed smokeless tobacco in a positive light.[425] In 2012, a study found 56 YouTube videos about little cigars and cigarillos; of these, 43 were categorized as in favor of little cigars and cigarillos, 11 as neutral toward them, and only 2 as against use of little cigars and cigarillos.[392] A study of African American new smokers suggested that being exposed to Internet advertisements for tobacco was positively associated with experimental smoking.[210]

Eighty-eight percent of adolescents ages 8–18 play video games at least occasionally.[430] In interviews, teen and young adults who play video games recalled regularly seeing smoking imagery in games. Unlike movies, where the viewer watches characters smoking, video games provide opportunities for players to interact with tobacco; for example, a player's avatar may be given special advantages for

chewing tobacco or may sell tobacco for profit in the game.[431] An analysis of games listed in the Entertainment Software Rating Board's online database found that the prevalence of tobacco-related content increased from 0.8% in 2005 to 12.6% in 2011 for games rated as appropriate for young people age 10 and older, and from 1.0% in 1994 to 5.7% in 2011 for games rated appropriate for teens.[432] Additionally, adolescents recalled exposure to tobacco in games rated for their use, yet few of those recalled games (8%) had a descriptor warning of tobacco-related content.[433] The first systematic review of the literature demonstrated that tobacco imagery is present in video games, and notes that the relationship between video game playing and smoking needs further study.[433]

In addition to the Internet, YouTube, and video and online games, the tobacco industry and other pro-tobacco interests are exploring the use of mobile channels, which have demonstrated reach among low-SES and minority populations.[400] A 2012 study identified 107 pro-smoking applications for smartphones, include some with explicit images of cigarette brands. The authors concluded that tobacco products were being promoted via smartphone applications, a Web 2.0 channel with "global reach, a huge consumer base of various age groups, and underdeveloped regulation."[434,p.e4] Analyses have also found that most pro-smoking applications are assigned to entertainment and games categories, with some placed in categories directed specifically to children.[435]

Effectiveness of Web 2.0 Anti-Tobacco Communications and Marketing

Although Web 2.0 is increasingly being used by pro-tobacco and anti-tobacco interests, the empirical evidence for the efficacy of these approaches is just emerging. A cross-sectional analysis of quit-smoking messages on Twitter found that posted content was largely inconsistent with clinical guidelines, with less than 5% of posts recommending evidence-based approaches, and 48% of the messages were linked to commercial sites selling quit-smoking products. In addition, nearly half of the activated Twitter quit-smoking accounts (153) from 2007 were inactive by August 2010.[436] Another study found that websites focusing on smoking prevention were less likely to use evidence-based components compared with websites focusing on smoking cessation.[437] Research also indicates that cessation websites and social media sites are used as information portals in public health rather than as places to offer behavior-change strategies[437] and dynamically engage and interact with their intended audience.[438,439] In general, efforts by tobacco control advocates to effectively employ digital strategies have not taken full advantage of Web 2.0's unique characteristics—a high-level of interactivity that enables multidirectional communication and meaningful engagement.

Pro- and Anti-Tobacco Messaging: The Role of Interpersonal Communication

In addition to mass media, online and new media technologies, and advertising in the retail environment and elsewhere, individuals' communication ecologies also include interpersonal communication channels. Communication with friends, family, and others may impact tobacco use behaviors independently as well as in conjunction with other communication channels. For instance, interpersonal communication may moderate the impact of a mass media campaign.[440]

A number of studies have examined the impact of interpersonal communication in the context of smoking cessation campaigns, although these studies have not typically analyzed results for specific groups. Studies have found that ad-stimulated interpersonal pressure from family and friends is associated with increased recent quit attempts[441]; smokers with some intention to quit are more likely to share anti-smoking messages than those with little or no intention; and novelty and positivity of the message are associated with smokers' intention to share messages.[442] Peer support, particularly in the

context of smoking cessation websites, has been found to have a positive effect on cessation.[443] Beyond peer-to-peer support online, research on an in-person peer-to-peer tobacco education and advocacy program focused on helping smokers with mental illness found that 40% of participants reported seriously thinking of quitting in the next 30 days upon completion of the peer-to-peer session.[444]

Interpersonal communication is directly linked to health-enhancing behaviors in general, and can also mediate the influence of the multichannel media environment on health-enhancing behaviors, according to a study using data from the Annenberg National Health Communication Survey. This study, one of the few to examine findings by SES, found that the mediating role of interpersonal health communication was only significant for less-educated individuals, suggesting that interpersonal health communication may play a role in reducing TRHD.[440]

Other studies have found that the quality and frequency of communication on smoking, received by adolescents from parents, were associated with lower risk of adolescent smoking and were found to influence whether adolescents associate with friends who smoke.[445] Another investigation examined self-reported information regarding college students' social networks and found that "social network risk," a measure of close friends' alcohol use, increased the odds of using tobacco, especially among whites.[446]

Websites and online social networks are increasingly important channels through which interpersonal communication occurs. For example, an analysis of the Camel Snus website message board found that participants were using the space to share perceptions and experiences with the product and interact with each other.[447] This analysis further noted that, with increasing restrictions and decreasing social acceptance of smoking, online message boards may provide an outlet for interpersonal communication that tobacco users are unable to find elsewhere.

Further research is needed to determine differences in the role of interpersonal communication, both online and offline, across socioeconomic and racial/ethnic groups for pro- and anti-tobacco marketing.

Evidence Review: New Communications Technologies

Novel Web 2.0 technologies such as social networking websites and mobile applications have evolved over the past decade and could play a role in exacerbating or reducing TRHD. The evidence on Web 2.0 and tobacco communication and marketing suggests the following:

- Access to and use of Web 2.0 is increasing rapidly. Although the broadband access digital divide has important consequences, disparities in the ownership and use of mobile technologies such as smartphones are narrowing, which has important implications for the potential of different communication channels to reach low-SES and racial/ethnic minority populations, in terms of both access to information and the ability to process and act upon information.

- In general, Web 2.0 applications are used in anti-tobacco communications to amplify messages from traditional media sources and to reach and engage audiences in a new way. These Web 2.0 anti-tobacco efforts include online contests to engage youths in creating their own anti-tobacco messages; online petitions aimed at convincing celebrities or events to drop tobacco sponsorships; interactive websites, texting interventions, and mobile applications to assist with smoking cessation; and mobile games for cessation and prevention purposes. Very few studies examine the use of Web 2.0 for anti-tobacco efforts targeting specific populations; these initial studies indicate Web 2.0 platforms may be a promising way to communicate with racial/ethnic

minority populations. Additionally, the Internet makes it possible to tailor anti-tobacco communications to a variety of demographic groups at low incremental cost, suggesting that Web 2.0 platforms may help mitigate knowledge gaps and communication inequalities.

- Web 2.0 applications are used by pro-tobacco interests to engage consumers and influence their attitudes, behaviors, and purchases. Examples of these uses include components of industry-owned brand websites, other pro-tobacco websites and blogs, pro-tobacco content on social networking sites such as Facebook and YouTube, tobacco imagery in games and other online content, and pro-smoking mobile applications. Media use patterns suggest that Internet tobacco advertisements may disproportionately affect racial/ethnic minority youth, and the ability to tailor communications enhances the tobacco industry's ability to target minorities as well. Further research is needed to determine the degree to which Web 2.0 pro-tobacco communications may exacerbate TRHD.

- Although Web 2.0 is increasingly used by both pro-tobacco and anti-tobacco interests, the empirical evidence for the impact of these approaches is just emerging. Efforts by tobacco control advocates to employ digital strategies have thus far been limited in scope.

- Studies described in this section have indicated that Web 2.0 applications have immense potential to facilitate changes in tobacco-related knowledge, attitudes, beliefs, and behaviors. Adoption of best-practice guidelines and ongoing research would help to maximize our ability to use this platform to address TRHD.

Research has shown that health behavior change is often best achieved using multimodal interventions and a combination of different communication channels in conjunction with environmental changes.[448–450] Thus, Web 2.0 should not be viewed as a replacement for conventional mass media interventions or other public health initiatives. Rather, Web 2.0 is an additional tool to enhance public health efforts when public health efforts capitalize on Web 2.0's unique strengths, conform to best-practice evidence, and are strategically integrated with other intervention products and services.

Chapter Summary

Several public health theories and approaches postulate that health is shaped by a wide range of determinants, including SES, race/ethnicity, gender, and geography; the social and physical quality of neighborhoods and workplaces; and access to resources such as healthy food and medical care. When examined through this lens, evaluating the impact of pro-tobacco and anti-tobacco communications requires moving beyond simply assessing whether communication efforts change the behavior of the population at large. It becomes necessary to account for the fact that differences exist among groups in their ability to access, process, and act upon different types of information, and that pro-tobacco and anti-tobacco communications target different groups in different ways.

A review of the anti-tobacco communication literature as it pertains to youth indicates that anti-tobacco TV campaigns can effectively reduce smoking prevalence among the general population, but there is less evidence about their effectiveness among different population groups. For youth, communication inequalities may contribute to differences in awareness of tobacco prevention campaigns across groups but may not affect receptivity to campaigns or the impact of campaign messaging on attitudes, beliefs, and behaviors. Research from several campaigns suggests that geography may contribute to a knowledge gap between urban/suburban versus rural youth regarding tobacco-related information unless

supplemental efforts are undertaken to ensure that campaign messages reach youth in rural areas. However, because of the rapid changes in the media landscape since these studies were conducted in the early 2000s, media access and thus campaign awareness by geography may be more similar than in the past. Low-SES youth and racial/ethnic minorities are receptive to campaign messages, and campaigns can influence knowledge, attitudes, and beliefs among diverse groups. However, pathways by which campaigns influence attitudes and beliefs may vary, suggesting that differences in message processing should be considered in campaign development. Further, campaigns with the strongest short- and long-term behavioral effects among low-SES and racially diverse youth were often complemented by community, school, or state programs that supplemented campaign messaging with other tobacco control programming.

A review of the anti-tobacco communication literature as it pertains to adults indicates that campaigns with (1) high exposure, targeted media efforts; (2) additional tobacco-related program components; or (3) language-appropriate and/or culturally tailored messaging can be effective and may reduce potential communication inequalities that lead to gaps in tobacco-related knowledge. Additionally, campaigns with graphic and emotionally arousing messages can also stimulate quitting among racial/ethnic minorities and low-SES groups. By ensuring that additional supportive resources are available, such as quitline support, free NRT, and other community-based programs and policies, campaign effectiveness can be improved among diverse populations. These findings support the concept of fundamental causes, in that disadvantaged populations may benefit less from health education campaigns due to a lack of resources to support behavior change. Providing additional community, school, or other tobacco-related services may be especially important for groups with limited resources to help ensure that campaigns do not inadvertently contribute to disparities.

A review of the pro-tobacco communication literature finds strong evidence that pro-tobacco imagery and marketing influence tobacco use and related attitudes, but evidence on how these effects differ by race/ethnicity or SES is limited. As posited by the SIM, differing levels of exposure to television and movies, as well as differing levels of identification with characters who smoke, may contribute to variation in the effects of television and movies on youth smoking based on race/ethnicity. Such racial/ethnic differences are also seen in terms of exposure to tobacco advertisements in magazines, perhaps driven by the higher density of tobacco advertising in magazines with high African American readership or by the greater amount of time African Americans spend reading magazines. The tobacco industry (1) uses event sponsorship, audience segmentation, and product development to effectively reach particular groups, and (2) promotes tobacco products at the point of sale more heavily in low-income and minority communities. These findings are in line with theories that hold that the unequal distribution of resources, including political and financial power to oppose tobacco industry interests, can cause disadvantaged groups to experience disproportionately high risks. In addition, evidence indicates that the tobacco industry's use of price discounts as a promotional strategy disproportionately affects low-income and racial/ethnic minority smokers.

News media coverage of tobacco has been both anti-tobacco and pro-tobacco in nature, with parties from both sides of the issue attempting to influence news coverage. Some evidence suggests that greater coverage of tobacco-related health problems and anti-tobacco campaigns can positively affect tobacco-related attitudes and behaviors, but fundamental cause theory and the knowledge gap hypothesis suggest that such communication efforts may disproportionately benefit those of higher SES. Although there is some anti-tobacco news coverage, health journalism overall often fails to underscore the health reasons for tobacco control efforts or to highlight the need for a preventive approach. On the pro-tobacco

communications side of news coverage, news stories often feature claims made by the tobacco industry or by industry-supported consultants. Though there is little if any evidence on how use of such information or sources impacts disadvantaged groups, it is possible these groups are less able to distinguish between objective news coverage and claims made by the tobacco industry.

Both pro- and anti-tobacco communications have been drastically altered in recent decades by the rise of online and digital technologies (i.e., Web 2.0). Minority and low-SES groups continue to experience challenges in accessing and using the Internet, but use of mobile devices among these groups is increasing. This increasing access has important implications for the potential of different Web 2.0 communication channels to reach disadvantaged populations. Differences in literacy and numeracy skills may undermine the impact of Web 2.0 anti-tobacco communications among racial/ethnic minority and low-SES groups, but the ability to easily tailor interventions and the reach of mobile applications may enhance the impact of these efforts. In addition, some evidence indicates that Web 2.0 platforms can be a promising way to both recruit and communicate with minority populations.

Pro-tobacco imagery and promotion are common on Web 2.0 platforms, ranging from pro-tobacco websites, blogs, and social networking content to tobacco imagery in games and other online content as well as pro-smoking mobile applications. Although research on the topic is limited, some data indicate that racial/ethnic minorities receive more tobacco promotions through these means, again illustrating how a variety of factors contribute to disproportionately high risks for certain groups. Web 2.0 platforms' enhanced ability to tailor communications enables the industry to fine-tune its targeting of racial/ethnic minorities and low-SES groups; such institutional-level inequities also have the potential to worsen TRHD.

As tobacco use becomes increasingly concentrated among people who have the least resources, our ability to communicate effectively with groups that bear a disproportionate burden of the tobacco epidemic becomes ever more important.

Research Needs

When examined in light of communication and health inequality frameworks, pro-tobacco and anti-tobacco communication efforts and their impact are characterized by key gaps in the literature. Social epidemiology and media studies theories inform communication inequalities and suggest a number of pathways through which pro- and anti-tobacco communication may disproportionately impact racial/ethnic minorities and low-SES groups—empirical tests of these pathways could identify the degree to which communication inequalities contribute to TRHD as well as to identify potential points of intervention.

Coordinated efforts are needed to develop surveillance systems for tracking pro-tobacco and anti-tobacco advertising and promotion over time using studies with sample sizes adequate to test effects among different population groups. Multiple forms of surveillance are critical to track the rapid changes in the tobacco marketplace that are expected over the coming years, including the introduction of new tobacco products. Communications surveillance systems should also be linked to systems for monitoring evolving policies related to tobacco marketing in order to adequately evaluate these policies.

Pro-tobacco and anti-tobacco marketing exposure and industry targeting of groups experiencing TRHD should be monitored. Studies have shown that the tobacco industry drives consumer demand by

selectively marketing particular types of products, such as mentholated brands, in low-income, minority communities, where menthol is the brand of choice.[234,451,452] It is important to understand if and how new restrictions affect industry strategies regarding new product marketing and how such marketing, in turn, shapes the perceptions and purchasing behaviors of disparate groups. It is also important that populations be involved in monitoring marketing practices in their communities as regulations are implemented and new products are introduced into the marketplace.

Improving our understanding of the relationship between tobacco industry advertising and promotion and TRHD requires further research in several key areas, including: the prevalence and types of tobacco industry marketing; levels of exposure to tobacco marketing across demographic groups; the impact of marketing on tobacco use attitudes, beliefs, and behaviors among racial/ethnic minority and low-SES groups across the life course; and the ultimate impact of tobacco marketing on TRHD. Although there are many examples of tobacco industry targeting of specific demographic groups through advertising, tobacco packaging, and other avenues,[224,348,453] there are no systematic analyses that quantify or assess the impact of these strategies in a comprehensive way or among various subpopulations. Few studies include specific group analyses, and among those that do, small sample sizes and lack of consistency in study design, analytic approaches, and outcomes make it difficult to draw overarching conclusions. Further use of methods such as ecological momentary assessment[454] and objective (versus self-reported) measurement of exposure would be informative.

The anti-tobacco campaign literature is characterized by heterogeneity in study designs and inconsistency in outcomes and analytic approaches. Heterogeneity within groups (e.g., nativity status, level of acculturation among Hispanic and Asian populations) and multiple levels of disadvantage add to the complexity of interoperating differences in outcomes.[2] It is important for campaign developers and evaluators to specify the mechanisms by which a campaign is expected to affect behavior and to consider all the points along the communication continuum where variations can arise for different groups across the life course. An additional challenge is the use of study designs that do not make it possible to separate the effects of media campaigns from other community- or state-based interventions. Collection of larger samples will be needed for specific group analysis. New methods of analyses combining small samples across studies to understand intervention effects among different groups may be one option for utilizing the available data.[455,456]

Experimental or quasi-experimental research is also needed to compare different targeting or segmentation strategies for specific populations. More research is needed that (1) uses explicit, controlled comparisons of different campaign types (e.g., general versus segmented audience) among specific populations, or (2) tests specific comparisons in real-world population-based campaigns, such as examining how varying campaign strategies reduce disparities among specific populations over time.[457]

Moreover, further research is needed to examine the extent to which news media coverage influences tobacco-related knowledge, attitudes, and behaviors. Community-based and public health groups have fewer resources than the tobacco industry.[375] This resource inequality can influence how public health issues such as tobacco use are defined and what solutions are recommended. Strategies for training community-based groups to become effective suppliers of information to the media should be investigated.[458] Such strategies could have long-term impact on news media coverage of tobacco and TRHD and thus on how the public perceives the problem.

Studies described in this chapter indicate that Web 2.0 applications have immense potential to facilitate changes in tobacco-related knowledge, attitudes, beliefs, and behaviors, but the use of these tools would benefit from a careful adoption of best-practice guidelines and ongoing research to understand how to use this increasingly important platform to address TRHD. Most of the existing evidence on the impact of Web 2.0 tobacco control interventions focuses on tobacco cessation which, though important, is only one component of a comprehensive tobacco control effort. Overall, more research, experimentation, and evaluation is needed to determine the best use of Web 2.0 applications for tobacco control across diverse population groups. Further research is needed to understand the degree to which Web 2.0 anti-tobacco efforts might create, exacerbate, or decrease TRHD.

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