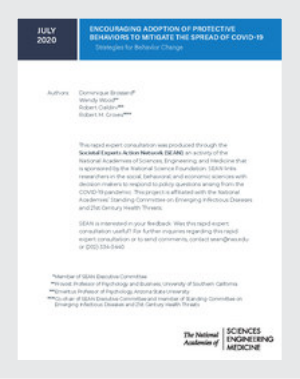

Encouraging Adoption of Protective Behaviors to Mitigate the Spread of COVID-19: Strategies for Behavior Change (2020)

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ENCOURAGING ADOPTION OF PROTECTIVE BEHAVIORS TO MITIGATE THE SPREAD OF COVID-19

Strategies for Behavior Change

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SEAN is interested in your feedback. Was this rapid expert consultation useful? For further inquiries regarding this rapid expert consultation or to send comments, contact sean@nas.edu or (202) 334-3440.

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EXECUTIVE SUMMARY

This rapid expert consultation is intended to help decision makers identify strategies for increasing adherence to protective behaviors that can mitigate the spread of COVID-19. Ultimately, the focus is on increasing knowledge, reducing barriers, and emphasizing efforts that make healthier choices easier and rewarding, to complement communication interventions.

The COVID-19 pandemic necessitates the universal and persistent adoption of such health-promoting behaviors as mask wearing, physical distancing, and handwashing. The first two of these behaviors—mask wearing and physical distancing—require the development of health habits that are new to the U.S. population and inconsistent with existing habits and norms. Handwashing is not a new habit, but is practiced inconsistently.

People form new, health-protecting habits when they repeat behaviors that are rewarding, especially when gratification occurs in the short term, when they feel a sense of self-efficacy, and when they have information about the appropriate way to practice those behaviors. People also are more likely to adopt healthy habits when they encounter fewer barriers to the desired behavior change. There is not strong evidence that explaining the science of disease can directly change behavior, let alone habits. Thus, simply explaining the science of COVID-19 and its risks will rarely translate to a change in attitudes and behaviors even if people understand and accept the facts, and even if they would report that they should behave differently given the new information. The key reasons people do not do things *they know they should* are cognitive preferences for old habits, forgetfulness, small inconveniences in the moment, preferences for the path of least resistance, and motivated reasoning (i.e., the tendency of individuals to fit their processing of information to conclusions that suit some end or goal).

This rapid expert consultation reviews five clear habit-promoting strategies, together with supporting examples, whose adoption decision makers can consider to normalize use of protective measures and increase the likelihood of behavior change:

1. Make the Behavior Easy to Start and Repeat
2. Make the Behavior Rewarding to Repeat
3. Tie the Behavior to an Existing Habit
4. Alert People to Behaviors That Conflict with Existing Habits and Provide Alternative Behaviors
5. Provide Specific Descriptions of Desired Behaviors

This rapid expert consultation also explores 10 risk communication strategies, again with supporting examples:

1. Use Clear, Consistent, and Transparent Messaging
2. Avoid Undue Attention to the Frequency of Socially Undesirable Behaviors
3. Foster a Sense of Efficacy and Avoid Fatalism
4. Appeal to the Collective Good of One's Community
5. Use Messengers Trusted by the Target Audience
6. Tailor the Framing of the Message to the Audience
7. Link Prevention Behaviors to People's Identities
8. Highlight Social Disapproval of a Target Audience Member's Failure to Comply When It Occurs

9. Highlight the Growing Prevalence of Behavior Change within the Target Audience When It Occurs
10. Avoid Repeating Misinformation, Even to Debunk It

Box 1 lists for decision makers some key examples of these behavior change and communication strategies that can help increase the adoption of mask wearing, physical distancing, and handwashing.

Lastly, this rapid expert consultation reviews public health campaigns of the past that can further inform decision makers as to what works to promote behavior change. Lessons learned from these past efforts include that targeted, paid advertising is effective, though expensive; that programs combining social marketing campaigns with the distribution of low- or no-cost health products (such as face masks) are also effective at changing behavior; and that regulations and enforcement may be needed to complement communication interventions.

BOX 1
STRATEGIES FOR INCREASING COMPLIANCE WITH HEALTH-PROMOTING BEHAVIORS: KEY EXAMPLES FOR DECISION MAKERS

Wearing Face Masks

- Establish free or low-cost mask distribution sites convenient for populations most in need.
- Make mask wearing instantly gratifying, such as by promoting fashionable masks or providing tips for decorating masks to make them fun to wear.
- Encourage people to keep masks by their front door so that they develop the habit of putting their mask on with their shoes/coat.
- Use explicit messages, such as “masks required indoors” instead of “mask required if it is too crowded,” to convey the desired behavior.

Physical Distancing

- Proactively provide “space guides,” such as painted circles 6–10 feet apart in parks or on floors, to remind people of social distancing guidelines and help them estimate appropriate distances.
- Use explicit messages, such as “maintain at least 6 feet of separation from others” instead of “socially distance.”
- Encourage safe alternatives to conflicting habits, such as waving instead of handshaking or hugging.

Handwashing

- Install easily accessible handwashing or sanitizing stations in public areas.

INTRODUCTION

This rapid expert consultation is intended to help decision makers identify strategies for increasing adherence to protective behaviors that can reduce the spread of COVID-19, including mask wearing, social distancing, and handwashing. Strategies are examined in two areas: habit-promoting strategies and communication strategies to encourage adoption of behaviors.[1] Reviewed as well is relevant scientific literature extracting lessons learned from prior successful public health campaigns.

COVID-19 is currently believed to be spread primarily person-to-person, and also potentially through airborne spread of the virus. Spread occurs among people in close contact through respiratory droplets produced when an infected person, symptomatic, presymptomatic, or asymptomatic, coughs, sneezes, talks, or even breathes and those droplets land in the mouths or noses of people who are nearby. There is also risk of exposure at distances beyond 1 to 2 m from inhalation of aerosols that can remain airborne for a longer period of time and are inhaled into the lungs (Centers for Disease Control and Prevention [CDC], 2020a; Morawska and Milton, 2020; National Academies of Sciences, Engineering, and Medicine [NASEM], 2020). As a result, universal adoption of protective behaviors such as those cited above—use of masks when around others, avoidance of close contact (i.e., physical distancing), and frequent handwashing—are needed to prevent the spread of COVID-19 (CDC, 2020a).

An ABC News/Washington Post poll conducted July 12–15, 2020, found that many individuals in the United States are adopting mask wearing and physical distancing. When asked about wearing a mask when leaving their home, for example, 57 percent of respondents reported doing so "all of the time," 23 percent "most of the time," and 20 percent "less often."[2] Likewise, in an Axios/Ipsos Poll conducted over a similar period (July 10–13, 2020), when asked about maintaining a distance of at least 6 feet from other people when outside of their home, 54 percent of respondents reported doing so "at all times," 36 percent "sometimes, but not all the time," and 8 percent "occasionally, or never."[3,4]

While these patterns are positive from the perspective of containing the virus, adoption of mask wearing and physical distancing is not yet universal, and greater adoption will require the development and persistent use of health-promoting behaviors that are new to the U.S. population and inconsistent with existing habits and norms. Handwashing is not a new habit, but is practiced inconsistently. Increasing the uptake and persistent use of such health-promoting

[1]The full statement of task for this rapid expert consultation is as follows: "The National Academies of Sciences, Engineering, and Medicine will produce a rapid expert consultation, requested by state and local decision makers, to identify what is known about strategies to increase compliance with protective behaviors (e.g., mask wearing and social distancing) to mitigate the spread of COVID-19. Drawing upon literature from the social, behavioral, economic, and public health sciences, this document will consider how decision makers can communicate information about risk and protective factors. It will communicate findings from relevant public campaigns and the literature. The rapid expert consultation will be designed to be of practical use to decision makers, but will not recommend specific actions or include other recommendations. It will be reviewed in accordance with institutional guidelines."

[2]See https://abcnews.go.com/Politics/64-distrust-trump-pandemic-approval-declines-cases-grow/story?id=71779279.

[3]See https://www.ipsos.com/sites/default/files/ct/news/documents/2020-07/topline-axios-poll-w16.pdf.

[4]It is important to keep in mind that, as noted by Brenner and DeLamater (2016, p. 1), "Survey estimates of normative behavior—like voting, exercising, and church attendance—often include substantial measurement error as respondents report higher rates of these behaviors than is warranted….Conventional wisdom suggests that this error, called social desirability bias, is generated by a respondent's need to appear prosocial."

behaviors, as necessitated by the COVID-19 pandemic, will therefore require strategies designed to form new health habits.

The science of risk communication makes clear that merely explaining the science behind the need for behavior change will not translate to actual change in attitudes and behaviors (NASEM, 2016). While people who feel at risk are more likely to take action, research suggests that it is difficult to persuade people that they are at risk, given that an individual's understanding of risk is influenced by such emotions and complex considerations as familiarity, uncertainty, dread, catastrophic potential, controllability, equity, and risk to future generations (Fischhoff and Davis, 2014; NASEM, 2017). Thus, the effects of communications aimed at increasing understanding and knowledge to effect behavior change have generally been modest.

In light of these modest gains, it is clear that communicating risk alone will not be sufficient to effect the large-scale behavioral change that will be required to contain the spread COVID-19 in the United States. The communications, marketing, and behavioral economics literatures offer insights into how people can be persuaded to adopt certain health-promoting behaviors that decision makers can use to encourage and sustain behavior change. Because these strategies aim to influence people's views, preferences, and behaviors, their adoption by governments has raised ethical issues and dilemmas related to the strategies for persuasion and influence used (see, e.g., Guttman, 2017; Hausman and Welsh, 2010). However, as new cases of COVID-19 increase to record levels, the death toll continues to climb, and the economy suffers, adoption of such strategies is required to prevent further harm to the public. The following sections review strategies for promoting behavior change that can lead to the necessary new habits, as well as strategies for communication that can help encourage the uptake of those behaviors.

STRATEGIES TO MAKE ADOPTION OF PROTECTIVE BEHAVIORS MORE LIKELY

People will engage in healthy behaviors if they have the necessary knowledge and skills, if they believe they are at risk and feel confident in their ability to take action, if they have favorable attitudes and beliefs, if they believe that others also engage in those healthy behaviors and expect them to do the same, if social structures and policies are supportive, and if what they need to do is accessible to them. Some of these factors are rooted in personality, people's self-concept, their religiosity and political ideology, the social networks to which they belong, and their media habits (NASEM, 2016).

This section describes evidence supporting certain strategies designed to overcome barriers to behavior change, helping decision makers encourage protective behaviors to mitigate the spread of COVID-19 in their communities. Common reasons people do not do things they know they *should* are forgetfulness (e.g., "Oops! I meant to keep my distance while talking to my neighbor, but then I got engrossed and forgot!"), giving greater weight to small inconveniences in the moment (e.g., "The mask is itchy and hot!"), preferences for the path of least resistance (e.g., "Do I really have to go upstairs to grab the mask?"), and motivated reasoning (e.g., political ideology whereby people reject a behavior because it appears inconsistent with their beliefs). For these reasons, health interventions designed to encourage the uptake and maintenance of behaviors (behavior change) and influence social norms have been shown to be more successful than informational campaigns alone.

Of course, disparities in access to resources also affect the ability to adopt certain behaviors. In the context of the COVID-19 pandemic, for example, families in housing without clean running water cannot wash their hands frequently, and people in some communities are often forced to choose between meeting essential needs and taking actions to protect against the disease. Because behavioral choices are often constrained by poverty and living conditions, it is crucial that communities, particularly vulnerable communities, be provided the means—in terms of both access to resources (face masks, handwashing and sanitizer stations) and social protections—that make compliance with certain practices feasible. With respect to social protections, policies and regulations can play a critical normative role, especially when individuals' autonomy over their choice of behavior is constrained (e.g., employer-imposed restrictions preventing mask wearing or confinement in a correctional facility without the ability to physically distance). Some communities may not feel sufficiently empowered to adopt certain protective behaviors that are unsupported by community norms. Institutional policies and regulations may be particularly important for establishing social norms and reinforcing the rights of those, such as employees, who require protection (Upshur, 2003; Calain and Poncin, 2015). In short, decision makers will need to factor equity into their decisions about strategies for increasing the adoption of protective behaviors to mitigate the spread of COVID-19.

With these considerations in mind, five key strategies for promoting the adoption of protective behaviors are described below.

1. *Make the Behavior Easy to Start and Repeat*

People are more likely to act in healthy ways when it is easy for them, meaning that a behavior is relatively *frictionless*, so that it takes little time and effort to perform it (Wood, 2019). Lack of friction is important, for example, for handwashing. One study found that hospital visitors were 5 times more likely to use a sanitizer when the dispenser was located in the middle of the lobby with limited barriers rather than being placed in less easily accessed locations (Hobbs et al., 2016). Thus to encourage handwashing, it will be important to install many handwashing or sanitizing stations in public areas so they are widely available. Doing so also communicates that using them is the norm. In another example, space guides, such as circles painted 6–10 feet apart in parks or floor signs demonstrating appropriate distances, can reduce cognitive effort by reminding people of social distancing guidelines and helping them estimate appropriate distances. Likewise, establishing free or low-cost mask distribution sites convenient for populations most in need can make mask wearing easier.

2. *Make the Behavior Rewarding to Repeat*

People repeat behaviors, thus creating habits, when those behaviors are rewarding in some way. A strategy for getting children (at home and at school) to wash their hands, for example, is to distribute translucent bars of soap with a toy inside. A study of such an intervention in developing countries found that those children who received the soap with a toy inside were more likely to wash their hands and were healthier compared with children who received comparable bars but with a toy that was separate (Burns, Maughan-Brown, and Mouzinho, 2018). When washing was fun and revealed the toy, children did it more often. Reinforcement is especially important to starting a new behavior, as it keeps people repeating the behavior sufficiently often for the habit memory to form (Wood, 2019). Similarly, a review of studies promoting exercise found that providing monetary and nonmonetary rewards resulted in increased physical activity among youth and adults (Strohacker, Galarraga, and Williams, 2014).

In the context of the COVID-19 pandemic, efforts to make mask wearing instantly gratifying—such as promotion of fashionable masks, or masks with sports team or university logos or other identity decorations that make them fun to wear—could be beneficial. As another example, smart soap dispensers could reward every 100th user (or reward users at random).

3. *Tie the Behavior to an Existing Habit*

People can be encouraged to establish preventive behavior routines through triggers and timely reminders, and encouraging planning can be invaluable (Gollwitzer and Oettingen, 2019; Keller, Bieleke, and Gollwitzer, 2019). In particular, people are more likely to repeat behaviors when they are able to stack them onto existing habits, thus taking advantage of the automatic performance of those other behaviors. In one study, for example, people were more likely to use a new laundry product if they were cued to associate it with their current laundry habits, compared with those who simply made plans to use the new product (Labrecque et al., 2017). Applying this concept to mask wearing, people could be encouraged to keep masks by their front door so they could put one on at the same time as their shoes/coat, or they could put masks in their car so they would put one on after opening the car door. Likewise, arriving home could be tied to handwashing if people walking in their front door learned to connect putting down their keys with washing their hands.

4. *Alert People to Behaviors That Conflict with Existing Habits and Provide Alternative Behaviors*

People are more successful at controlling unwanted habits when they remind themselves of the unwanted behavior and think, "Don't do it" (Quinn et al., 2010). Such monitoring does not directly decrease the strength of a habit but instead enhances people's ability to control the behavior. For example, people might be warned, "To reduce the spread of COVID-19, do not shake hands at work meetings." Providing alternative habits that oppose the muscle movements involved in shaking hands (e.g., waving, bowing) could further reduce interference from that old habit (Stapleton, 2020).

5. *Provide Specific Descriptions of Desired Behaviors*

When individuals understand what specifically is expected of them, they are more likely to adopt the desired behavior. For example, it is more effective to use such messages as "maintain at least 6 feet of separation from others" instead of "socially distance," or "masks required indoors" instead of "mask required if it is too crowded."

COMMUNICATION STRATEGIES TO ENCOURAGE ADOPTION OF PROTECTIVE BEHAVIORS

The strategies described below speak to how heath communication can be made more persuasive in promoting behavior change. It is important to consider that ineffective communication efforts are not simply those unable to change beliefs or behaviors. Rather, they can also be counterproductive by making people further dig in their heels by, for example, knowingly performing the undesirable behavior. Such ineffective communications may cause people to believe that the undesirable behavior is more prevalent than it actually is, or the health information provided may end up polarizing views of a behavior (along religious or political

lines) that previously was more widely accepted. In one study (Hornik et al., 2008), for example, exposure to antidrug public service announcements was found to increase curiosity about drugs (Hornik et al., 2008). Thus it is important that health communication efforts be based on the best available evidence and that their potential negative effects be carefully considered.

1. *Use Clear, Consistent, and Transparent Messaging*

Strategies that provide honest, authoritative information about the effectiveness of protective measures and that trust recipients to make appropriate decisions have been shown to be effective (NASEM, 2017; Fischhoff, 2019; Fischhoff, Brewer, and Downs, 2011). Such messages need to communicate risk clearly. People's perception of their own risk, including the likelihood and severity of a resultant illness, is key to their adopting preventive measures. Thus in the absence of clear communication about risk, people may overestimate their immunity and may not adhere to protective guidelines.

Consistent messaging is also critical. A study of nonpharmaceutical interventions in Canada during the outbreak of severe acute respiratory syndrome (SARS), for example, found that inconsistent information from various sources prompted individuals to question the credibility of available information. This inconsistent information resulted in fear and denial of the pandemic (The Royal Society and The British Academy, 2020). In the context of the COVID-19 pandemic, it could be helpful if information specified effects on (1) individuals; (2) those exposed to them directly; (3) those exposed to them indirectly, through a chain of transmission; (4) community standards (social norms); and (5) third parties (e.g., protecting limited supplies for essential workers such as health care professionals).

It is also crucial to concede uncertainty, proactively and transparently. Information communicated in plain and simple language needs to reflect that evidence is evolving so recipients can make informed choices and be prepared for changes in the evidence as the science advances (Fischhoff and Davis, 2014). For example, messages could use the phrase, "Based on what we know today…." Overconfidence and overstatement of certainty can ultimately impair the credibility of the messenger.

2. *Avoid Undue Attention to the Frequency of Socially Undesirable Behaviors*

Individuals often change their behaviors and beliefs to better match perceived social norms. Communications that highlight accounts and images of undesirable behaviors on the part of some citizens, such as individuals crowding restaurants and beaches without maintaining physical distance or wearing face masks, suggest that undesirable behaviors are more frequent than they actually are. In so doing, such communications can exacerbate the problem, as demonstrated by evidence on preventive interventions for alcohol and drug use and youth suicide (see, e.g., Hall and Blanton, 2009; Cialdini, 2003; Donaldson et al., 1995; Mann et al., 1997; Shaffer et al., 1991). Instead, effective communications feature and normalize the many more individuals who have adopted the desirable behavior (Murrar et al., 2020).

3. *Foster a Sense of Efficacy and Avoid Fatalism*

Threat or fear can serve as a motivator to act, but it must be accompanied by clear statements about what people can do to mitigate the threat. Negative emotions resulting from threat can be contagious, and fear can make threats appear more imminent (Cole, Balcetis, and Dunning, 2013). Appealing to fear can lead people to change their behavior if they feel capable of dealing with the threat, but leads to defensive reactions when they feel helpless to act (Witte

and Allen, 2000; Van Bavel et al., 2020). Communications therefore need to couple messages about the harm of the virus with how to mitigate the risk of contracting COVID-19.

4. Appeal to the Collective Good of One's Community

Key predictors of adoption of preventive behaviors also include worry and anxiety about one's family (Brewer et al., 2007). People are much more hesitant to claim that they have a right to determine how much risk they can impose on *others* as opposed to how much risk they are willing to bear for themselves. Therefore, suggesting, for example, that engaging in a behavior such as mask wearing will benefit or protect others has been shown to increase health-promoting behaviors in certain contexts (O'Dell et al., 2008). In the context of COVID-19, moreover, it may be crucial to invoke the "collective good" of certain measures to reinforce the risk of inaction to communities. Specific to mask wearing, one study found that appeals to one's community were effective at promoting adoption of the behavior, more so than appeals to engage in the behavior for one's country or for one's own benefit (Capraro and Barcelo, 2020). To this end, messages might implore, "Take care of Georgia," or "Stay safe Brooklyn," or appeal to social responsibility by linking adoption of protective behaviors to protecting the local economy.

5. Use Messengers Trusted by the Target Audience

The perceived credibility of the messenger increases the persuasiveness of the message. Accordingly, enlisting trusted voices has been shown to make public health messages more effective in changing behavior during epidemics (O'Keefe, 2016). Indeed, trust in the messenger, whether an individual or a credible source, is often more powerful than the content of the message itself. For example, after the Centers for Disease Control and Prevention (CDC) recommended that individuals wear a mask to protect others from the coronavirus, reported mask wearing and mask buying increased by 12 and 7 percentage points, respectively, when controlled for income, race/ethnicity, political party, and geographic region (Goldberg et al., 2020).

Identifying credible sources who are able to share public health messages within their particular networks (including on their social media channels) might prove especially effective. The effectiveness of such a strategy is supported by research suggesting that the greatest effects of behavior change interventions come not from direct effects on people who receive the intervention but from indirect effects on their social contacts who copy the behavior. Therefore, targeting well-connected individuals and making their behavior change visible and salient to others through social media channels and other communication media can be a promising strategy. During the West African Ebola crisis, for example, religious leaders across faiths in Sierra Leone advocated for such practices as handwashing and safe burials, and that engagement of the faith-based sector was considered a turning point in the response to the epidemic (Greyling et al., 2016).

6. Tailor the Framing of the Message to the Audience

To be effective, risk communication needs to reflect an understanding of the population one is trying to reach, including such characteristics as their motivations and level of understanding. Segmenting messages for different populations (whether by level of misinformation, level of risk, where they get their information, what choices they make, or other factors) is critical. Data from surveys can provide information on target audiences, such as existing beliefs and content to avoid, which can inform development of the messages they receive (see, e.g., Parvanta et al., 2013).

7. *Link Prevention Behaviors to People's Identities*

People are most likely to persevere with behaviors that reflect their own personal identity or that are consistent with their values, and are more likely to act in line with group norms when membership in that group is important to their identity. Linking behaviors to identity is particularly important when the behavior feels difficult and burdensome. When a behavior is not identity-congruent, encountered difficulties signal that this is not for "people like me," which fosters disengagement. When the behavior is identity-congruent, encountered difficulties highlight that "I need to work on this," which fosters engagement. Thus, identity framing influences not only message acceptance but also behavioral persistence when difficulties are encountered (Oyserman, 2015).

Interventions that associate such health behaviors as handwashing and mask wearing with a valued identity can therefore encourage the performance of those behaviors. In one study, for example, participants who identified with their country complied more with messages promoting vegetable intake or limited junk food intake when they believed fellow citizens complied with those health-promoting messages (Liu, Thomas, and Higgs, 2019). Conversely, structural inequities affect the ways certain groups develop identities. These identity processes decrease community cohesion, compliance with guidance, and perceived legitimacy of governments, which can impede the willingness of some social groups to adopt promoted health behaviors (Templeton et al., 2020). Along the same lines, one cultural barrier to coordinated action within countries is political polarization. Accordingly, decision makers can highlight bipartisan support for COVID-19–related measures, when it exists, as such endorsements in other contexts have reduced polarization and led to less biased reasoning (Van Bavel et al., 2020).

8. *Highlight Social Disapproval of a Target Audience Member's Failure to Comply When It Occurs*

Highlighting social disapproval of an undesirable behavior from a target audience member has been found effective in curtailing such behaviors as littering and fare dodging on public transportation (Cialdini, Kallgren, and Reno, 1991). Campaigns or public service announcements that praise compliant behavior and show that passersby and the community at large disapprove of the corresponding undesirable behavior can therefore be effective at influencing behavior. Moreover, when people observe others reinforcing the desired behavior change, they are more receptive to messages to change themselves. Some behaviors that are protective against COVID-19, such as wearing face masks, are highly visible to others and thus more responsive to such normative pressures relative to less observable actions, such as handwashing—unless the latter behaviors are performed in public settings (Lewis, 2013). Conversely, under polarized conditions, disapproval from a nonmember group may have the opposite effect.

9. *Highlight the Growing Prevalence of Behavior Change within the Target Audience When It Occurs*

People frequently adapt their behaviors and beliefs to fit better with perceived social norms. Therefore, conveying a positive trend toward more widespread adoption of a particular behavior can influence behavior change (The Behavioral Insights Team, 2016; Sparkman and Walton, 2017). If a desired behavior currently lacks majority support, communicators can

present available evidence that support is increasing (e.g., "Thirty percent of people wore masks all the time in April, but 60 percent of people did so in July.").

10. Avoid Repeating Misinformation, Even to Debunk It

Correcting information that is inconsistent with scientific evidence is difficult under most circumstances (NASEM, 2017; Cook and Lewandowsky, 2011; Lewandowsky et al., 2012), and it is important to note that efforts to debunk misinformation can have the unintended effect of reinforcing false beliefs. Therefore, pointing out misinformation related to the pandemic generally (e.g., "COVID-19 is a hoax.") does not directly increase and may even decrease the likelihood that individuals will adopt specific protective behaviors (see, e.g., Fishbein and Azjen, 2015; Fishbein et al., 2001; Scheufele et al., 2020).

LESSONS LEARNED FROM PAST PUBLIC HEALTH CAMPAIGNS

Previous public health campaigns are relevant to attempts to increase compliance with COVID-19 protective measures. This section summarizes some recent public health campaigns relevant to the current pandemic, highlighting key lessons learned (see Box 2).

BOX 2
LESSONS LEARNED FROM PAST PUBLIC HEALTH CAMPAIGNS

- Programs that combine social marketing campaigns with the distribution of low- or no-cost health-promoting products (such as face masks and hand sanitizer) are effective at changing behavior, as illustrated by the example of condom distribution programs.
- Also effective is the use of national paid advertising for public health messaging, with advertisements targeted and framed to appeal to particular intended audiences. While such use of paid media requires substantial investment of resources, the benefit can outweigh the cost.
- Regulations and enforcement may be needed to complement communication interventions, as demonstrated by efforts to increase seatbelt use and to end tobacco sales to minors.
- People may have the desire, motivation, and knowledge to act, but if they do not have the means, they will not do so.

Product Promotion and Distribution Programs

A review by the Community Preventive Services Task Force found that combining health communication campaigns with interventions to supply individuals with health-promoting products (such as condoms, nicotine replacement therapy, or children's carseats) is effective at changing behavior. However, the effects of such campaigns on behavior change were found to be modest, ranging from a median of 4 percent for condom use campaigns to a median of 10 percent for smoking cessation campaigns (Robinson et al., 2014).

Combined media and product distribution campaigns tend to be more targeted to a specific population relative to other mass media campaigns. Populations may be targeted based on their age (Alstead et al., 1999; Kennedy et al., 2000), sexual activity (Martínez-Donate et al., 2009), or health behaviors (Bauer et al., 2006; Tinkelman et al., 2007). Other campaigns target whole communities (Ross, Chatterjee, and Leonard, 2004; De Cocker et al., 2007). The length of the campaign and the financial accessibility of the health products involved appear to play a role in effecting behavior change. In general, the review by the Community Preventive Services Task Force found that campaigns that lasted for 21 months or more had the greatest effect, and campaigns that provided free health products had a slightly greater effect on behavior change relative to campaigns that provided reduced-cost products (a median of 10.0 percent versus 8.9 percent) (Robinson et al., 2014).

Condom distribution programs are an example of a combined social marketing and distribution campaign. The goal of a condom distribution program is to increase the availability, accessibility, and acceptability of condoms in a community in an effort to prevent the transmission of HIV and other sexually transmitted infections (CDC, 2020b; Charania et al., 2011). Effective programs provide condoms free of charge, distribute them widely within the community, and combine distribution with a social marketing campaign to promote their use (CDC, 2020b). A meta-analysis by Charania and colleagues (2011) found that condom distribution programs had a significant effect on condom use, condom acquisition, delayed sexual initiation among youth, and reduced incidence of sexually transmitted infections. Moreover, programs that combined efforts to increase the availability of condoms with social marketing campaigns to increase the acceptability of their use had a significant effect, although the effect of such combined programs that focused on the accessibility of condoms was greater (Charania et al., 2011).

Audience Segmentation and Framing

The Truth campaign, a nationwide paid media campaign for prevention of tobacco use among youth, illustrates the benefits of using national paid advertising for public health messaging and the effectiveness of targeting and framing messages to appeal to particular intended audiences. The campaign framed messages to appeal to adolescents' drive for autonomy by urging them to rebel against the tobacco industry's portrayals of its products (Hersey et al., 2005). Understanding the target population's motivations enabled the campaign to target messages to youth that emphasized the tobacco industry's efforts to minimize the negative health effects of tobacco use (Hersey et al., 2005; NASEM, 2017). Based on research on the importance of adequate exposure to public health messaging, the campaign used nationwide advertising on television, radio, and other media to reach teens and young adults (NASEM, 2017).

In an analysis of the Truth campaign's effects, Farrelly and colleagues (2009) estimate that from 2000 to 2004, the campaign prevented 456,281 youth aged 15–24 from smoking. Such findings suggest that while national paid advertising, particularly on television, requires substantial resources to implement, the benefit in avoided health costs can outweigh the cost of the campaign. Paid media campaigns to prevent tobacco use among youth appear to have been even more effective when combined with school and (or) community prevention programs (Wakefield, Loken, and Hornik, 2010). However, lasting change requires sustained campaigns, and the termination of antitobacco media campaigns has been associated with a decline in beneficial behavior changes (Wakefield, Loken, and Hornik, 2010).

Subsequent public health efforts have similarly targeted and framed messages to harness adolescents' drive for autonomy and growing social consciousness to promote the adoption of positive health behaviors. One study, for example, emphasized messages of resistance and social justice to encourage healthy eating habits among teenagers (Bryan et al., 2016). Rather than highlight the importance of healthy eating, the study authors presented an exposé on manipulative marketing practices of the food industry that target children and youth, and emphasized the societal consequences of these practices. Adolescents who received the exposé treatment viewed healthy eating as aligned with the values of autonomy and social justice, and chose fewer junk food options relative to those who received traditional health education materials or no intervention at all.

Regulation and Enforcement to Complement Communication Initiatives

The nationwide Click It or Ticket program was a combined education and enforcement initiative to increase seatbelt usage, in which paid advertising regarding the likelihood of getting a ticket for not wearing a seatbelt was combined with a seatbelt enforcement initiative. A 2002 evaluation of the program found that states that implemented the program had higher rates of seatbelt use (National Highway Traffic Safety Administration [NHTSA], 2002). The evaluation specifically highlighted the role of both media advertising and enforcement in contributing to the program's success; both had to be in place for substantial increases in seatbelt use to occur. The evaluators concluded that "belt use enforcement which is highly publicized through paid media can achieve a substantial increase in a state's overall belt rate" (NHSTA, 2002; see also Wakefield, Loken, and Hornik, 2010).

In the context of the COVID-19 pandemic, any enforcement program will need to consider the public utility of and appetite for such a program. Evidence suggests that Black communities in particular have been policed disproportionately more and with more punitive consequences relative to most other communities in the United States (NASEM, 2018).[5] Thus while regulations are important to normalize recommended behaviors and to protect certain groups (e.g., employees) that may otherwise not have the power to practice them, enforcement efforts may best be concentrated on entities (such as businesses and employers) rather than on individuals.

CONCLUSION

Communicating the science of risk alone is not sufficient to change behaviors in ways that will effectively contain COVID-19. However, communicating risk is not the only option. Decision makers can choose from a menu of strategies to encourage and sustain behavior changes necessary to minimize the spread of COVID-19 in their communities and contribute to the containment and control of the virus. Strategies that enhance habit formation and maintenance through regulation or other nudges can complement communication interventions. There is no one-size-fits-all approach, however. Rather, a combination of approaches, based on the audience and context, is likely to be most impactful.

[5]See https://www.nbcnews.com/news/nbcblk/pattern-uneven-social-distancing-enforcement-coming-view-civil-rights-experts-n1216506.

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