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Robert Wood Johnson MEDICINE



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RUTGERS



Collaboration Generates Success

at Two Joint Institutes

By Kate O'Neill

The Center for Advanced Biotechnology and Medicine and the Environmental and Occupational Health Sciences Institute were established in the 1980s. As outlined in their charters, they are jointly administered by what is now Rutgers Robert Wood Johnson Medical School and by Rutgers, The State University of New Jersey.



Environmental and Occupational Health Sciences Institute

In 1986, New Jersey's growing number of environmental problems prompted the state government to establish the Environmental and Occupational Health Sciences Institute (EOHSI). Thomas H. Kean, then governor, strongly backed the institute's creation. Together with the legislature, he provided funds that would both support construction of the EOHSI building and allow the state to address its complex environmental crises. In addition, the governor supported a balanced administration for EOHSI, making it a true collaboration between its two parent institutions, Rutgers University and the University of Medicine and Dentistry of New Jersey. "At EOHSI, the understanding has always been that we would keep university and department walls transparent," says Kenneth Reuhl, PhD, interim director, EOHSI, and professor of pharmacology and toxicology, Rutgers University.

The interdisciplinary expertise of EOHSI ranges from basic and applied research to patient care, but its members share the goal of applying their research to environmental issues and writing and advocating for legislation that makes their findings effective. "Having a common

vision provides for best practices and ideas," says Dr. Reuhl.

EOHSI houses six major research divisions: toxicology, exposure science, clinical research and occupational medicine, environmental epidemiology and statistics, environmental health policy, and public education and risk communication. Among its six research centers are the Clinical Center for Environmental and Occupational Medicine, the CounterACT Research Center of Excellence, and the Center for Environmental Exposures and Disease (CEED).

Since 1986, EOHSI has received more than \$570 million in extramural funding. This total includes five competitive five-year center grants (ES005022) from the National Institute for Environmental Health Sciences (NIEHS) to support CEED. The center hosts three research cores and a community education core and sponsors nine NIEHS-funded pilot programs, which encourage interdisciplinary approaches to environmental health sciences and innovative collaborations between junior and senior faculty. CEED's 78 members serve in the Department of Environmental and Occupational Medicine

at the medical school or in one of 23 schools and departments at Rutgers.

At CEED—as is true throughout EOHSI—the leadership and membership are balanced between the medical school and Rutgers. Its director, Helmut Zarbl, PhD, professor of environmental and occupational medicine, serves on the medical school faculty, while the deputy director is Rutgers faculty member Debra Laskin, PhD, professor and chair, Department of Pharmacology and Toxicology, Ernest Mario School of Pharmacy.

From the start, EOHSI was an important resource for New Jersey, but it quickly became a national and international resource as well. It has seen enormous growth over the past 15 years, and, with the new millennium, environmental crises have broadened the scope of its work. Dr. Reuhl describes a few of them.

“At EOHSI, the understanding has always been that we would keep university and department walls transparent. . . . Having a common vision provides for best practices and ideas,” says Kenneth Reuhl, PhD (far left), with Howard Kipen, MD, MPH.

In 2001, EOHSI scientists were among the teams of experts summoned by NIEHS to the site of the World Trade Center (WTC) attacks, and they have been involved in multiple ensuing projects, including the World Trade Center Medical Monitoring Program, led by Iris G. Udasin, MD, professor of environmental and occupational medicine and director of employee health. Funded by the National Institute for Occupational Safety and Health, the program provides continuing health care monitoring and advocacy for WTC emergency responders. A far-reaching assessment of effects of exposure to the dust plume that rose from the site was coordinated by Paul J. Lioy, PhD, professor of environmental and occupational medicine and deputy director of government relations and director of exposure science, EOHSI.

In 2008, as China prepared to host the Olympics, its government engaged EOHSI to perform a panel study of 130 Beijing medical students to measure the effects of the government’s drastic reductions in air pollution. The study was led by Howard Kipen, MD, MPH, professor of environmental and occupational medicine and acting associate director, EOHSI. Characteristically, the study

included EOHSI faculty from the medical school, Rutgers, and the School of Public Health.

In October 2012, Hurricane Sandy devastated the New Jersey coast. In its wake, communities faced overwhelming long-term consequences that included fungal infection and acute effects of chronic exposure to mold—new areas of research for EOHSI. In a multifactorial crisis, being multidisciplinary helps, says Dr. Reuhl, naming a few of the many intersecting, post-Sandy concerns addressed by EOHSI scientists: environmental destruction, indoor air pollution, groundwater contamination, infrastructure collapse, housing and energy crises, widespread health risks, and a threatened economy. “You have to have versatile expertise to look at unexpected and unpredictable outcomes,” he says.

In collaboration with the Rutgers School of Engineering, Stuart Shalat, ScD, associate professor of environmental and occupational medicine, is using robots to safely assess the health effects—particularly the risk of asthma—of environmental pollutants on young children. Also focusing on asthma is Robert J. Laumbach, MPH, MD ’97, associate professor of environmental and occupational medicine. Under a grant from the U.S. Environmental Protection Agency, Dr. Laumbach is leading a multidisciplinary team focusing on the Ironbound section of Newark. The study examines the extent to which elevated levels of exposure to air pollutants, coupled with chronic psychosocial stress, may contribute to higher rates of asthma in urban communities.

EOHSI provides strong undergraduate and graduate training at both collaborating institutions. Rutgers Robert Wood Johnson Medical School is one of the few medical schools nationwide to have a Department of Environmental and Occupational Medicine, and EOHSI faculty introduce first- and second-year students to issues of environmental health as part of the curriculum.

Fifty physicians, including Dr. Laumbach, have completed EOHSI’s residency program in occupational and environmental medicine since 1985. The NIEHS-supported Joint Graduate Program in Toxicology, established in 1984, has graduated more than 140 PhD, MS, and PhD/MD students since its inception. In 2011, EOHSI established the first-in-the-nation NIEHS Training Grant in Exposure Science, a collaboration of the Graduate School in Biomedical Sciences at the medical school and the Department of Environmental Sciences at the university. **M**