

# CHAPTER 8 Health

Every day, people get sick, stay sick, or even die because of missed opportunities.<sup>1</sup> Each year, 7.6 million children under the age of five die from avoidable causes (Liu and others 2012). In countries that suffer the greatest share of these deaths, the most effective interventions are almost all preventive or therapeutic measures that should be within the reach of most households and communities, including breastfeeding, vaccinations, assisted deliveries, oral rehydration therapy, water sanitation measures that do not require major investments in infrastructure, and insecticide-treated mosquito nets (Jones and others 2003).

**Telling people that there is a way to improve their health is rarely sufficient to change behavior. Successful information campaigns are as much about social norms as they are about information.**

Health outcomes can be improved by applying the insights from behavioral economics and related fields: individuals have limited attention and act on the basis of what is salient (chapter 1); individuals intrinsically value social approval and adherence to social norms (chapter 2); and individuals have many frames (or mental models) through which they can interpret a situation (chapter 3).

## **Changing health behaviors in the face of psychological biases and social influences**

Telling people that there is a way to improve their health is rarely sufficient to change behavior. In general, successful health promotion campaigns engage people emotionally and activate or change social norms as much as they provide information. The message disseminated should be that others will support you or even applaud you if you do it, not just that something is good for you. Successful campaigns address many or most of the following: information, performance, problem solving, social support, materials, and media (Briscoe and Aboud 2012). A campaign should tell people that a behavior will improve their health (information), demonstrate and model the behavior (performance), reduce barriers to its adoption (problem solving), create a system for supporting people who choose to adopt it (social support), provide the materials necessary to begin adoption (materials), and provide a background of support through in-person, print, radio, television, and other approaches (media).

An example of a campaign that pulled together these elements occurred in Bangladesh. In 2006, more than 75 percent of urban dwellers and 60 percent of rural residents used oral rehydration salts (ORS) as a treatment for diarrhea, thanks to a prior public health campaign (Larson, Saha, and Nazrul 2009). But in addition, public health officials wanted people to use zinc (which was widely available and cheap) together with ORS, and a major campaign was introduced to increase the use of zinc as a supplement for infants, which greatly increases the rate of survival in cases of severe

diarrhea. Officials mounted a campaign that included direct marketing (painted dinner plates), community engagement and social support (courtyard meetings), and role modeling (plays, radio dramas, and television serials), as well as public displays like branded rickshaws. As a result of this campaign, knowledge about the use of zinc increased from almost zero to more than 75 percent.

### Enhancing the use of mass media

Three examples of mass media illustrate the dual challenge of changing individuals' beliefs and their health behaviors. The examples relate to breastfeeding, smoking, and HIV testing.

Breastfeeding is one of the least expensive strategies for improving the health of young children. Many mass media campaigns have encouraged breastfeeding. Evaluation of seven campaigns in developed countries found that they increased rates of initiating breastfeeding among poor women (Dyson, McCormick, and Renfrew 2006). No mass media campaigns in developing countries have been systematically evaluated, but the available information suggests that they can work when paired with local efforts that involve direct and proactive interactions with women and their social networks (Renfrew and others 2012; Naugle and Hornik 2014).

Mass media campaigns have frequently been used to reduce smoking rates. Such campaigns have been extensively studied and evaluated in developed countries, mostly in the United States, where variation in campaigns across states can be used to measure impact. These campaigns have been most effective at preventing young people from taking up smoking and in supporting individuals who have already quit smoking (see, for example, Bala and others 2013). Using community members such as teachers and parents to deliver messages and extending the campaigns over a long period (at least 12 months) increase their success. However, the reviews find no evidence that the campaigns lead smokers to quit smoking or change the social norms of smoking.

Similarly, a review of over 20 mass media campaigns to encourage HIV testing finds no long-term effects after the campaigns ended (Vidanapathirana and others 2005). In many cases, however, there are short-term effects. In the case of HIV testing, even short-term effects are socially important.

A review of the published literature evaluating all types of mass media campaigns for health echoes these findings. The campaigns effectively promote positive

behaviors and prevent negative behaviors only when the campaigns are paired with local efforts to support the desired behavior change (Wakefield, Loken, and Hornik 2010). Most campaigns are too short in duration, and some even backfire. For instance, a recent U.S. antidrug campaign targeting youth may have unintentionally increased drug use by suggesting that it was commonplace. Teens took this message to mean that it was acceptable among their peers (Wakefield, Loken, and Hornik 2010). The health information was ignored, but not the information about the social norm.

Mass media campaigns on health do not appear to be useful in changing mistaken mental models of illness because the message is filtered through the model itself. For example, over a third of poor women in India believe that increasing fluid intake for children with

**Policy makers can make major strides in improving health outcomes by understanding that people think automatically, interpret the world based on implicit mental models, and think socially.**

diarrhea makes them sicker. They follow a model in which diarrhea is interpreted as leaking; since more fluid means more leaking, it must be bad (Datta and Mullainathan 2014). With such a mental model, the message that ORS helps children survive diarrhea may fall on deaf ears, since, according to that model, ORS only increases leaking—it does not decrease it.

One opportunity for tackling mental models can come from the juxtaposition of well-known “moral” or “valuable” members of society and misunderstood illnesses or stigmatized individuals. For example, media coverage of celebrity medical diagnoses increases screening and can stimulate interest in behavior change (Ayers and others 2014). In 2011, for example, former Brazilian president Lula da Silva publicly discussed his throat cancer, which he attributed to his long-held smoking habit. His frank discussion of the illness and his own role in causing it was widely covered in the media (photo 8.1). Following his announcement, interest in quitting smoking reached unprecedented

**Photo 8.1 Former Brazilian president Lula da Silva's battle with throat cancer was widely covered in the media**



Credit: Ricardo Stuckert/Instituto Lula.

levels, and Brazil passed new antismoking laws. Figure 8.1 shows one indicator of interest—Google searches related to quitting smoking. In Brazil, these searches were 71 percent higher even four weeks after the announcement, long after the media had stopped covering Lula's diagnosis. According to Ayers, "Lula's announced cancer diagnosis, though tragic, was potentially the greatest smoking cessation-promoting event in Brazilian history" (Price 2013).

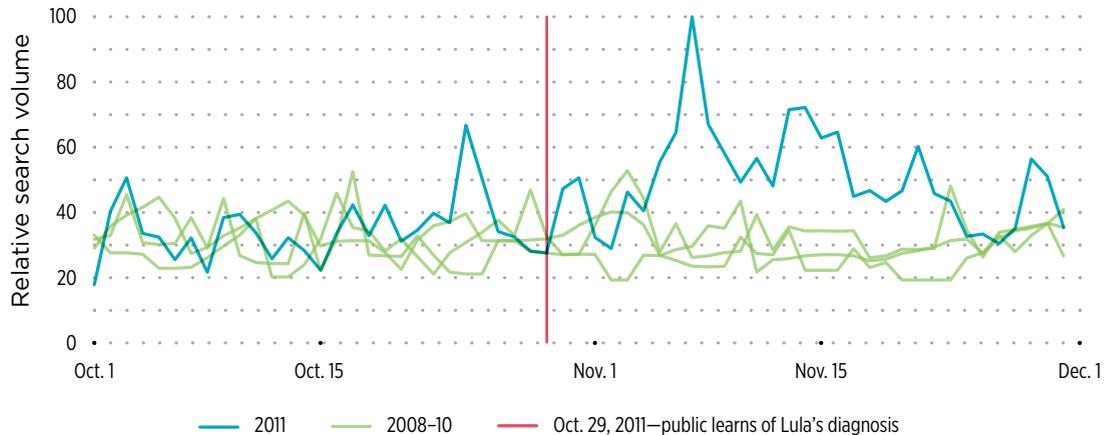
**Social learning about health care quality**

People learn about the quality of health care from each other. Typically, if an individual visits a new doctor and is cured, the word spreads and the doctor's reputation improves. But what happens when the individual visits a new doctor and does not get the medicine he sought (antibiotics or steroids, for example)? Sometimes households will take the event as evidence that the doctor is not responsive to patients' needs or does not stock the necessary medicines, rather than that the doctor knows what is best for the patient and is determined to provide the best possible care. When people learn from one another, they may all end up holding the correct beliefs, or they may all end up mistaken. For example, if a person receives a referral by one doctor to visit another doctor, households take that as a signal to avoid the referring practitioner and visit only the referred practitioner (Leonard, Adelman, and Essam 2009). This behavior prevents people from learning the underlying relationships between the practice of referral and health outcomes. Because households avoid doctors who refer their patients, they do not learn that those providers are actually better than the ones who refuse to refer their patients.

Evidence from multiple studies of rural African households (reviewed in Leonard 2014) shows that people seek to match their illness to the most appropriate

**Figure 8.1 If a well-known person has a disease, the public might think more seriously about ways to prevent it**

After former Brazilian president Lula da Silva publicly discussed his throat cancer, which he attributed to smoking, Brazilians became much more receptive to information about smoking.



Source: Ayers and others 2014.

Note: The blue line shows time trends for daily Internet searches related to quitting smoking around the time of former Brazilian president Lula da Silva's cancer diagnosis. The green lines show time trends for the same period from prior years. Search volume is measured as relative search volume (RSV), where RSV = 100 is the day with the highest search proportion, and RSV = 50 is a day with 50 percent of that highest proportion.

health care provider. When a new option or a new doctor becomes available, they are particularly interested to hear about others' experiences. They are more likely to visit a doctor when someone in their close community has recently visited that provider and had a good outcome (Leonard, Adelman, and Essam 2009). By following this simple process of updating expectations in the face of the unknown, households in Tanzania made better decisions over time and visited better doctors, as objectively measured by medical experts (Leonard, Mliga, and Haile Mariam 2002). The process of social learning, though, even when it is useful, can be very slow. For example, it took between three and four years for communities to learn whether new doctors in their area gave good or bad advice (Leonard 2007).

Unlike information about how to improve their health (which is often ignored), information that aids households in seeking the best available care, based on realistic assessments of the capabilities and quality of the facilities from which households can choose, is likely to be very useful because households are already seeking this information. Better information could help them make better decisions more quickly.

## Psychological and social approaches to changing health behavior

Even after people accept information, they do not always act on it. The zinc campaign discussed earlier succeeded in educating 75 percent of Bangladeshis, but two years after the program, zinc was used in only 35 percent of the indicated cases. Although there are many models of health behavior,<sup>2</sup> an assumption common to most is that people carefully weigh the benefits and barriers to adoption against their susceptibility to, and the likely severity of, bad outcomes if they do not adopt. That is, the standard models assume that individuals think deliberatively, not automatically. But as chapter 1 showed, the reverse is actually true.

Imagine someone who considers getting tested for tuberculosis: she knows she has a chance of being infected and that the illness is severe. But at the same time, taking the test would require her to leave work early and stand in a line at a clinic. Studies about how people make decisions about health care have consistently found that people tend to consider the benefits and barriers, while ignoring susceptibility and severity (Zimmerman and Vernberg 1994; Carpenter 2010). Thus people will often forgo preventive medicine because of small obstacles, even when they know that they are highly susceptible and face potentially severe consequences. Individuals frame the problem too narrowly.

Inducing people to take more preventive care is difficult, but a deeper understanding of the way people think can help. One possibility, for example, is to reduce barriers to the desired behavior by making the exact steps needed for the preventive care more salient or by providing a small material incentive. It is also possible to alter the way people weigh the benefits of action by using nudges and other behavioral tools to alter the choice architecture (Thaler and Sunstein 2008). In addition, it may be possible to change behavior by changing the beliefs a person holds that are not related to the private benefits and costs of a given health measure, including beliefs that others would approve of the behavior, beliefs that others engage in the behavior, and beliefs in one's ability to perform the behavior (self-efficacy). In addition, people may be more willing to engage in the behavior if they know they will receive support, reinforcement, feedback, or reminders.

The discussion that follows gives several examples of the first two methods: presenting advice in ways that recognize how people make decisions, and reducing the barriers to changing behaviors. The second two methods—community-level models of behavior and the use of support, reinforcement, and feedback—are covered in the upcoming section on follow-through and habit formation.

### Framing information about vaccinations and HIV testing

There is a world of difference between these two statements—"If you get the flu vaccine, you will be less likely to get the flu" versus "If you do not get the flu vaccine, you are more likely to get the flu"—even though they contain the same information. In a review of 94 studies comparing gain-framed to loss-framed messages, gain-framed messages consistently improved adoption of preventive behaviors (such as vaccinations) when compared to loss-framed messages with the same objective information (Gallagher and Updegraff 2012). Interestingly, people who hear one or the other of the two messages are equally likely to say that they want to seek preventive care, but people who hear the first message are much more likely to follow through and actually get the vaccine. In general, the same information can be presented in different ways to improve actual behavior.

Chapter 1 described how raising the number of free test reports, from three to four, that a testing agency routinely sent to colleges had the effect of increasing the number of low-income students attending selective colleges. More generally, many program choices entail a default condition in which people either can choose

to do something when asked (opt in) or are automatically enrolled but given the choice to withdraw (opt out). When using a preventive service is believed to make all or most people better off, and when, even for those who do not gain from it, the cost is small, then wherever possible, it is better to present preventive services on an opt-out basis: the default should be set to the behavior that would make most people better off. Health care is full of examples of opt-out activities. The doctor takes patients' pulse and temperature without asking them if they think it would be a good idea, for example. Surgical consent forms are designed to present the doctors' recommendations as the default, forcing the patient to find an alternative.

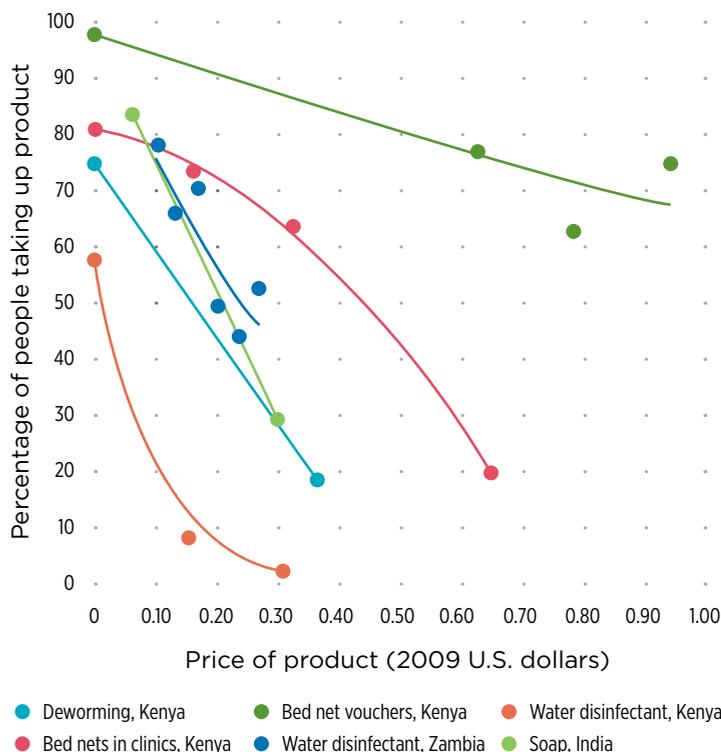
What is the potential for increasing the number of defaulted behaviors? HIV testing is an area in which a change from opt in to opt out has been extensively studied. In 2004, the World Health Organization initi-

ated a shift in its approach to counseling and testing for HIV by declaring an opt-out approach to be ethically acceptable for certain populations (specifically including people with tuberculosis). Reviews of programs that compare the opt-in to the opt-out default generally find increased testing rates, but they also find low levels of testing in either program (see, for example, Baisley and others 2012). Most often, the reason is that the health services that provide counseling and testing have shortcomings of infrastructure, incentives, or governance (Roura and others 2013). In addition, some of the studies find that the increased rate of testing did not result in more detection of HIV/AIDS, suggesting that the additional people tested because of the new defaults were from populations that had not been exposed to HIV/AIDS.

Opt-out defaults are likely to increase the use of preventive services when health systems are able to provide them. However—as in the case of HIV-negative patients not opting out of testing—this improvement may occur at the cost of bringing in people for whom these services are less useful.

### Figure 8.2 Take-up of health products drops precipitously in response to very small fees

Policies often set the prices of preventive health care products low to promote access while also providing a revenue stream to providers. But if access is important, it makes sense to bring the price all the way down to zero. A series of evaluations finds that even small price increases above zero lead to large drops in the number of people who choose to buy health products.



Source: Abdul Latif Jameel Poverty Action Lab 2011.

### Prices as a source of meaning

Because the most obvious barrier to adopting new behavior is cost, lowering prices should be the best way to improve adoption. But prices have many meanings besides a value in exchange. Prices at or near zero may constitute a special threshold, according to a review by Kremer and Glennerster (2011). People are willing to adopt many health goods at a price of zero (or almost zero) but almost completely unwilling to adopt it at prices just slightly above zero (see figure 8.2). The study demonstrates this effect for deworming medicine, mosquito nets, water disinfectants, and soap.

It appears that prices contain at least two different signals for people. First, low prices make things more affordable. But *free* means something special. When prices fall toward zero, *free* may convey a social norm: we all should be doing this. *Free* allows people to experiment with a product when they are uncertain of its value, and *free* can have an affective influence (an individual is excited to have *won* the opportunity to get something free). Households given free mosquito nets may use them differently from the way households that purchase subsidized mosquito nets use them and may be more likely to use them for their children, possibly responding to a social signal in the price (Hoffmann 2009). Perhaps households adopt new technologies that are free in the short run, and then after they have experienced their value, they become willing to pay positive prices for them later, as Dupas (2014) suggests. People are less likely to adopt a free option if

they have been asked to reflect carefully on its value in comparison to a positively priced item, as Shampanier, Mazar, and Ariely (2007) show. This finding suggests that the immediate response to free items is not fully rational. At least in some cases, it is based on an automatic, not a reasoned, response.

When things are free, however, people may overconsume or waste the product. Positive prices may also help target goods to where they can do the most good. And for curative medicine, the willingness to pay can be high (Ashraf, Jack, and Kamenica 2013).

The cognitive effect of free or minimal pricing is a new area of research in developing countries, and much will be learned over the coming decade. However, policy makers can already begin to think about how to signal the excitement that is contained in the word *free* without incurring the costs of offering a zero price. If the good is important to health and has positive externalities, if demand for the good is otherwise low, and if waste is not a large concern, then reducing the price to zero should be considered for the sake of the affective response it can invoke. Vaccinations, for example, meet these conditions.

In contrast, if waste is a large concern, prices should be kept above zero, and social norms should be invoked to increase demand for the good. The positive prices are a targeting mechanism: they help ensure that the right people are buying the good or service. Coupons, prizes, public celebrations, and media can all be used to create or strengthen a social norm or generate an affective response, even if prices are not zero.

### **Conditional cash transfers and commitment mechanisms**

In some cases, goods and services are free and people still do not use them. Many preventive services, such as antenatal services, are provided free but are underutilized. One well-documented way to increase use is to create conditional cash transfers (CCTs) where, for example, women receive payments for going to the antenatal clinic but forfeit them if they fail to go. On the surface, these programs do not appear to use anything but standard economic incentives to improve behavior, but, considered more broadly, some incentive programs reveal interesting behaviors. Banerjee and others (2010) examine a program in which women received free lentils and plates as an incentive to immunize their children. Many parents were taking their children to receive at least one vaccination, but were not following through to complete the entire series. The incentive helped increase the rates of full immunization. Thus, even when people value services (many parents made sure that their children were partially immunized),

money can help people focus on completing a full course of action.

Commitment devices can help people follow through on intentions to change behavior. In a case involving smokers in the Philippines (Giné, Karlan, and Zinman 2010), people voluntarily deposited their own money in accounts that would be forfeited if they did not quit smoking; participating in this experiment did indeed help smokers quit (and not resume) smoking. The randomly selected individuals offered this opportunity were 3 percent more likely to quit (as measured one year later). Eleven percent of people offered the opportunity chose to commit their own funds, and 34 percent of them made good on their intentions.

### **Asking people why they don't seek care is not useful**

Asking people why they forgo care that would seem to make them better off is generally not helpful for forming policy. The studies often appear to have great predictive power, in that what people say matches what they do. However, this is deceptive because people adapt their beliefs to match their behavior (Harrison, Mullen, and Green 1992), and thus while the studies tell us that people did choose a certain behavior, they do not tell us why. These studies do a better job of explaining and predicting intentions than actions. Thus surveys of knowledge, attitudes, and practices (so-called KAP studies) fail to identify explicit ways to change behavior.

### **Improving follow-through and habit formation**

As discussed, sometimes people form intentions to adopt preventive actions but do not follow through. They intend to change, but before an activity becomes a habit, it is difficult for them to maintain the energy and focus to carry out their good intentions. The key to behavioral interventions is to make the long-term benefits of adherence salient in the short term. Individuals often do not need information about distant benefits; they need to experience immediate benefits. A good example of how immediate benefits can help improve adherence is HIV/AIDS treatment in Africa. Despite significant additional difficulties in access, education, and information, Mills and others (2006) found that baseline adherence to antiretroviral therapy (ART) was much higher among African patients than among patients in developed countries like the United States, primarily because the African patients were sicker when they first received care and therefore felt the benefits of ART more immediately. Adherence is easier when the benefits are salient on a day-to-day basis.

### Using reminders to increase adherence to medical regimens

One of the most rapidly expanding tools in health care is the use of mobile phones to communicate regularly with populations that were previously difficult to reach. There has been positive experience in multiple settings with reminders, now easily sent through text messaging. In developed countries, there is robust evidence of the effectiveness of using mobile technologies to remind people to attend health appointments (Tomlinson and others 2013).

The evidence in developing countries is more mixed—not because the technology is not effective but because few studies have been carefully evaluated. Systematic reviews of the existing evidence in developing countries recommend implementation and scaling up but caution that little evidence points to what works best in different situations (Cole-Lewis and Kershaw 2010). They suggest that mobile messages are more likely to be effective when there is follow-up, when the message is personally tailored to the recipient, and when the frequency, wording, and content are highly relevant to the patient. Blasting text messages to large portions of the population reminding them of all the things they can do to improve their health is likely to be a waste of resources: the messages are not salient or tailored. Indeed, Pop-Eleches and others (2011) find that daily messages about adherence to ART for HIV/AIDS are not effective but that weekly messages are, suggesting that people are not forgetting to take their medicine (taken daily) but rather need a reinforcing message on a less frequent basis (see figure 8.3).

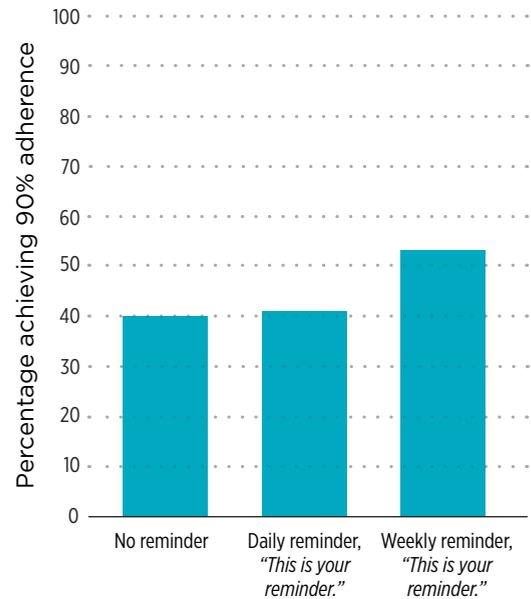
### Triggering community-level responses

Patients are more likely to adopt a new health practice when their experience with the provider has been positive (Peltzer and others 2002) or if they have positive responses from their community. A good experience with the provider gives patients a sense of immediate satisfaction when they follow through, similar to the sense of satisfaction from conforming to community norms. In the latter case, community feedback becomes the benefit. Thus even when there are no immediate benefits to adherence or adoption, community reinforcement can be generated by encouraging adoption at the community level.

Consider one of the biggest causes of health problems in the world, open defecation. Globally, 2.5 billion people have inadequate sanitation; 1.2 billion defecate in the open. Lack of sanitation causes a tremendous disease burden among the poor, especially poor infants and young children. Each year, more than 1.5 million children under the age of five die from diarrhea

### Figure 8.3 Text message reminders can improve adherence to lifesaving drugs

Text message reminders improved adherence to antiretroviral therapy in a study among HIV/AIDS patients in Kenya. Although reminders have been used for other behaviors as well, especially saving, not all reminders work the same way. In this case, people seemed to tune out reminders that arrived daily.



Source: Pop-Eleches and others 2011.

resulting from inadequate and unsafe water, poor sanitation, and unhygienic practices (UNICEF and WHO 2009). New evidence discussed by Spears, Ghosh, and Cumming (2013) links open defecation to stunting. By reducing normal nutrient absorption, diarrheal diseases lead to impaired physical growth and cognitive development.

The traditional approach to ending open defecation was to provide information to communities about the transmission of disease and to subsidize the construction of toilets. An alternative approach, Community-Led Total Sanitation (CLTS),<sup>3</sup> aims to generate demand for a community free of open defecation and to elicit from the community itself an increase in the supply of sanitation products. It does this by raising collective awareness of the sanitation problem. Facilitators are sent to the community to initiate discussions, which are held in public places and involve a “walk of shame,” during which groups walk to places that have been used for open defecation, collect some of the feces, place it on the ground next to a bowl of rice, and watch as flies move between the feces and the rice. Then the CLTS facilitator asks community members, “Would you like to eat the rice?” Although people know that

flies travel, the image of food and feces next to each other triggers an emotional response (disgust) that makes it difficult for them to forget their own intention to change behavior. The program stimulates a desire by the villagers to end open defecation and to forge their own plan for achieving it, with limited follow-up support. Communities that become open-defecation free receive recognition by local governments.

Until recently, the available evidence on the success of CLTS was from small-scale interventions. In 2007, local and national governments in rural India and Indonesia,<sup>4</sup> with technical support from an international sanitation program, began implementing the first large-scale CLTS programs to be experimentally evaluated (Cameron, Shah, and Olivia 2013). Some communities were randomly selected to receive the treatment, while others were randomly selected to serve as controls and not to receive the treatment within the period of the evaluation. As shown in figure 8.4, the CLTS programs were found to decrease open defecation by 7 percent and 11 percent from very high levels in Indonesia and India, respectively, compared to the control villages. Additional findings suggest that CLTS can complement, but perhaps not substitute for, resources for building toilets. In India, the CLTS program was combined with a subsidy for toilet construction, and the impact on toilet construction—20 percentage points—was greater than that in Indonesia. In summary, a comparison of outcomes in treatment and control communities shows declines in open defecation and increases in toilet construction. A program to change social norms about sanitation in these two countries was important but not sufficient to end open defecation.

### Encouraging health care providers to do the right things for others

Health is co-created by patients, doctors, nurses, other experts, community health workers, and household members.<sup>5</sup> As Ashraf (2013) has noted, “Health isn’t something that can be handed to people; it is a state that they must produce themselves by interacting with a health care system . . . providers and recipients co-create health” (120–23). A key element in the production of health is the trust that patients have in their providers: trust to seek care, trust to follow through on the prescribed treatment, and trust to understand messages about what is good for them. Such trust is not possible in a system that provides low-quality care.

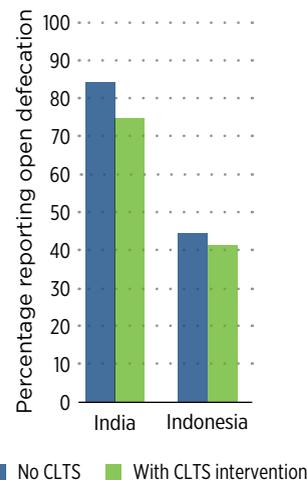
Why do health care providers sometimes provide low-quality care? It is not sufficient to focus only on material incentives for providing quality care.

### Figure 8.4 Changing social norms is important but not sufficient for ending open defecation

Community-Led Total Sanitation (CLTS) is a methodology for engaging communities in eliminating open defecation. It tries to trigger collective shame and disgust for the implications of open defecation.

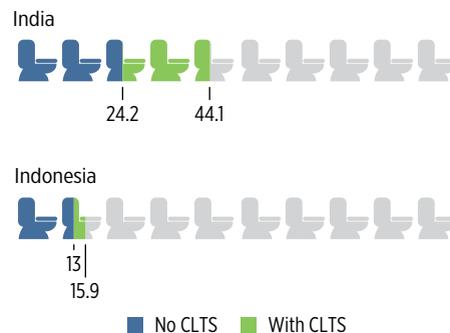
Randomized controlled trials have tested the effectiveness of CLTS implemented at scale in Madhya Pradesh, India, and East Java, Indonesia.

Open defecation decreased.



The program increased toilet construction, with a particularly large effect in India, where the CLTS program was combined with a subsidy for toilet construction.

### Percentage of households with a toilet



Sources: Patil and others 2014; Cameron, Shah, and Olivia 2013.

Note: The study in Indonesia measured the presence of a toilet that was constructed in the two years prior to the survey.

Empirical work points to many additional factors. Even with the best training, health care providers suffer from the same biases as everyone else. They cannot consider all possible symptoms, conditions, diagnoses, and treatments. They must use simplifying rules and heuristics to do their job, and these heuristics can lead to systematic mistakes (Croskerry 2002). Many of these biases have been discussed in previous chapters: anchoring, the availability and representativeness of heuristics, framing effects, overconfidence bias, and confirmation bias. In addition, some biases are more specific to health care and to the relationship between providers and their patients. For example, “diagnosis momentum” occurs when changing a diagnosis feels harder than keeping it, despite new evidence that runs counter to the original diagnosis. “Fundamental attribution error” occurs when health workers blame their patients for their symptoms rather than looking for other causes. “Gender bias” occurs when health workers assume that gender is a factor in an illness even when the evidence is not supportive. “Outcome bias” results when health workers choose the diagnosis that has the best possible outcome (essentially hoping for the best), despite evidence that points to a different diagnosis. Health workers suffer from “premature closure,” ending their careful consideration of a case as soon as they have a plausible diagnosis but before they can be sure.

Health workers also suffer from a “visceral bias,” in which liking or disliking the patient causes them to rule out certain outcomes too soon (Croskerry 2002). This bias is especially likely when a patient suffers from a stigmatized illness or is a member of a stigmatized population. Such a patient is less likely to seek care in the first place, and when he does, he is much less likely to receive the type of care he needs. The bias can be subtle, in the sense of premature diagnoses, or severe. In its worst manifestation, the health system assigns a low priority to illnesses suffered by an entire population (Gauri and Lieberman 2006; Lieberman 2009), health care providers refuse to provide service, and afflicted individuals are reluctant to seek treatment for even life-threatening health problems.

Thus, there is also a gap between knowledge and actions. Recent studies in Tanzania (Leonard, Masatu, and Vialou 2007; Leonard and Masatu 2010) found that in sessions with a patient, almost half the doctors did not touch the patient and therefore did not know the patient’s temperature, respiratory rate, pulse, and the like. The research found that the doctors knew much of what they were supposed to do and were even willing to demonstrate all the proper steps to the research team. They decided not to do what they knew they

should. In Delhi, India, Das and Hammer (2007) found that some of the most qualified doctors were the least likely to follow through on their knowledge, implying that the doctors with the highest qualifications were not providing the best medicine. Many other studies have also found that, although knowledge could be higher, doctors do not use the knowledge they already possess (Das and others 2012). As a result, there has been a shift from a focus on competence to a focus on the “know-do” gap, the difference between competence and performance (Rowe and others 2005; Das, Hammer, and Leonard 2008; Das and others 2012). Given the existence of that gap, increasing spending on training will not improve quality, and it is time to focus on ways to get doctors to put into practice what they already know.

### **Reminders for adhering to protocols**

Often, simply reminding health workers of the social expectations of their performance can improve it. Evidence from almost 100 studies on the impact of peer visits to remind health workers about best practices finds that these visits have an impact—but not because they introduced a financial incentive to improve quality (Jamtvedt and others 2007). For example, clinicians in urban Tanzania significantly increased their effort when a visiting peer simply asked them to improve their care (Brock, Lange, and Leonard, forthcoming). In that study, there was no new information or change in incentives or material consequences from the visit. Health workers already have the competence to improve quality and will respond to visits by their peers that set new expectations or remind them of existing expectations. Indeed, supportive supervision (regular contact with medical peers who provide reminders of expectations, not enforcement of rules or regulations) is necessary for sustained success, a review of the literature on successful community health worker programs concludes (Jaskiewicz and Tulenko 2012). Even for community health workers, who are serving their neighbors and should be the most likely to be motivated by prosocial preferences, exposure to peers and supervisors (not neighbors) is necessary to sustain norms of professional behavior.

### **Professional and service norms in recruitment and quality assurance**

Reminding health workers about the impact of their actions on the welfare of their patients and on their reputation among peers can improve service quality. Most health workers are responsive to the norms set by their peers, which is a type of professionalism (Freidson 2001; Akerlof and Kranton 2005). How can

policy makers create or activate a professional norm in settings where quality is low? The literature offers many examples in which leadership transformed an underperforming health service into a high-quality service with motivated providers at all levels (see, for example, Tendler 1997; Wasi 2000; Hall and Lamont 2009; Wibulpolprasert and others 2011). The success stories point to the fact that the transformation is possible, but they cannot isolate the elements of a solution that would work in all places.

Programs that pay providers to improve quality or quantity of services (pay for performance or results-based financing) have gained attention recently, in part based on the success documented in Rwanda (Basinga and others 2011). Providers in that study responded dramatically to a change in financing from input-based (paying for what is needed) to reward-based (paying staff bonuses if certain targets are met with respect to assisted deliveries, vaccinations, or well-baby visits, for example). This might suggest that monetary incentives are the solution and that behavioral interventions are not important. However, a careful examination of pay-for-performance incentive programs such as that in Rwanda reveals that the programs not only use monetary incentives but also expand autonomy, accountability, team-based recognition of effort, and exposure to external peers. All these aspects could increase quality by activating professional norms.

Growing evidence indicates that health workers respond well to social cues in the form of recognition and gifts (for more on this, see chapter 7). When health workers are given small gifts like a book or a pen, they will respond by improving the quality of care they provide, in some cases, for significant periods of time (Currie, Lin, and Meng 2013; Brock, Lange, and Leonard, forthcoming). In addition, health workers respond to the recognition that comes from awards and token prizes like stars to display in the workplace and congratulatory plaques (Ashraf, Bandiera, and Jack, forthcoming). This response to gifts and tokens makes little sense in standard economic models but can be easily understood in the terms laid out in part 1: in this broader view, gifts can be understood as a way of making social ties and connections more salient, activating a frame of gift giving, and signaling social approval.

## Conclusion

Understanding that people think automatically, interpret the world based on implicit mental models, and think socially allows policy makers to make major strides in improving health outcomes. Individuals sometimes value information highly (for example, when seeking curative care), but at other times

providing information is not sufficient to get people to change behaviors that undermine health. Framing effects that make social expectations and social approval more salient can sometimes encourage individuals to seek preventive care and adhere to treatment when they otherwise would not, even though the individual benefits exceed the individual costs. Individuals can suffer from an intention-action divide and

**Whereas increasing information or knowledge is often not helpful or sufficient, simply reminding health workers of social expectations about their performance can improve it.**

so can health care providers, and commitment devices and reminders can narrow those divides. Appealing to social expectations and professional standards can lead to significant improvements in the actions of providers. When providers act in the best interests of their patients, their patients are likely to notice and increase their trust in the advice provided by these same providers, which should lead to further improvements in health outcomes.<sup>6</sup>

## Notes

1. This chapter benefited from a number of recent review pieces, notably, Frederick, Loewenstein, and O'Donoghue (2002); DellaVigna (2009); Dupas (2011); Kremer and Glennerster (2011); Lawless, Nayga, and Drichoutis (2013); and Kessler and Zhang (forthcoming).
2. See Noar and Zimmerman (2005) for a survey of elements in health behavior models, including the Health Belief Model, the Theory of Reasoned Action, the Theory of Planned Behavior, the Social Cognition Theory, and the Transtheoretical Model.
3. Kamal Kar developed CLTS in Bangladesh in 2000. Since then, CLTS has been used in over 60 countries and has become national policy in at least 20 countries.
4. The program was also launched in a third country, Tanzania, but results from this case are not yet available.
5. Recognizing the economic implications of co-created health has been proposed as one of the unique features of traditional medicine in Africa (Leonard and Graff Zivin 2005); it may be that this indigenous institution represents the first foray into behavioral health.
6. This chapter was based on a systematic literature review using the following methods. In October 2013, we conducted keyword searches of the following

databases: Academic Search Premier, Econlit, PsycINFO, PsycARTICLES, and PsycAbstracts. The search was restricted to academic articles published after 1990. We used search terms related to the following categories: social norms, present bias, status quo bias, and trust/persuasion intersecting with the following diseases: pneumonia, measles, diarrhea, malaria, and tuberculosis, HIV/AIDS, smoking, and obesity. Due to the large number of hits for HIV/AIDS, smoking, and obesity, the evidence presented for these three fields is based on Cochrane Reviews of behavioral interventions. The abstracts of the extracted articles were reviewed and only papers meeting the following criteria were considered. First, only studies in English and studies with human subjects were included. Second, studies that were not directly relevant to one of the five diseases and one of the keyword categories were excluded. This restriction accounts for the fact that some of the articles that were identified in the keyword search used the keywords to illustrate a different concept than the behavioral biases we are interested in. Other articles focused on a different disease but mentioned the disease of interest in passing, for example, as a side effect. The third selection criterion was that the study had to contain an evaluation of an intervention (a randomized controlled trial, pre-post study, natural experiment, or the like) or a lab or field economic experiment. Finally, studies that contained only qualitative data from interviews and opinions about different interventions were also excluded.

## References

- Abdul Latif Jameel Poverty Action Lab. 2011. "The Price Is Wrong: Charging Small Fees Dramatically Reduces Access to Important Products for the Poor." April Bulletin. <http://www.povertyactionlab.org/publication/the-price-is-wrong>.
- Akerlof, George A., and Rachel E. Kranton. 2005. "Identity and the Economics of Organizations." *Journal of Economic Perspectives* 19 (1): 9–32.
- Ashraf, Nava. 2013. "Rx: Human Nature." *Harvard Business Review* 91 (4): 119–25.
- Ashraf, Nava, Oriana Bandiera, and B. Kelsey Jack. Forthcoming. "No Margin, No Mission? A Field Experiment on Incentives for Public Service Delivery." *Journal of Public Economics*.
- Ashraf, Nava, B. Kelsey Jack, and Emir Kamenica. 2013. "Information and Subsidies: Complements or Substitutes?" *Journal of Economic Behavior and Organization* 88: 133–39.
- Ayers, John W., Benjamin M. Althouse, Seth M. Noar, and Joanna E. Cohen. 2014. "Do Celebrity Cancer Diagnoses Promote Primary Cancer Prevention?" *Preventive Medicine* 58: 81–84.
- Baisley, Kathy, Aoife M. Doyle, John Changalucha, Kaballa Maganja, Deborah Watson-Jones, Richard Hayes, and David Ross. 2012. "Uptake of Voluntary Counseling and Testing among Young People Participating in an HIV Prevention Trial: Comparison of Opt-out and Opt-in Strategies." *PLoS ONE* 7 (7): e42108. doi: 10.1371/journal.pone.0042108.
- Bala, Malgorzata M., Lukasz Strzeszynski, Roman Topor-Madry, and Kate Cahill. 2013. "Mass Media Interventions for Smoking Cessation in Adults." *Cochrane Database of Systematic Reviews* January 23 (1): CD004704. doi: 10.1002/14651858.CD004704.pub2.
- Banerjee, Abhijit Vinayak, Esther Duflo, Rachel Glennerster, and Dhruva Kothari. 2010. "Improving Immunisation Coverage in Rural India: Clustered Randomised Controlled Evaluation of Immunisation Campaigns with and without Incentives." *BMJ* 2010 (340): c2220. doi: <http://dx.doi.org/10.1136/bmj.c2220>.
- Basinga, Paulin, Paul J. Gertler, Agnes Soucat, and Jennifer Sturdy. 2011. "Effect on Maternal and Child Health Services in Rwanda of Payment to Primary Health-Care Providers for Performance: An Impact Evaluation." *Lancet* 377 (9775): 1421–28.
- Briscoe, Ciara, and Frances Aboud. 2012. "Behaviour Change Communication Targeting Four Health Behaviours in Developing Countries: A Review of Change Techniques." *Social Science and Medicine* 75 (4): 612–21.
- Brock, J. Michelle, Andreas Lange, and Kenneth L. Leonard. 2014. "Giving and Promising Gifts: Experimental Evidence on Reciprocity from the Field." Working Paper 165, European Bank for Reconstruction and Development, London.
- . Forthcoming. "Generosity and Prosocial Behavior in Health Care Provision: Evidence from the Laboratory and Field." *Journal of Human Resources*.
- Cameron, Lisa, Manisha Shah, and Susan Olivia. 2013. "Impact Evaluation of a Large-Scale Rural Sanitation Project in Indonesia." Policy Research Working Paper 6360, World Bank, Washington, DC.
- Carpenter, Christopher J. 2010. "A Meta-Analysis of the Effectiveness of Health Belief Model Variables in Predicting Behavior." *Health Communication* 25 (8): 661–69.
- Cole-Lewis, Heather, and Trace Kershaw. 2010. "Text Messaging as a Tool for Behavior Change in Disease Prevention and Management." *Epidemiologic Reviews* 32: 56–69.
- Croskerry, Pat. 2002. "Achieving Quality in Clinical Decision Making: Cognitive Strategies and Detection of Bias." *Academic Emergency Medicine* 9 (11): 1184–1204.
- Currie, Janet, Wanchuan Lin, and Juanjuan Meng. 2013. "Social Networks and Externalities from Gift Exchange: Evidence from a Field Experiment." *Journal of Public Economics* 107 (November): 19–30.
- Das, Jishnu, and Jeffrey Hammer. 2007. "Money for Nothing: The Dire Straits of Medical Practice in Delhi, India." *Journal of Development Economics* 83 (1): 1–36.
- Das, Jishnu, Jeffrey S. Hammer, and Kenneth L. Leonard. 2008. "The Quality of Medical Advice in Low-Income Countries." *Journal of Economic Perspectives* 22 (2): 93–114.

- Das, Jishnu, Alaka Holla, Veena Das, Manoj Mohanan, Diana Tabak, and Brian Chan. 2012. "In Urban and Rural India, a Standardized Patient Study Showed Low Levels of Provider Training and Huge Quality Gaps." *Health Affairs* 31 (12): 2774–84.
- Datta, Saugato, and Sendhil Mullainathan. 2014. "Behavioral Design: A New Approach to Development Policy." *Review of Income and Wealth* 60 (1): 7–35.
- DellaVigna, Stefano. 2009. "Psychology and Economics: Evidence from the Field." *Journal of Economic Literature* 47 (2): 315–72.
- Dupas, Pascaline. 2011. "Health Behavior in Developing Countries." *Annual Review of Economics* 3 (1): 425–49.
- . 2014. "Short-Run Subsidies and Long-Run Adoption of New Health Products: Evidence from a Field Experiment." *Econometrica* 82 (1): 197–228.
- Dyson, Lisa, F. McCormick, and Mary J. Renfrew. 2006. "Interventions for Promoting the Initiation of Breast-feeding." *Evidence-Based Child Health: A Cochrane Review Journal* 1 (2): 592–616.
- Frederick, Shane, George Loewenstein, and Ted O'Donoghue. 2002. "Time Discounting and Time Preference: A Critical Review." *Journal of Economic Literature* 40 (2): 351–401.
- Freidson, Eliot. 2001. *Professionalism: The Third Logic*. Chicago: University of Chicago Press.
- Gallagher, Kristel M., and John A. Updegraff. 2012. "Health Message Framing Effects on Attitudes, Intentions, and Behavior: A Meta-Analytic Review." *Annals of Behavioral Medicine* 43 (1): 101–16.
- Gauri, Varun, and Evan S. Lieberman. 2006. "Boundary Institutions and HIV/AIDS Policy in Brazil and South Africa." *Studies in Comparative International Development* 41 (3): 47–73.
- Giné, Xavier, Dean Karlan, and Jonathan Zinman. 2010. "Put Your Money Where Your Butt Is: A Commitment Contract for Smoking Cessation." *American Economic Journal: Applied Economics* 2 (4): 213–35.
- Hall, Peter A., and Michèle Lamont, eds. 2009. *Successful Societies: How Institutions and Culture Affect Health*. New York: Cambridge University Press.
- Harrison, J. A., P. D. Mullen, and L. W. Green. 1992. "A Meta-Analysis of Studies of the Health Belief Model with Adults." *Health Education Research* 7 (1): 107–16.
- Hoffmann, Vivian. 2009. "Intrahousehold Allocation of Free and Purchased Mosquito Nets." *American Economic Review* 99 (2): 236–41.
- Jamtvedt, G., J. M. Young, D. T. Kristoffersen, M. A. O'Brien, and A. D. Oxman. 2007. "Audit and Feedback: Effects on Professional Practice and Health Care Outcomes." Cochrane Library. <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD000259.pub2/abstract>.
- Jaskiewicz, Wanda, and Kate Tulenko. 2012. "Increasing Community Health Worker Productivity and Effectiveness: A Review of the Influence of the Work Environment." *Human Resources for Health* 10 (1): 38. doi: 10.1186/1478-4491-10-38.
- Jones, Gareth, Richard W. Steketee, Robert E. Black, Zulfiqar A. Bhutta, and Saul S. Morris. 2003. "How Many Child Deaths Can We Prevent This Year?" *Lancet* 362 (9377): 65–71.
- Kessler, Judd B., and C. Yiwei Zhang. Forthcoming. "Behavioral Economics and Health." *The Oxford Textbook of Public Health*. [http://assets.wharton.upenn.edu/~czhan/KesslerZhang\\_BehavioralEconomicsHealth.pdf](http://assets.wharton.upenn.edu/~czhan/KesslerZhang_BehavioralEconomicsHealth.pdf).
- Kremer, Michael, and Rachel Glennerster. 2011. "Improving Health in Developing Countries: Evidence from Randomized Evaluations." In *Handbook of Health Economics*, Vol. 2, edited by Thomas G. McGuire, Mark V. Pauly, and Pedro P. Barros, 201–315. Amsterdam: Elsevier.
- Larson, Charles P., Unnati Rani Saha, and Hazera Nazrul. 2009. "Impact Monitoring of the National Scale Up of Zinc Treatment for Childhood Diarrhea in Bangladesh: Repeat Ecologic Surveys." *PLoS Med* 6 (11): e1000175.
- Lawless, Lydia J. R., Rodolfo Nayga, and Andreas Drichoutis. 2013. "Time Preference and Health Behavior: A Review." *Agricultural and Food Economics* 1: 17. doi: 10.1186/2193-7532-1-17.
- Leonard, K. L. 2007. "Learning in Health Care: Evidence of Learning about Clinician Quality in Tanzania." *Economic Development and Cultural Change* 55 (3): 531–55.
- . 2014. "Active Patients' in Rural African Health Care: Implications for Research and Policy." *Health Policy and Planning* 29 (1): 85–95.
- Leonard, Kenneth L., Sarah W. Adelman, and Timothy Essam. 2009. "Idle Chatter or Learning? Evidence of Social Learning about Clinicians and the Health System from Rural Tanzania." *Social Science and Medicine* 69 (2): 183–90.
- Leonard, Kenneth L., and Melkiory C. Masatu. 2010. "Using the Hawthorne Effect to Examine the Gap between a Doctor's Best Possible Practice and Actual Performance." *Journal of Development Economics* 93 (2): 226–34.
- Leonard, Kenneth L., Melkiory C. Masatu, and Alexandre Vialou. 2007. "Getting Doctors to Do Their Best: The Roles of Ability and Motivation in Health Care Quality." *Journal of Human Resources* 42 (3): 682–700.
- Leonard, Kenneth L., Gilbert R. Mliga, and Daman Haile Mariam. 2002. "Bypassing Health Centres in Tanzania: Revealed Preferences for Quality." *Journal of African Economies* 11 (4): 441–71.
- Leonard, Kenneth L., and Joshua Graff Zivin. 2005. "Outcome versus Service Based Payments in Health Care: Lessons from African Traditional Healers." *Health Economics* 14 (6): 575–93.
- Lieberman, Evan S. 2009. *Boundaries of Contagion: How Ethnic Politics Have Shaped Government Responses to AIDS*. Princeton, NJ: Princeton University Press.
- Liu, Li, Hope L. Johnson, Simon Cousens, Jamie Perin, Susana Scott, Joy E. Lawn, Igor Rudan, Harry Campbell, Richard Cibulskis, and Mengying Li. 2012. "Global, Regional, and National Causes of Child Mortality:

- An Updated Systematic Analysis for 2010 with Time Trends since 2000." *Lancet* 379 (9832): 2151–61.
- Mills, Edward J., Jean B. Nachega, Iain Buchan, James Orbinski, Amir Attaran, Sonal Singh, Beth Rachlis, Ping Wu, Curtis Cooper, and Lehana Thabane. 2006. "Adherence to Antiretroviral Therapy in Sub-Saharan Africa and North America: A Meta-Analysis." *JAMA* 296 (6): 679–90.
- Naugle, Danielle A., and Robert C. Hornik. 2014. "Systematic Review of the Effectiveness of Mass Media Interventions for Child Survival in Low- and Middle-Income Countries." *Journal of Health Communication: International Perspectives* 19 (Supplement 1): 190–215.
- Noar, Seth M., and Rick S. Zimmerman. 2005. "Health Behavior Theory and Cumulative Knowledge Regarding Health Behaviors: Are We Moving in the Right Direction?" *Health Education Research* 20 (3): 275–90.
- Patil, S. R., B. F. Arnold, A. L. Salvatore, B. Briceno, S. Ganguly, J. Colford Jr., and P. J. Gertler. 2014. "The Effect of India's Total Sanitation Campaign on Defecation Behaviors and Child Health in Rural Madhya Pradesh: A Cluster Randomized Controlled Trial." *PLoS Med* 11(8): e1001709. doi: 10.1371/journal.pmed.1001709.
- Peltzer, K., H. Onya, P. Seoka, F. M. Tladi, and R. N. Malema. 2002. "Factors at First Diagnosis of Tuberculosis Associated with Compliance with the Directly Observed Therapy (DOT) in the Limpopo Province, South Africa." *Curationis* 25 (3): 55–67.
- Pop-Eleches, Cristian, Harsha Thirumurthy, James Habyarimana, Joshua Graff Zivin, Markus Goldstein, Damien de Walque, Leslie Mackeen, Jessica Haberer, John Sidle, and Duncan Ngare. 2011. "Mobile Phone Technologies Improve Adherence to Antiretroviral Treatment in Resource-Limited Settings: A Randomized Controlled Trial of Text Message Reminders." *AIDS* 25 (6): 825–34.
- Price, Michael. 2013. "Stars Offer Incentive to Quit." San Diego State University News Center. [http://newscenter.sdsu.edu/sdsu\\_newscenter/news.aspx?s=74629](http://newscenter.sdsu.edu/sdsu_newscenter/news.aspx?s=74629).
- Renfrew, Mary J., Felicia M. McCormick, Angela Wade, Beverley Quinn, and Therese Dowswell. 2012. "Support for Healthy Breastfeeding Mothers with Healthy-Term Babies." *Cochrane Database of Systematic Reviews* May 16 (5): CD001141. doi: 10.1002/14651858.CD001141.pub4.
- Roura, M., D. Watson-Jones, T. M. Kahawita, L. Ferguson, and D. A. Ross. 2013. "Provider-Initiated Testing and Counselling Programmes in Sub-Saharan Africa: A Systematic Review of Their Operational Implementation." *AIDS* 27 (4): 617–26.
- Rowe, A. K., D. de Savigny, C. F. Lanata, and C. G. Victora. 2005. "How Can We Achieve and Maintain High-Quality Performance of Health Workers in Low-Resource Settings?" *Lancet* 366: 1026–35.
- Shampanier, Kristina, Nina Mazar, and Dan Ariely. 2007. "Zero as a Special Price: The True Value of Free Products." *Marketing Science* 26 (6): 742–57.
- Spears, Dean, Arabinda Ghosh, and Oliver Cumming. 2013. "Correction: Open Defecation and Childhood Stunting in India: An Ecological Analysis of New Data from 112 Districts." *PLoS ONE* 8 (9): September 23. <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0073784>.
- Tendler, Judith. 1997. *Good Government in the Tropics*. Baltimore: Johns Hopkins University Press.
- Thaler, Richard H., and Cass R. Sunstein. 2008. *Nudge: Improving Decisions about Health, Wealth, and Happiness*. New Haven: Yale University Press.
- Tomlinson, M., M. J. Rotheram-Borus, L. Swartz, and A. C. Tsai. 2013. "Scaling Up mHealth: Where Is the Evidence?" *PLoS Med* 10 (2): e1001382. doi: 10.1371/journal.pmed.1001382.
- Topp, Stephanie M., Julien M. Chipukuma, Matimba M. Chiko, Chibesa S. Wamulume, Carolyn Bolton-Moore, and Stewart E. Reid. 2011. "Opt-Out Provider-Initiated HIV Testing and Counselling in Primary Care Out-patient Clinics in Zambia." *Bulletin of the World Health Organization* 89 (5): 328–35.
- UNICEF (United Nations Children's Fund) and WHO (World Health Organization). 2009. *Diarrhoea: Why Children Are Still Dying and What Can Be Done*. New York: UNICEF and WHO.
- Vidanapathirana, J., M. J. Abramson, A. Forbes, and C. Fairley. 2005. "Mass Media Interventions for Promoting HIV Testing." *Cochrane Database of Systematic Reviews* July 20 (3): CD004775.
- Wakefield, Melanie A., Barbara Loken, and Robert C. Hornik. 2010. "Use of Mass Media Campaigns to Change Health Behaviour." *Lancet* 376 (9748): 1261–71.
- Wasi, Prawase. 2000. "Triangle That Moves the Mountain and Health Systems Reform Movement in Thailand." *Human Resources for Health Development Journal* 4 (2): 106–10.
- Wibulpolprasert, Suwit, Vichai Chokevivat, Cecilia Oh, and Inthira Yamabhai. 2011. "Government Use Licenses in Thailand: The Power of Evidence, Civil Movement and Political Leadership." *Globalization and Health* 7 (1): 1–8.
- Zimmerman, Rick S., and Dee Vernberg. 1994. "Models of Preventative Health Behavior: Comparison, Critique, and Meta-Analysis." *Advances in Medical Sociology* 4: 45–67.

