

NIOSH SUMMARY ANNUAL CENTER REPORT

JOHNS HOPKINS EDUCATION AND RESEARCH CENTER FOR OCCUPATIONAL SAFETY AND HEALTH

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Submitted by:

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Overview: The Johns Hopkins Education and Research Center for Occupational Safety and Health was established in 1977 in response to the need for interdisciplinary training programs to help meet the need for a professional workforce dedicated to worker safety and health. Master's and doctoral training is provided in Occupational and Environmental Hygiene, Occupational and Environmental Health Nursing, Biomarkers of Occupational Exposure and Susceptibility, Occupational Injury Epidemiology and Prevention, and residency training in Occupational and Environmental Medicine. Continuing Education and Outreach components (including Hazardous Substance Training) bring the strengths of the core programs to practicing occupational safety and health professionals and workers in Region III and beyond. The mission of the ERC is to provide an integrated, interdisciplinary approach to training researchers and practitioners in the field of occupational health. The ultimate objective of this project is to protect the health and safety of all working individuals. Additionally, as the only ERC in Region III, the center is dedicated to meeting regional and national needs through occupational safety and health practitioner and researcher training. The success of the center in meeting its objectives is presented, by program, in this report.

Occupational and Environmental Hygiene (Patrick N. Breyse, PhD, CIH): Ten masters and 13 doctoral students were enrolled in our OEH program during this period, and four doctoral students and four master's students graduated in May 2009. This program continues to be a leader in research and practice education. We have started an online option for the master's program, in which eight new students are currently enrolled.

Faculty continue to attract extensive, interdisciplinary research support and maintain a productive publication record that frequently includes student co-authors. During 2008-2009, OEH program faculty had more than 25 peer-reviewed publications, eight of which included ERC students as co-authors. During this period, Dr. Pat Breyse served on a National Academy of Sciences, National Institute of Medicine, National Research Council Committee for the Review of the NIOSH Research Roadmap on Asbestos and Other Elongated Mineral Particles; and as an ad hoc member of the NIOSH Safety and Occupational Health Study Section. Dr. Alison Geyh currently serves on the Maryland Department of the Environment, Air Quality Control Advisory Council. Dr. Peter Lees served as an ad hoc grant reviewer for a NIOSH National Center for Construction Safety and Health funding program and as a panel member for the National Toxicology Program Report on Carcinogens Group review of glass wool fibers.

Occupational and Environmental Health Nursing (Sheila Fitzgerald, MSN, PhD, RN-C):

During the 2008-2009 academic year, five master's and three doctoral students were enrolled in our OEHN program, and two master's students graduated. The *Occupational Health of Vulnerable Worker Populations* course was developed and offered online by Drs. Agnew and Fitzgerald. Dr. Maureen Cadorette became the faculty coordinator for *Fundamentals of Occupational Health* and revised the course for online delivery. MSN/MPH graduate Christina Khaokham was appointed to the Epidemiologic Intelligence Service, and December 2008 MSN/MPH graduate Elizabeth Kasameyer was the recipient of the Alice Gifford Award for an outstanding Capstone project. We are currently analyzing and plan to publish an employment survey of our OEHN graduates.

Program faculty are engaged in leadership activities within the school, professional associations and at the national level. Ms. Mary Doyle and Dr. Sheila Fitzgerald serve on the boards of the Washington and Maryland area chapters of the American Association of Occupational Health Nursing and are developing joint continuing education offerings with Maryland ACOEM. Dr. Fitzgerald remains on the school's Committee for Equity, Diversity and Civility (formerly the Affirmative Action Committee) and worked with the University Climate Survey committee to develop a school-wide online survey on promotion, inclusion and satisfaction. Dr. Jacqueline Agnew remains a member of the NIOSH NORA Liaison Committee and served on a National Academy of Science review team. She also chairs the Educational Programs Committee for the Department of Environmental Health Sciences. Interdisciplinary projects in which faculty and students participated included two Department of Energy Former Workers programs, and a study of heavy metal exposures among Korean Lead Workers.

Occupational and Environmental Medicine Residency (Virginia Weaver, MD, MPH): Our OEMR program had eight residents during this period; three graduated in June 2009, and one transferred for family reasons. All three graduates took positions in occupational medicine at military bases (one in a

civilian position). During this period, four residents had military scholarships and two were recipients of the Occupational Physician Scholarship Fund (OPSF), and two were inducted into the Delta Omega honor society. Based on the increased breadth of OEM, the diverse career interests of the residents trained at Hopkins, and an MPH curriculum that has substantial breadth and depth, we have expanded our first-year training tracks to provide focus in specific areas. The new Global Environmental Sustainability and Health MPH concentration, directed by OEM faculty, includes courses in environmental and international health. The Clinical/Management track uses course options selected from the Health Policy and Management certificate program, and the Academic track focuses on clinical research, leveraging training options from the existing Clinical Research Scholars Program and using the MPH biostatistics and epidemiology concentration. We have also expanded our practicum-year elective rotation opportunities to address areas of emerging importance, such as health promotion and management and disaster preparedness.

During this period, we continued to work closely with the local ACOEM chapter. The fall 2008 meeting, which was supported by our Continuing Education program, featured a presentation by a current resident. Other outreach interactions included joint conferences with the JHU General Preventive Medicine Residency, the Uniformed Services University of the Health Sciences OMR, and the University of Maryland's occupational health program. Reflecting our focus on outreach, upcoming grand rounds lectures are scheduled with regional Internal Medicine residency programs. In addition, Dr. Weaver co-chairs the ACOEM Outreach Workgroup and is a member of the ACOEM Task Force on OEM Education. She is working with two JHU residents on outreach strategies and surveys to be sent to OEMR directors and to ACOEM student/resident members.

Occupational Injury Epidemiology and Prevention (Keshia Pollack, PhD, MPH): During this period, two doctoral students were enrolled in the OIEP program. One trainee (a third-year student) completed her preliminary doctoral exams, obtained an ERC Pilot Project Research Training Grant, and began her dissertation research. The second trainee, a newly recruited doctoral student, will begin his coursework in fall 2009. OIEP funding was reduced to one-third when NIOSH discontinued the Injury Research Training Program Initiative; as a result, the OIEP program's funding is only able to fully support one trainee and partially support another. Despite these funding challenges, Dr. Keshia Pollack met her recruitment goal of one new trainee.

OIEP faculty demonstrated a high level of research productivity, as evidenced by peer-reviewed publications (with trainees included on several papers), book chapters, conference presentations and awarded grants and contracts. One noteworthy new project will involve several OIEP core and affiliated faculty (Drs. Pollack, Jim Weeks and Shannon Frattaroli, and Professor Susan Baker), and will involve an investigation of military vehicle crashes to identify potential technological solutions that can be implemented to reduce the likelihood of a crash. OIEP faculty also continued to conduct research in important areas of occupational injury epidemiology and prevention, including employee assistance programs and intimate partner violence, disability and return to work post-injury, self-management interventions, wellness and injury prevention among firefighters, motor vehicle crashes in the military, and injuries among transportation workers. (Students took part in many of these research projects.) Program faculty continued in leadership positions in the school and in the field. Dr. Pollack represented injury prevention as part of the NIOSH Task Force for Workforce Development, was invited to author a book chapter on occupational injuries, and was recently appointed to a three-year term to Baltimore's Park Heights Community Health Alliance. Dr. Renan Castillo continued to gain recognition for his development of a screening tool for delayed return to work following low back injuries, as well as for his work in trauma outcomes and self-management interventions. Professor Baker recently completed her third term on the Armed Forces Epidemiological Board and continues to receive national recognition for her work in the safety of transportation workers.

Biomarkers of Occupational Exposure and Susceptibility (Paul T. Strickland, PhD): The BOES program completed another productive year with full funding from NIOSH. We maintained continuity of the program and continued to recruit new doctoral candidates. The program was formally reviewed by the external advisory committee at their centerwide site visit in July 2008, and valuable input and advice was obtained with respect to future goals and objectives of the program. Six PhD students were enrolled, and one graduated, during this period. Recent graduates have successfully transitioned to full-time

employment at governmental departments of occupational safety and health, academic research departments and private research and consulting firms. NIOSH support has helped leverage independent support for fees and doctoral research and is supplemented by tuition support from EPA STAR fellowships and school diversity fellowships.

BOES faculty demonstrated a high level of research productivity during this period, as evidenced by published papers, review articles and book chapters (many of which include students as authors), which are augmented by numerous presentations at national and international conferences and participation on national and international professional committees. We have added two faculty with expertise in proteomics, genomics and bioinformatics, and, to further enhance BOES faculty expertise in these areas, we have recruited three new contributing faculty from the Department of Environmental Health Sciences.

Pilot Project Research Training (Peter S.J. Lees, PhD, CIH): We continue to offer the Pilot Project Research Training Request for Proposals to all NIOSH-supported institutions and other institutions engaged in occupational safety and health research in Region III. This year, the RFP was distributed to 38 program directors at 20 different institutions. In response, eight applications were received – three from junior faculty and doctoral students from the Johns Hopkins Bloomberg School of Public Health, and five from the following universities: the University of Pennsylvania School of Nursing (one); the University of Maryland School of Nursing (one); Virginia Polytechnic and State University (one); and the George Washington University School of Public Health (two). Three proposals were funded: *The Impact of LEED Certified Green Building Design on Occupational Safety and Health*; *A Feasibility Study of Occupational Health and Safety and Emerging Nanotechnologies*; and *Occupational Exposures to Campylobacter Jejuni and Autoimmune Peripheral Neuropathy in Cow Farmers*.

Continuing Education and Outreach (Mary Doyle, RN, MPH, COHN-S/CM): The CE program continues to participate in the Healthy Homes training network as a university partner, averaging two trainings per year. We work closely with local professional associations, including AAOHN, ASSE, AIHA, ACOEM and AHMP, to plan continuing education courses and support monthly meetings. Ms. Mary Doyle is on the executive planning committee for the nursing regional occupational health conference. During this period, we presented a NORA symposium, “Vulnerable Worker Populations,” featuring a keynote address by Dr. Rosemary Sokas and a lecture/photography exhibit by Dr. David Parker. Other highlights of the symposium included presentations by previous Pilot Project award recipients. Our CE program had nearly 500 trainees during this period.

Hazardous Substances Training (Mary Doyle, RN, MPH, COHN-S/CM): The HST program continues to collaborate with local public health departments, state environmental health officials and local professional associations to meet the continuing education needs of regional environmental health professionals. During this period, Ms. Doyle was on the executive planning committee with local ASSE and AHMP officers to develop the Professional Development Conference “What’s New in Waste Management?” with speakers from academia and private, state and federal organizations. Ms. Doyle was also on the executive planning committee with local ASSE and AHMP section officers to plan the *Essentials of Hazardous Materials Management (EHMM) Overview*. A new course, *Confined Space*, was developed in collaboration with a private environmental consulting company, and another popular new course, *Investigating Public Health Complaints*, was developed in collaboration with local county environmental health directors. More than 100 trainees enrolled in our HST offerings during this period.

Summary: During this reporting period, the Johns Hopkins ERC successfully accomplished its mission of providing professional and research training and continuing education and outreach in the field of occupational safety and health. Student recruitment remains a priority, with specific attention to recruiting minority students. Dr. Fitzgerald is leading these efforts on behalf of this ERC, in coordination with the school diversity officer. Additionally, we are constantly exploring additional sources of student funding. The support provided by NIOSH funding is vital to sustaining and growing our programs, and allows us to leverage funding from other sources.