

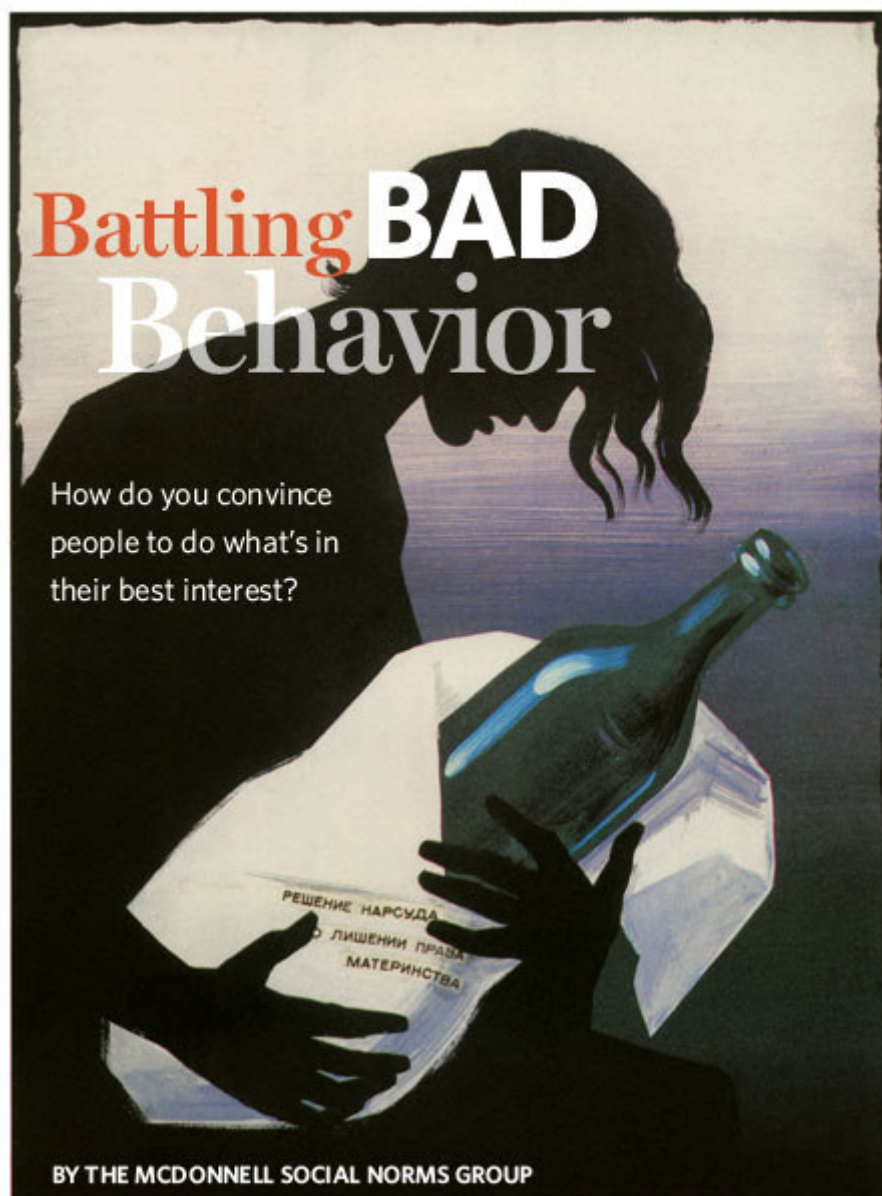
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FEATURE

Battling Bad Behavior

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Anti-alcohol propaganda such as this poster titled "Bartered" was distributed in the Soviet Union during the 1980s

Many of society's most vexing problems - the rise of antibiotic resistance, the current epidemic of obesity, armed conflicts that leave both sides worse off - have their roots in the suboptimal and often puzzling actions of individuals. At times conflicting self-interests power such behavior; the

best solutions from a collective perspective fail due to the nature of individual payoffs.¹ In other situations, however, people simply fail to do what is best even for themselves, in the face of good, freely available information. Despite stern warnings and mountains of strong evidence, some people continue to take up smoking. They overeat, overindulge in alcohol, and refuse to wear seatbelts or bicycle helmets. Informed by their doctors that antibiotics will do nothing for a viral infection, people demand them anyway, and knowing the larger dangers involved, physicians still prescribe them. Why do human beings often behave in such counterproductive and potentially self-destructive ways? What factors determine how information spreads and whether or not it will guide behavior?

Answering these questions and understanding the factors that determine when and how information drives behavioral change is critical to advancing societal interests. From improving human health to reducing our footprint on the global environment, academic research has practical implications. But if research results and expert knowledge are not widely disseminated and put into practice, then it hardly seems worth the investment.

It is useful to study other models of how information spreads and practices change. Fashions in music, art, or clothing style seem to spread overnight. Successful trends effectively tap into the emotional and cultural factors controlling behavioral change in ways that are poorly understood. The importance of popular trends has been increasingly recognized in economics and in the social sciences, where patterns of imitation appear central to understanding a wide variety of behaviors,² including consumption patterns,³ belief systems, and racist attitudes.⁴ In many cases, patterns of behavior seem remarkably resistant to change, often due to real or perceived self-interest maintaining the status quo.

Historically, the persistence of religious ideologies intertwined with power relationships provides classic examples. Particularly interesting, however, are cases exemplified by studies of changing the medical treatment of trauma,⁵ where all interests seem to run in the same direction, but where changing practice in response to knowledge meets with an inertia that is difficult to understand.⁶ (For more on clinical practice, see [Barriers to Adaption](#))

It is useful to consider the question of why certain behavioral changes spread, or fail to spread, in the broader context of how information, ideas, and behaviors in general move through populations. A great deal of work is done on the topics of behavioral change, development, and maintenance of social norms, and the spread of cultural changes. A vast literature is available, in fields as diverse as biology, economics, psychology, and sociology.^{3, 7-10}

Vast effort is also spent on the acquisition of data with the intent of generating practical recommendations from disciplines ranging from medicine and public health to environmental science and engineering. These efforts are wasted if recommendations are never adopted. Thus, a pressing need exists for more collaboration between those who hope to see information and knowledge used to alter specific practices and the researchers who study how ideas spread.¹¹

Once a practice has been recommended, its adoption requires three basic steps: the spread of information; the spread of acceptance of the recommended practice; and the spread of adoption of

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behavior, which involves the substeps of trying the recommended behavior, and maintaining it.³ Adoption may fail at any of these steps; determining critical stages likely depends on the particular practice in question and the target population.

OBSTACLES TO CHANGE

Much remains to be learned about the factors that result in the use of information to successfully inform best practice and foster its widespread acceptance. However, some principles are emerging about obstacles to the spread of information and ways to overcome them.^{3, 7, 12}



Propaganda posters such as these promoting healthy behaviors were used during the Second World War as concern for the general health of the population grew with the conflict.

physicians may feel pressured to accommodate, a phenomenon that contributes to overmedication

1. Differing Values The recommended practice may not represent a change for the better. Examples include cases where recommending experts and the public (those directly affected by the recommended change) value the expected outcomes differently. For example, public-health experts tend to value human life and health very highly, but often have no mechanism for valuing comfort and convenience. Thus, the perspective of an expert who knows that strongly discouraging parents from putting infants to sleep on their stomachs will save thousands of lives per year may be very different from that of a parent who is willing to accept a small, though frightening, risk in exchange for more peaceful nights for the whole family (for a more general discussion of perception of risks see ref. ¹³). Similarly, some individuals fully understand the risks of smoking or excessive drinking but still feel that the pleasure involved compensates for the probability of a shortened life.

2. Conflicting Interests The recommended practice may benefit a larger community but have costs (or be neutral) for the relevant decision-makers. For example: Individual commuters may recognize that some larger community will be better off if they forego driving their SUVs; physicians know that limiting antibiotic prescriptions to their patients is necessary to control the spread of antibiotic resistance¹⁴; and parents in rural China know that a more balanced gender ratio would be better for the whole community.¹⁵ In each case, however, individuals may not feel that they personally will be better off if they change their practice.

3. Lack of Clarity Individuals may find the information supporting the practice unconvincing or difficult to understand. Information may seem contradictory. For example, forest fires must be prevented and controlled, but are nonetheless a natural and necessary aspect of the environment.¹⁶ Moreover, decision makers may simply not trust the recommending authority, ultimately rejecting the information used to bolster a best practice. In the area of healthcare, for example, lack of basic understanding (health literacy) has been identified as a major obstacle to behavioral change.¹⁷

4. Existing Beliefs The recommended practice may run counter to established norms, or to perceived norms. For example, patients often expect drug prescriptions when they visit a physician, and

and diminishes the overall efficacy of antibiotics.¹⁸ Beliefs about norms, or "metanorms," may persist after norms themselves have changed. For example, college students continue to believe that their peers expect them to overindulge in alcohol even as norms are changing.¹⁹ (See [College Drinking: Norms vs Perceptions](#))

5. Perception Problems The disadvantages of adopting the best practice may be easier to perceive than the advantages. Benefits that are temporally delayed are likely to be excessively discounted, as are benefits that are nonevents, e.g., changing diet to avoid a heart attack. We are usually not good at balancing value through time,²⁰ or at making decisions that involve probability.²¹ Indeed, simple experiments show persistent irrationalities in such decisions. One example is the tendency of researchers, physicians, patients, and marketers to focus on the short-term metric of cholesterol levels, rather than the far more important, but less tangible, metric of long-term risk of heart attacks. Another example is that people seem to have stronger behavioral reactions to a small risk of death by criminal violence than to a larger risk of death on the highway. Even after people are convinced that they should adopt a new behavior, they may postpone adoption when investment of time or money is required to begin, or where the reward is delayed.²²

SPREADING THE WORD

Once obstacles are identified, they can be addressed. A number of techniques have emerged from different research areas for encouraging spread and adoption of practices.

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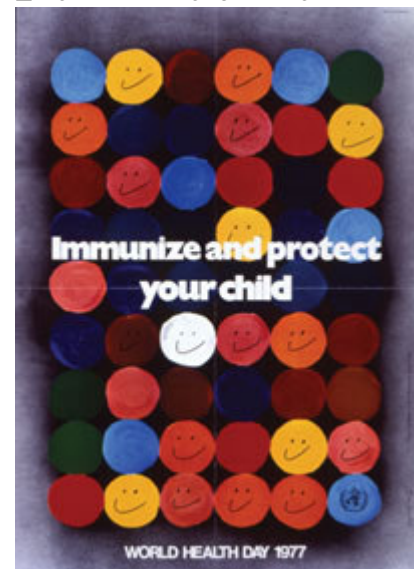
This 1940 poster was designed to playfully deter soldiers from unsafe sex.

SOCIAL WELFARE HISTORY ARCHIVES,
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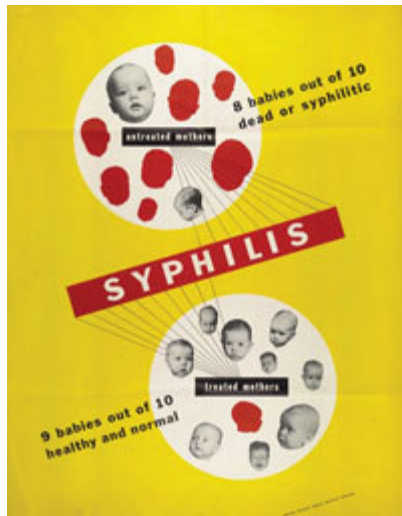
1. Make It Easy Convenience is surprisingly important to the adoption of practice. People are often under stress, and making decisions may be difficult and time consuming.³ Successful promotion of improved medical practice has often focused on providing timely information and reminders to medical decision makers. Conversely, attempts to change smoking behavior have attempted to make smoking less convenient, for example by permitting smoking only in certain designated places.

2. Don't Underestimate Peer Pressure Public (or peer) opinion is crucial. The opinions of others may slow the adoption of controversial changes, even when the new practice is accepted by many, or may speed the adoption of changes that are accepted in theory but may not be convenient for decision-makers. For example: Men who do not personally accept stereotyped gender roles may nonetheless feel pressure to act as though they do (e.g., by laughing at crude jokes); and people who have changed their diets may overeat at family holiday gatherings. Conversely, publicizing information about prescribing practices and outcomes can have a marked effect on

WORLD HEALTH ORGANIZATION



This poster promoting immunization was part of World Health Day 1977.



Other campaigns from the same era, such as the one above for syphilis, rely on clearly outlining the pros and cons of treatment.

physicians' compliance with recommended antibiotic use.²³

3. Provide Immediate Feedback People tend to discount future benefits unduly, in many cases. Positive feedback for choices that will have long-term benefits can be helpful. For example, immediate positive results from exercise (social opportunities, fun, etc.) could help individuals persist until exercise became rewarding on its own merits. Reminders, such as timely information to doctors about infections, or signs about injury-free days at work sites, may also be helpful.²³⁻²⁵

4. Be Understood Probabilistic information should be translated into more understandable forms.²⁶ Information on how many infections the hospital had last year, or how many motor vehicle fatalities a city had last month, is more likely to be processed correctly than information in the form of probabilities or percentages. Similarly, comparisons (e.g., driving is ten times more dangerous than flying) are more likely to be properly understood than frequencies (e.g., one fatality per 7,000 vehicle miles).²⁷

5. Confront Misinformation Information that confronts misguided metanorms can have dramatic effects. For example, college students systematically believe that their peers drink more alcohol than they really do, and this belief influences their own consumption patterns. In cases like this, promoting information exchange can be an effective method of encouraging change.¹⁹

6. Link to Existing Beliefs Tying desired changes to existing norms helps people understand and adopt practices. For example, the germ theory of disease was accepted more easily than might have been expected, because it tied naturally to naïve ideas about contamination and contagion. Thus, when possible, messages should be tailored to be understandable within existing belief systems.

7. Effective Presentation How messages are framed can be crucial. The message "secondhand tobacco smoke is bad for children" may be more effective than the message "secondhand tobacco smoke is bad for everyone," even though the latter is formally stronger. Similarly, messages framed around preventing death are more effective than those framed around saving lives.

ACHIEVING GOOD BEHAVIOR

How individuals weigh outcomes against the effect on a larger community depends not only on culture and values, but also on the way that the community is seen and constructed. Most people value their families similarly to themselves, at least for many decisions, and may place particular value on groups with which they identify, including professional, social, or ethnic groups.

WORLD HEALTH ORGANIZATION

Achieving good behavior in the face of individual vs. group conflicts can be approached either by changing the incentives for individuals, or by changing people's valuation of collective vs. individual good; in other words by building a more collectivist culture. (Of course, the desirability of such a culture is a

SOUTH AUSTRALIA HEALTH COMMISSION



The smoking cessation poster above from the 1970s was created by the World Health Organization and the Union Internationale Contre le Cancer (UICC). Its message: "Stop smoking, improve your health."

subject of debate beyond the scope of this paper.) Changes in attitudes about individual vs. collectivist benefits can occur rapidly. For instance, gasoline conservation by individuals during World War II was promoted by the government and adopted by citizens as a symbol of patriotism; recently, even with the United States at war, voluntary conservation by individuals has not been seriously discussed.

While a great deal remains to be done to improve the identification, development, and understanding of best practices, it is nonetheless clear that effective methods of translating information into knowledge and knowledge into action could have tremendous public benefit, including

in the areas of diet and exercise habits, use of prescription drugs,

voter participation, and safe driving. Perhaps the most important question to be addressed is how to bridge the gulf between researchers who study the spread of information and behavioral change, and those working in a variety of disciplines who are attempting to use information they have acquired in a particular area (antimicrobial resistance, pollution, etc.) to change behavior. How can we bring academic knowledge to bear on practical problems? Our ability to forge collaborations between those who promote good practice and those who study how practices spread is critical to improving human welfare, public health, and the global environment.

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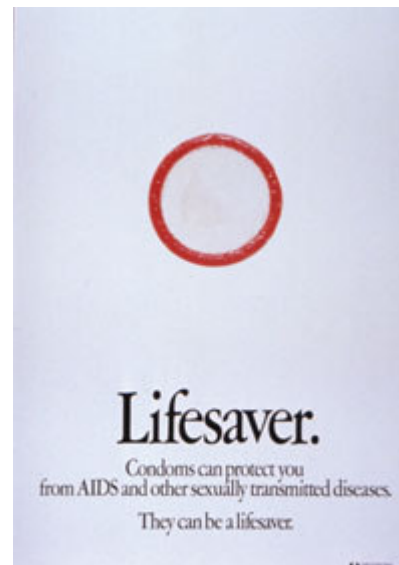
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This 1990 poster from the Health Promotion Branch of the Australian Board of Health attempts to destigmatize condom use.

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