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Journal of Health Communication
International Perspectives

ISSN: 1081-0730 (Print) 1087-0415 (Online) Journal homepage: http://www.tandfonline.com/loi/uhcm20

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To cite this article: Joshua P. Rosenthal & John Borrazzo (2015) Saving Lives by Building Bridges Between User Needs and Clean Cooking Technology, Journal of Health Communication, 20:sup1, 1-2, DOI: 10.1080/10810730.2014.996304

To link to this article: http://dx.doi.org/10.1080/10810730.2014.996304

Journal of Health Communication, 20:1–2, 2015
ISSN: 1081-0730 print/1087-0415 online
DOI: 10.1080/10810730.2014.996304

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Guest Editorial

Saving Lives by Building Bridges Between User Needs and Clean Cooking Technology

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Ending the preventable deaths of children is a moral imperative—approximately 6 million children younger than 5 years of age still die each year. High levels of exposure to household air pollution from cooking, especially for women and young children (Figure 1), are known to contribute directly and substantially to these deaths. Nevertheless, the search for a sustainable, scalable solution to reduce these exposures has been elusive.

The effects of household air pollution extend beyond the deaths of children. Household air pollution is now recognized as one of the single greatest global health challenges to the reduction of infectious and chronic disease, given that it contributes to approximately 4 million early deaths per year including children and adults. Recognition of these enormous health effects, in addition to the substantial environmental costs incurred by biomass combustion for cooking, have given rise to numerous efforts focused on potentially game-changing initiatives, such as public–private alliances for systematic improved cookstove market development and large-scale stove and fuel distribution programs.

Nearly 3 billion people still depend on the most basic stoves and biomass fuels (primarily wood, but also crop residues and animal dung) to meet their energy needs—practices that have not substantially evolved for millennia. Any solutions that attempt to change these traditional practices will necessarily succeed or fail at the interface of cleaner cooking technologies, including fuels, and the behaviors that help to ensure that these can be adopted and used.

Results from early health outcome studies indicate that use of extremely clean burning stoves, fuels, or both, are necessary to achieve significant health gains. Although laboratory studies suggest that the cleanest of currently available stoves may be able to reduce emissions to a level that results in improved health outcomes, field trials have been disappointing. The challenge for the health community is to achieve substantial and sustainable exposure reductions under conditions of actual use.

Why is this issue a health communication and behavior change topic? Because adoption and sustained correct use of clean cooking technologies—to the exclusion of traditional practices—have been shown repeatedly to be among the most difficult challenges to reducing household air pollution. Many programs focus on improving available stove technologies. However, reducing exposure to household air pollution requires behavior change associated not only with the stoves, but also fuels, foods, home construction, and how the user interacts with these to safely satisfy a crucial household energy need: cooking.

As is true for most global health challenges, the context is poverty, poor access to information and services, layered with undernutrition and other deficits. However, experiences with behavior change in other global health interventions can inform this effort. Vaccine delivery programs have repeatedly illustrated the importance of safety and the critical role of respected local voices to ensure acceptance and participation. Sanitation projects in the developing world offer lessons on the interaction of household technologies with both cultural practices and district services. Experiences with insecticide-treated bednets to control malaria illustrate the role of price and willingness-to-pay with the continued challenges to sustainability and correct/consistent use.

It is important to note that although the policy community sees public health as a key driver of programs to improve cooking technology and reduce exposure to household air pollution, individuals and households may not view long-term health benefits as a major motivator for behavior change. For individuals, important nonhealth factors—such as status, comfort, convenience, and time and cost savings—may influence behavior change much more substantially. For example, with Ivermectin treatment campaigns to control river blindness, it is frequently the immediate relief of

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Fig. 1. A woman and her baby are exposed to high levels of household air pollution during cooking with a traditional open fire in Guatemala.

itching eyes, rather than the prevention of a disabling disease—blindness—that attracts participants to the critical once-a-year eye droplet treatment events.

Successful behavior change efforts in global health have shown that sustaining and monitoring progress over an extended time is critical. Government-administered local health services and nongovernmental organizations with extensive reach and longstanding relations with communities can be powerful allies to reinforce messages and monitor activities. Communication and behavioral research builds bridges between technology developers and community workers.

The work represented in this special issue is critical to these translational and implementation science goals: ensuring adoption of optimal technologies; maintaining sustained, correct, and exclusive use; and satisfying the needs of the user, aspirations of the health community, and goals of cookstove developers and manufacturers. Developing such lessons on what works, where, and why will significantly accelerate efforts by the global health and development communities to end preventable child and maternal deaths around the world. We look forward to participating in this important endeavor.

Acknowledgment

The contents of this article are the responsibility of authors and do not necessarily reflect the views of the National Institutes of Health, USAID, or the U.S. government.