
The Quiet Work of Disease Prevention



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Introduction

The sounds of recovery teams working with pick and shovel are muffled by the roar of a tandem rotor helicopter flying slowly over the rubble, pilots searching for a suitable surface on which to land the lumbering 17-ton aircraft. Dust and debris scatter for a hundred yards in all directions as the tornadoes of prop wash flood an area that three days earlier suffered a catastrophic earthquake. The heavy craft settles with the gentle rocking of a baby carriage. Within seconds, a 10-person infectious disease team jumps from the side door, ducking low as members run beneath the rotors still slicing furiously through the dusty air. A dozen young crew members carry crates of drugs, tents, and supplies to outfit a temporary hospital.

Television crews capture the scene and document every movement as the medical team treats victims of cholera, hepatitis, and leptospirosis. Newspaper reporters interview doctors and take photos of the sick being brought to the tents. Reporters from National Public Radio, Radio Deutsche Welle, and the BBC provide interviews and hourly updates for listeners back home.

Treatment, and especially dramatic interventions, in natural disasters, war zones, and regions of infectious outbreaks, such as Ebola, offer dramatic stories, action, and visuals that grip the imagination of television audiences, readers, and listeners around the world. These are stories to tell, rescues to film, victims to console, heroes to pat on the back.

Even under less cinematic conditions, medical treatment always attracts the spotlight, public attention, and funding. That makes sense. Cause and effect are tangible and clear, success is often evident, and ordinary people can relate to the concept of medical treatment.

Disease prevention and health promotion always have taken the back seat to other health interventions. Admittedly, the example of an earthquake rescue dramatizes the point for effect, but such events are not uncommon and the media coverage and public attention are not overblown. Non-governmental organizations that provide medical services, even under less dramatic conditions, count on a level of public recognition for their work because recognition draws funding and ensures the opportunity for continued operations.

Now, consider the following example of a typical training session for infectious disease prevention.

A community health worker (CHW) provides a class for people in a small village where the health ministry has projected a cholera outbreak. The CHW explains that cholera is a bacterial illness caused by contaminated water and food. She demonstrates proper water treatment and food handling and stresses the importance of handwashing and other sanitary measures.

During the next two months, when the epidemic had been forecast to strike, people in this village carefully practice prevention measures. Thankfully, because of the training, they avert the outbreak. And so, undisrupted by an epidemic, they wake up each morning, go to work and school, and then come home in the evening. The next morning, and the morning after that, they go to work and school, then come home again.

There isn't much to see here. No heroic rescues, no health workers dropping from planes with medicines and equipment, no action scenes to excite the imagination, to draw in the press, to open donors' wallets. There are no victims suffering ill effects of cholera, no bodies shrouded for burial. The outcome of this prevention intervention is a village where people, unburdened by an epidemic, go about their daily routines.

Prevention—even with its capacity to avoid suffering and death, the anguish of families, the empty chairs around a dinner table—goes unnoticed. Prevention advocates are vexed by the lack of drama to promote their cause. They argue from a framework of statistics: Were it not for prevention measures, the probability, at a 95 percent confidence level, is that an additional 45 percent of the population would have contracted the condition; \$93,500 would have been lost in wages; 73 people would have died. Confidence levels, though, do not lead the six o'clock news or make it onto the public agenda.

What's the point? Prevention measures that can stem the spread of a disease and reduce the incidence and severity of a chronic illness lack drama and intuitive appeal and so become a difficult sell. Prevention reduces the likelihood that communities will be persuaded to adopt preventive measures, that media, political figures, academics, and other opinion leaders will trumpet prevention programs, and that funders will underwrite them.

Let's be clear that the concern here isn't just about the contest for airtime, funding dollars, and public recognition. Successful prevention staves off massive human suffering and death. It averts disruption and depresses the high costs for treatment of individuals and entire communities. When prevention works, it yields many benefits, but its virtues are defined by the negative, by what has not happened, and that becomes a challenge. We seem more inclined to fix problems than to avoid them.

Realistically, we will never make prevention programs as engaging as medical treatments, but there are ways to structure prevention arguments to maximize their general appeal. That would make prevention more acceptable and useful, and so more relevant in the mix of health interventions. What makes prevention more appealing also makes it more effective. In this article, we would like to discuss two features that may improve disease prevention measures. These features can increase visibility and public awareness, and, as a consequence, nudge prevention higher on the public agenda, making people more conscious of preventing illnesses before they begin.

The World Health Organization (WHO), provides two useful definitions:

1. Health promotion is the process of enabling people to increase control over, and to improve, their health. It moves beyond a focus on individual behavior towards a wide range of social and environmental interventions¹.

2. (Primary) disease prevention refers to actions aimed at avoiding the manifestation of a disease².

The definition of health promotion offers a useful clue for disease prevention programs: Health promotion is seen to improve health. It offers a positive outcome—the suggestion of a promising reward: If you do what we suggest, you stand a good chance of experiencing something good—improving your health. This is often referred to in the psychology literature as “gain framing.”

Disease prevention, by contrast, proposes the avoidance of something bad. If you do what we suggest, you stand a good chance of avoiding a terrible fate. Who wouldn't want that? Yet, getting something good and avoiding something bad are not the same. Health promotion offers an affirmative outcome, disease prevention proposes that you will see no change, unless you discard the advice, and then the change will be bad. Do everything we suggest, and you reduce the chances that you will witness something awful. This is referred to as “loss framing.”

So, in our messaging, how can we elevate the positive and stress near-term outcomes? Let's look at three examples:

1. Exercise, a staple of health promotion, improves a person's strength, energy, and endurance, but it also helps prevent obesity, diabetes, and hypertension. The benefits of exercise, therefore, are not only the absence of something bad (e.g., diabetes) but the presence of something good (e.g., strength and energy). Linking exercise with strength and energy, as well as with chronic disease prevention may offer prevention advocates a useful strategy: Get positive benefits soon AND avoid problems later. It's gain framing and loss framing in one message, and it brings the positive outcomes closer to the present. When advocating exercise for people prone to diabetes or hypertension, we note that exercise has a second near-term payoff of yielding greater strength and endurance

2. Rheumatic heart disease (RHD) is the result of untreated strep throat. Streptococcus A bacteria can bring about rheumatic fever, which can lead to RHD. The prevention of RHD, though, must take place early, with antibiotic treatment during the strep throat phase. Positioning the need for antibiotics to head off RHD suffers both weaknesses of prevention programs: The payoff comes later, and it avoids a negative outcome.

How can we bring something positive and immediate into the discussion? By stressing that a course of antibiotics will reduce the duration and pain of strep throat in the near term. That link between action and outcome can make the treatment more appealing. While in our prevention messages we don't want to ignore the strep throat-RHD link, we might raise the issue of near-term relief from strep throat pain.

3. What can we do when the immediate benefits of prevention are less obvious, say with vaccinations, which are often the only or the best means of prevention. Flu shots, measles, mumps, and rubella vaccines, and others pay off in the future by reducing the likelihood of contracting those illnesses. It's difficult to see any near-term benefit. If anything, the pain of an injection and an achy arm are immediate disincentives.

One strategy is to link the vaccination to something larger than the individual—to the society at large. This widens the definition from a physical benefit to a psychological one. The rationale for this approach starts with the notion of herd immunity—a community benefit realized when a sufficient number of members are vaccinated. People get vaccinated for the benefit of the group; group approval is then positioned as the reward.

Vaccinated people earn bragging rights—an immediate reward. Some vaccination sponsors offer stickers (a badge of courage) allowing people who were vaccinated to announce they got the shot. Amazon sells vaccination stickers by the roll. The U.S. Veterans Administration offers a sticker with the image of Uncle Sam saying, "I care about YOU . . . I got my flu shot." While such visible recognition is a benefit measurably different from the other examples, stickers and other forms of recognition offer a tangible psychological reward in the short term.

(Insert Image #1 here. Image link provided at the end of manuscript and attached as jpg.)

While our discussion of prevention has been about primary prevention, for context it is worth mentioning that prevention programs are often viewed in three tiers, depending on where they enter in the progression of a disease. We will remain with primary prevention in this article, but to avoid confusion over definitions it's worth noting these three levels outlined by the Centers for Disease Control and Prevention³:

1. Primary Prevention—Intervening before health effects occur, through measures such as vaccinations, altering risky behaviors (poor eating habits, tobacco use), and banning substances known to be associated with a disease or health condition.
2. Secondary Prevention—Screening to identify diseases in the earliest stages, before the onset of signs and symptoms, through measures such as mammography and regular blood pressure testing.
3. Tertiary Prevention—Managing disease post diagnosis to slow or stop disease progression through measures such as chemotherapy, rehabilitation, and screening for complications.

We fix on primary prevention because that's where education and training can have the greatest impact, especially in low-resource regions as we discuss below.

Let's flesh out primary prevention a bit more. As the description suggests, primary prevention is any activity or policy aimed at reducing the probability of contracting a disease or disability. These can include behaviors initiated by the individual (e.g., exercising, hand washing, and eating healthy food) and initiatives imposed on the individual. They can include smoking restrictions and cigarette taxes, immunization requirements, hand washing laws for food preparation facilities, toxic substances prohibitions, seat belt laws, and other regulatory and societal constraints. They also can be less coercive and more accommodating (e.g., bike path construction, reduced gym fees, discounts on fresh vegetables and other healthy foods). They can include easy-access classes in healthy living and disease awareness, online health education programs, health education classes in school, instructional films, and podcasts.

Whether we're promoting measures enacted by the individual, explaining coercive programs, or describing programs that encourage helpful behaviors, it is useful to remember the key features we described earlier: In promoting the program, highlight the fact that you will get something good now, not just avoid something awful later.

Finally, among the most effective prevention measures are patient communications with clinicians and healthcare facilities. During office visits, in waiting rooms, and via email and routine mailers, the health system in which a patient is enrolled can provide some of the most persuasive prevention messages. A clinician's patient-contact time is limited and often quite scripted, true, but few other sources enjoy a level of trust and can influence people more than their clinicians. Clinicians, too, can add the "benefit now" to their cautions and instructions about avoiding future pain.

An education-based primary prevention program in underserved regions

We started this paper with the scenario of a medical team landing dramatically in a disaster zone in order to set the stage for a lament about the spotlight on treatment casting a shadow over efforts of prevention. Public health advocates and others who focus on prevention face the challenge of drawing attention to their work to increase public adoption of their recommendations, and to attract funders in support of ongoing programs.

The organization with which we work, WiRED International, provides medical and health education to low-resource communities around the world. Given the scarcity of professional medical services in our target regions, knowledge about prevention is especially important.

Earlier in this paper, we referred to herd immunity (or community immunity), with respect to vaccination programs. When a sufficient portion of the population is vaccinated, the entire population enjoys a level of infectious disease protection. We see a strong analogy to prevention knowledge: When a sufficient portion of the community has basic health knowledge, including the means of prevention, the entire community enjoys a level of protection. Knowledgeable members watch for signs of disease, observe prevention measures, and encourage others. An increased number of people with health and prevention knowledge benefits the entire community. Our aim is to train as many people as possible to improve the health of entire communities.

Programs like ours teach communities how to avoid infectious and chronic diseases. We structure our programs to emphasize short-term benefits along with the longer-term probability of disease avoidance. Where medical treatment is limited, prevention is especially important. Our prevention programs have taught people about HIV/AIDS, Ebola, Zika, polio, and dozens of other infections. They also have provided tens of thousands of people with prevention training for diabetes, hypertension, obesity, and other chronic conditions, again all

in places where prevention is the only reasonable approach to intervention.

Conclusion

No matter how we strive for the best possible prevention strategies, we still face the inherent banality of the topic. We can demonstrate that our programs yield speedy, positive, and observable results, along with long-term payoffs. This can improve the impact, acceptability, and visibility of our prevention programs, but still we can't match the excitement of a good medical rescue, a dramatic intervention during an outbreak, or even an office visit where the physician's prescription miraculously improves a patient's condition. Prevention specialists don't airdrop in, set up treatment tents, marshal teams to save lives during natural disasters, and they don't offer a diagnosis with the promise of relief. Instead, they hold classes and have personal conversations hoping to persuade people to follow good and often life-saving advice. At the end of the day, we know that when a prevention is successful, when every strategy we employ has been as effective as it can possibly be, the best outcome will be this: People will get up in the morning, go to work and school, and then come back home again.

Image #1 (in public domain)



<https://www.publichealth.va.gov/flu/materials/buttons.asp>

Image also attached as a jpg.

1. http://www.who.int/topics/health_promotion/en
2. <http://www.emro.who.int/about-who/public-health-functions/health-promotion-disease-prevention.html>
3. https://www.cdc.gov/pictureofamerica/pdfs/picture_of_america_prevention.pdf