How Can We Move Research to Action to Improve Health?

A Conversation with Linda Neuhauser

"Translating" research to action to benefit society has become a critical issue in the United States and globally. The World Health Organization labels this problem the "know-do gap." During the past two decades, there has been intense interest in understanding the barriers to converting scientific findings into successful treatments, programs, and policies, and what can be done to bridge that gap. One of the School's new strategic goals is to inventory and examine projects in this area and their impacts, and find ways to advance this work in translational research.

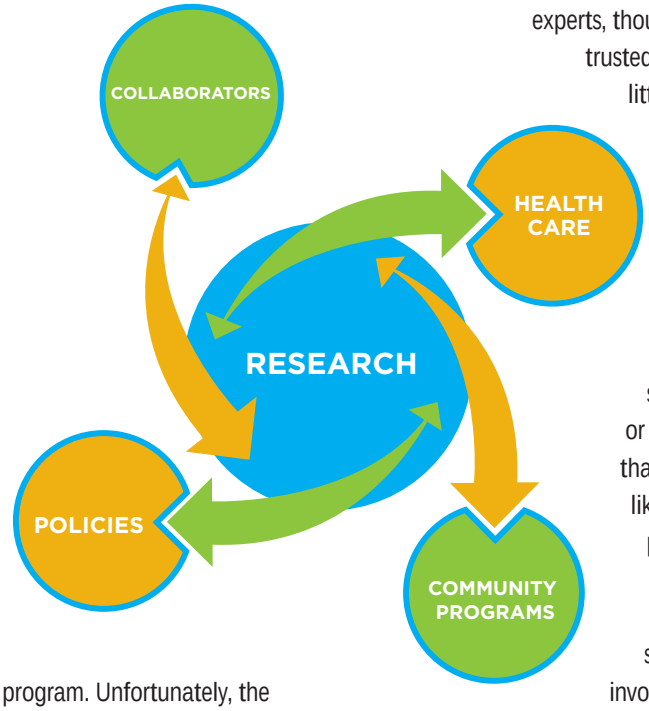
***Berkeley Health** interviewed Linda Neuhauser, Dr.P.H. '88, clinical professor of community health and human development, about closing the know-do gap. Neuhauser focuses on translating research into improved health interventions. She is also co-principal investigator of the School's Health Research for Action center (healthresearchforaction.org), which conducts research on a broad range of health topics and works with the public, practitioners, and policy makers to create large-scale, successful health activities.*

Why has "translational research" become such an important topic?

During the past 20 years, it has become increasingly clear that most of our research is not being successfully applied to improve people's health. One estimate is that it may take 17 years to turn just 14 percent of original research into a clinical application, and much longer to impact the population level. Even the most successful health interventions only reach a small proportion of the target population. For example, tens of thousands of pilot studies have identified the benefits of healthy diets and exercise, but obesity rates keep increasing. Only one-third of Americans take medications correctly to manage chronic diseases like diabetes and hypertension. We need a better understanding about why excellent research is not always impacting the public, and how to do better.

How did you become interested in this issue?

I became very interested in this problem in the early 1980s when I was working as a USAID health officer in Mauritania, West Africa. My main job was to work with the health system to develop a national children's vaccination program. Unfortunately, the situation was dismal: There had been 20 years of previous failed vaccination programs, and large numbers of children were dying from preventable diseases. It was obvious that something was lacking, and it wasn't basic research about vaccines. I spent two years with African colleagues painstakingly identifying and resolving a complex set of technical, social, organizational, and economic barriers. After two years of grassroots work with communities and at all levels of the health system we succeeded: The new vaccination program effectively reached 85 percent of children in that country.



What did you learn from that experience?

The first thing I learned was that health experts, though knowledgeable and trusted about science, may know little about implementing complex interventions. I learned that it is critical to engage communities and health workers at all levels to solve problems from the outset. Without that engagement nothing successful can be implemented or sustained. I learned, further, that complex health problems—like setting up a vaccination program in the Sahara desert—require input from people in multiple disciplines, and sectors. In this case, we had to involve politicians, religious leaders, veterinarians, camel traders, teachers, business entrepreneurs, linguists, and many others. I understood that my technical training in public health was not enough to prepare me for the reality of the field. I resolved to apply these lessons to my future work and wanted to study them more systematically.

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Research to Action, continued

Why do you think has it taken so long to understand the severity of the know-do gap and do something about it?

A major problem is that it's hard to examine or address this area in depth without involving multiple stakeholders. Historically, none of the major professional stakeholder groups—researchers, practitioners, or policy makers—has had a clear mandate, incentive, or accountability in this area. In addition, each of these groups faces big barriers to getting more engaged.

For example, academics are motivated and rewarded for research and publications, and are often actively discouraged from "getting involved in implementation." Practitioners may prefer to draw on their own experiences or may have inadequate access to research findings and limited power to change practices within their institutions. And policy makers often need timely, well-digested scientific information to make decisions that fit within yearly budgets or political terms.

What catalyzed the new focus on research translation?

I think it has come about because of the growing frustration that many national and global health goals are not being achieved. Researchers, practitioners, and policy makers have shared this frustration and have been increasingly interested in finding solutions.

The leadership of national and global organizations, such as the NIH, CDC, WHO, and UN have all incorporated knowledge-to-action goals into their major mandates and strategies. Funding has also been important. The NIH has invested hundreds of millions of dollars into translational and transdisciplinary research centers. The European Union has invested billions of dollars in this area.

How is translational research defined?

There is no consensus for definitions for this new field, but generally it's an emerging scientific study about factors that promote or hinder converting research to effective action across disciplines and sectors. Some common descriptors are "translational research," "transdisciplinary research," "integration and implementation sciences," and "knowledge transfer." The concept of "translation" refers to the process of ensuring that research knowledge relevant to health eventually serves the public. The word "transdisciplinary" describes researchers working together from the outset to define new concepts, methods, or products. For example, the "built environment" is a new discipline that joins collaborators from public health, city planning, design, engineering, and many other fields.

What are some of the practical lessons learned from this research?

In my view, some of the most interesting findings are that it is often social, rather than technical factors, that are key to successful health interventions. As one researcher put it, "Human interaction is the engine that drives research into practice." Along these lines, researchers have found that it is often critical to have a "knowledge broker" with the skills to work across disciplines and sectors to integrate knowledge into action. That person should have leadership and negotiation skills, and be able to create a respectful atmosphere and "common language" among people from different disciplinary backgrounds or sectors. Applying highly participatory processes, including community-based participatory research is also important for success.

Other findings emphasize the need to have regular face-to-face meetings, and a constant high level of excellent communication and conflict resolution. Besides personal and process factors, the research is also showing that institutions that want to advance research translation need to create incentives, funding, and spaces for this work. Another finding is that constant evaluation and revision need to be incorporated at all phases.

How have these findings influenced your work?

In Africa, I had to learn many of these lessons the hard way. Now I am committed to always working with intended beneficiaries and other stakeholders as co-designers, implementers, and revisers of health interventions. The extra time this work requires is well worth the positive outcomes.

These lessons were also a fundamental reason why my colleagues and I created the Health Research for Action center to bring together

researchers, policy makers, practitioners, and diverse members of the public, including the most disenfranchised groups. We wanted to create an empowering approach that would tightly link research and its application.

What's an example of one of your translational research activities?

We've partnered with the state of California since 2000 to help develop and evaluate educational kits that reach 500,000 new parents each year. We developed a parents' guide for the kit by engaging researchers to examine the evidence base, and then co-designed the guide with thousands of diverse parents and health care providers, state and local policy-makers, and the media. We also provided advice about participatory design and testing to other groups who created resources for the kit. After the kit was launched statewide, we conducted a rigorous three-year evaluation of its use and impact. The findings showed very positive effects on parents' learning and behaviors, and recommendations were used to make important changes to the kit and its distribution. We have now leveraged the lessons learned to adapt the kit in four other statewide initiatives.

Can you give another example of translational research at the School?

There are many excellent examples of how the School's research has been applied to help millions of people globally. One example is the work led by Eva Harris, professor of infectious disease and director of the Center for Global Public Health. Professor Harris is committed to finding ways to understand and control dengue fever, a severe tropical disease affecting 40 million people each year. Early in her career in this area, she was advised to focus on her laboratory and avoid fieldwork to succeed in academia. However, she sees science as a social contract for a better world. She has followed her ideals by studying the translational continuum of dengue—from molecular and pathogenesis studies at UC Berkeley to the clinical and community levels in Nicaragua, Ecuador, and other countries. Her partnerships with scientists in developing countries motivated her to set up the nonprofit Sustainable Sciences Institute so that those researchers would have access to training and affordable technology to advance their own ideas on priority infectious diseases problems in their countries.

Professor Harris's scientific and field successes highlight the rewards of superb research translation. Her next translational mission? Transforming the university's incentive and administrative structures so they better support researchers to work across disciplines and impact people's lives.

What are the implications of these lessons for teaching?

The implications are huge. The School has greatly increased its focus on research to action, both in courses offered and in opportunities for students to work on research translation in centers like the new Bixby Center that advances reproductive health activities globally, the Center for Public Health Practice that provides practical training and internships, the Center for Labor and Occupational Health, and the Berkeley Alliance for Global Health, which is a campuswide effort to solve major global health challenges.

The Doctor of Public Health program, in which I teach, is explicitly intended to provide students with cross-disciplinary training in research translation. In the first year of the program, students from diverse health disciplines work with a client to research a specific domestic or international health problem and design solutions. Students have taken on such challenges as creating strategies to improve emergency preparedness for vulnerable groups affected by Hurricane Katrina, and working with the government of Mexico to improve HIV/AIDS programs. Graduates of this program are highly successful "knowledge-to-action" brokers worldwide—an impressive tribute to the School's commitment to research translation.