

Hygiene promotion: determining what works

When a massive earthquake struck Haiti in January 2010, followed by a cholera epidemic that broke out in October of that year, Oxfam rushed assistance—clean water, sanitation, and hygiene materials and information—to hard-hit areas to protect public health.

Hygiene promotion is arguably the most important intervention in a cholera epidemic: the route of cholera transmission is fecal-oral, and contaminated hands are often the principal vector. So Oxfam engages in a wide range of hygiene-promotion activities to encourage washing hands—specifically, washing hands with soap at key moments, such as before eating and after defecation.

But which of our interventions have been the most effective, and why? Is it more important to put resources into hygiene-themed theater productions or radio call-in shows? There is little hard evidence to suggest that—in Haiti or in emergencies anywhere—one hygiene-promotion activity works better than another. But lives, not to mention valuable resources, may depend on the answer, so in the spring of 2011, Oxfam engaged Eawag, the Swiss Federal Institute of Aquatic Science and Technology, to study the effectiveness of our hygiene-promotion activities in Haiti.

The research question and methodology

For people affected by disaster, whether wars, earthquakes, or disease epidemics, conditions of life can change suddenly and in ways that require rapid adjustments. Often, adaptation includes taking greater care to prevent transmission of disease, in order to minimize the new threats to public health. Understanding what enables and influences changes in human behavior is key to developing and evaluating strong hygiene programs, so Eawag placed the issue—and the science—of behavior change front and center in its study.



The Eawag research suggests that combining practical demonstrations of hand washing with distribution of hygiene materials has been an effective hygiene-promotion activity in Haiti. *Carlos Cazalis / Oxfam*

The overarching research question was this: “Which specific promotion activities are the most effective in changing perceptions and beliefs about washing hands with soap and are thus capable of changing hand-washing behavior at key times?”

In June 2011, the researchers undertook a cross-sectional, correlational study of communities that had experienced Oxfam hygiene-promotion activities. A team of local students and scientists conducted 811 structured interviews with household members who function as primary caregivers—88 percent of whom were female—in Port-au-Prince, Gressier, Petit-Goâve, Grand-Goâve, and Leogane.

The interviews revolved around demographics, practices related to washing hands with soap, and Oxfam hygiene-promotion activities. There were also approximately 60 questions focused primarily on attitudes, beliefs, and norms about washing hands—questions pertinent to the issue of behavior change.



When you are under pressure in an emergency, the easiest thing to do is dive into another activity. The Eawag research reminds us to stop and think. And it encourages us to make our monitoring process smarter, so in the middle of a disaster we can learn whether or not our health messages are having an effect.

—Marion O'Reilly, Oxfam Haiti Health Team Coordinator

The factors of change

According to the behavior-change model known as RANAS,¹ there is a set of key factors that influence a person's decision to alter habits and practices, which can be grouped as follows:

- **Risk factors**, which relate to perceived vulnerability (in this case, to disease)
- **Attitude factors**, or how a person thinks and feels about the issue at hand, including what is considered attractive or disgusting
- **Norm factors**, such as social expectations
- **Ability factors**, which relate to a person's sense of what is possible to accomplish
- **Self-regulation factors**, which include the ability to stay focused and committed to a behavior despite conflicts and distractions

Eawag developed several questions around each of these "behavior factors." For example, a question about norms reads, "How many of your relatives wash hands with soap before handling food?" A question about ability reads, "How often does it happen that there is no soap at the hand-washing station?"

Through regression analysis, which determines the relationship between dependent and independent variables, the answers were then statistically related to hand-washing behavior, to better understand why people do or

do not wash their hands. The results showed the extent to which washing hands at key times was associated with each of the behavioral factors.

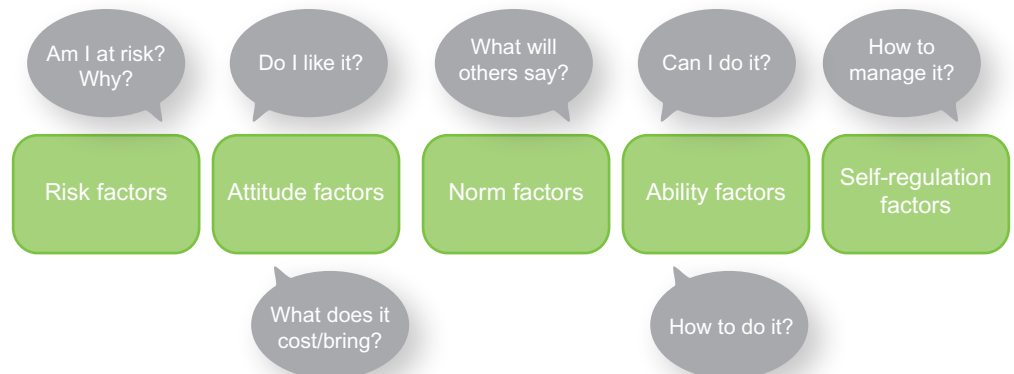
Note: The data about washing hands was largely self-reported, rather than observed by the researchers.

Oxfam hygiene promotions

There were 16 hygiene-promotion activities in Oxfam's response to the earthquake and later the epidemic: radio spots to disseminate information; radio call-in shows to convey information and answer questions; dissemination of information by megaphone; group discussions to deepen understanding of cholera prevention, answer questions, and explore beliefs; multiday hygiene-training sessions; home visits to clarify remaining questions; distribution of materials with instructions on how to use them; information sharing through friends and neighbors; focus groups (consultations with communities aimed less at hygiene promotion than at getting feedback on promotions, assessing knowledge, behavior, and attitudes, and discussing hygiene-related problems); films about health issues; interactive street theater about hygiene and health; special hygiene-promotion days involving a variety of activities; quizzes about safe and unsafe hygiene behavior; stickers, posters, and paintings

The RANAS model: Key factors that influence behavior change

According to the Eawag study, norm factors, ability factors, and attitude factors were more influential in decisions to wash hands at key moments than risk factors, which means that simply focusing on the risk of cholera may not be the most effective approach to hygiene promotion.



¹ H.-J. Mosler, "A Systematic Approach to Behavior Change Interventions for the Water and Sanitation Sector in Developing Countries: A Conceptual Model, a Review, and a Guideline," in *International Journal of Environmental Health Research* (accepted).

related to hygiene behavior; meetings of specific groups, such as mothers, on a regular basis to solve problems; and hygiene songs.

The researchers looked not only at the direct relationships between each promotion and hand-washing practices but also at the indirect relationships—the effect each promotion seemed to have on the behavioral factors that then influenced washing hands.

Key findings

The behavior factors that emerged as most important in determining hand-washing behavior were attitudes, ability beliefs, and norms. Surprisingly, knowledge and beliefs about the risks of cholera were shown to be of minor importance.

As for specific hygiene activities, the researchers determined that, among the study participants who had experienced Oxfam hygiene promotions, those who heard a radio spot or call-in program, took part in a material distribution coupled with a practical demonstration, watched a play, or participated in a group discussion were significantly more likely to engage in washing hands with soap at key moments than those who did not recall experiencing those promotions.

By contrast, the researchers learned that people who knew a hygiene song, participated in a focus group or special hygiene day, received a home visit, or recalled observing stickers, posters, or paintings were significantly less likely to wash hands with soap at key times than those who did not remember experiencing these promotions. For example, people who knew hygiene songs tended not to have good hand-washing practices.

The relationship of Oxfam's remaining activities to hand washing with soap was not significant in either direction.

Discussion

If conveying knowledge about the dangers of cholera—at least in the ways that we have done it to date—is having a relatively small effect on people's hand-washing practices, Oxfam and other aid providers may need to reprioritize or recast our messages.



Oxfam public health staff Jean Bassette and Stephanie Lormil conduct a radio call-in show about cholera. Interactive radio shows were one of the interventions identified by the Eawag study as most strongly associated with washing hands with soap at key times. *Elizabeth Stevens / Oxfam America*

The finding that certain hygiene-education activities had a negative association with safe hand-washing practices was startling. As this study identified associations rather than causes, we cannot conclude from it that any Oxfam programs were the cause of either increased or reduced hand washing. Nonetheless, this finding raises a flag: Are posters, stickers, hygiene songs, hygiene days, focus groups, and home visits counterproductive in Haiti? And if so, why?

Perhaps they are irritating or confusing, or seen as intrusive or patronizing, or maybe they are ineffective for the particular group targeted by the researchers—caregivers, usually women—but useful for others. (Hygiene songs, for example, are designed primarily for children and youth.) Or it may simply be a question of timing: by the time the research was conducted in June 2011, survivors of the earthquake and cholera epidemic might have become weary of these products and activities. Oxfam and other aid providers will need to look closely at these issues.

Points of interest for aid providers

- > Understanding the nature of behavior change can shed light on emergency hygiene-promotion programs.
- > Nine months after the cholera outbreak, the decision to wash hands with soap at key times was shown to be most influenced by social norms, the ease or difficulty of hand washing, and the person's attitude toward washing hands; information about cholera risks was shown to have little influence.
- > Six of Oxfam's hand-washing promotions were shown to have a significant positive relationship with washing hands with soap at key times: radio spots, radio call-in shows, material distributions with practical demonstrations, information disseminated by friends and neighbors, street theater, and community support groups.
- > Several other hygiene activities were associated with no improvements, and some—focus groups, stickers, posters, paintings, hygiene songs, special hygiene days, and home visits—were negatively associated with hand washing with soap at key times.

Conclusion

By confirming some of our assumptions and challenging others, the Eawag research is helping guide Oxfam toward improved health and hygiene interventions, and it is raising a host of important questions. Oxfam and other aid providers need to take a critical look at activities that did not demonstrate a strong statistical association with washing hands with soap at key moments. We also need to consider how to better align our existing hygiene programs with the behavior factors

that appear to have the greatest influence on washing hands. And because it is unclear to what extent the findings of this study can be applied to other countries and emergencies around the world, more research will be needed. Oxfam could not have predicted the results of the study, which is what makes it valuable. The research has provided a fresh lens through which to view our work, and a compelling reminder of the need to carefully monitor the impact of public health activities during disasters.

Acknowledgments

This brief is based on research conducted by Eawag, the Swiss Federal Institute of Aquatic Science and Technology (www.eawag.ch). We would like to thank lead researchers Nadja Contzen and Hans-Joachim Mosler; Myra Foster, public health specialist for Oxfam America, who was Oxfam's commissioning manager and liaison to Eawag; Johanna Braun, research assistant; the data-collection team; the peer reviewers who provided comments on the research report; and the community members who participated in the study and generously shared with us their time, thoughts, and experience. To read the original report, visit oxfamamerica.org/hand_washing_research; for more information, contact Myra Foster at mfoster@oxfamamerica.org.

Oxfam is an international confederation of 15 organizations working together in more than 90 countries and with partners and allies around the world to find lasting solutions to poverty and injustice. We work directly with communities and we seek to influence the powerful to ensure that poor people can improve their lives and livelihoods and have a say in decisions that affect them.

