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Implementation science – Translating research into real-world solutions

Dr. Herbert Peterson addresses a group of maternal and child health alumni and friends at the 2012 Foard Lecture.

Herbert Peterson, MD, an obstetrician-gynecologist, Kenan Distinguished Professor and chair of maternal and child health, knows how to stop a postpartum hemorrhage for a patient at UNC Health Care. However, the vast majority of those life-threatening hemorrhages happen to women who are hours away from medical facilities, refrigerated pharmaceuticals, safe blood supplies and trained personnel.

To address that public health challenge, Peterson looks to the field of implementation science.

“The challenge is trying to put science into service,” says Peterson, whose department at the public health school houses a World Health Organization collaborating center. The center accelerates progress in translating research evidence for sexual and

reproductive health into real-world solutions. “Implementation science is about how to deliver interventions effectively,” he says.

Implementation science closes the loop that connects research to policy to practice. Researchers find out how to fix a problem; policy makers mandate programs to apply the fix. Implementation scientists observe obstacles that get in the way of carrying out

the programs, determine how to resolve the sticking points, and inform researchers about what inhibits practitioners from implementing programs in the ways researchers and policy makers intended. Often, the rate-limiting step isn’t the discovery; it’s implementation ‘potholes.’

Implementation science has become one of the hottest growth areas in public health, says Dean Barbara K. Rimer. The Gillings School of Global Public Health is a leader, a position earned through many years of work in this field.

“Implementation science is important to us because we are committed to improving the public’s health,” Rimer says. “We can make groundbreaking discoveries and develop the world’s best interventions, but they mean nothing if they don’t get to the people who need them.”

Alice Ammerman, DrPH, director of the UNC Center for Health Promotion and Disease Prevention (HPDP), a Centers for Disease Control and Prevention research



Dr. Alice Ammerman



Dr. Susan Ennett



Dr. Herbert Peterson



Dr. Barbara K. Rimer



Dr. Bryan Weiner

center, has been appointed to the National Institutes of Health study section on dissemination and implementation research in health. In summer 2011, HPDP hosted the National Institutes of Health- and Veterans Affairs-sponsored Training Institute for Dissemination and Implementation Research in

history of conducting clinical research in community settings and translating research results into every-day clinical care. Weiner's article, "A Theory of Organizational Readiness for Change," is the most-viewed article in the history of *Implementation Science*, a journal on whose editorial board he serves.

researchers from different disciplines leads to innovations in the intervention itself, the technology to facilitate implementation, the process of implementation and the ability to change the context.

Susan Ennett, PhD, professor of health behavior, focuses on adolescent health-risk behaviors and has worked on national and regional studies, most recently evaluating implementation of school programs targeting substance abuse prevention and wellness promotion. Her team studies what practitioners need if they are to implement programs fully and well.

"There's a big leap between the world of research and that of practice," Ennett says. "It's naïve to think that just because a program is available or a policy is in place it will be implemented, much less implemented well. Implementation science feeds information back into the loop so that programs coming out of research can be used effectively by practitioners."

—Nancy Oates

To that person who devotes his life to science, nothing can give more happiness than increasing the number of discoveries. But his cup of joy is full when the results of his studies immediately find practical applications. —Louis Pasteur

Health. HDPD also is home to the Center for Training and Research Translation, which has supported obesity interventions nationally for more than six years.

"Many interventions published in the literature attempt to maximize impact without considering feasibility and sustainability," says Ammerman. "This can make them impossible to implement or sustain in the real world. Implementation science considers the needs of the population, the setting and resource constraints."

Bryan Weiner, PhD, organizational psychologist and professor in the health policy and management department, has been principal investigator for a number of prominent studies funded by the National Cancer Institute, including one that examined the implementation, impact, sustainability and business case of the Community Clinical Oncology Program (CCOP), a provider-based research network with a 28-year

"Implementation science moves us beyond the randomized controlled trial for examining implementation," Weiner says. "We need brief, reliable and valid measures of the factors that drive implementation outcomes."

The public health school's range of experts underscores how the field is transdisciplinary and interdisciplinary. Bringing together

WANT TO LEARN MORE?

Dean L. Fixsen, PhD, senior scientist at UNC's Frank Porter Graham Child Development Institute, is author of *Implementation Research: A Synthesis of the Literature*, published in 2005 by University of South Florida's Louis de la Parte Florida Mental Health Institute. The text is online at tinyurl.com/fixsen-implementation.

Issues of implementation became urgent in the context of the AIDS epidemic. Dr. Herbert Peterson and colleagues, in a recent series in *The Lancet*, highlighted the fact that understanding implementation could increase access to family planning and reduce maternal mortality. Read more at www.thelancet.com/series/family-planning.