

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 (ERC) was established in 1977 in response to the need for interdisciplinary training programs to help meet the growing 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) offer the strengths of the core programs to practicing occupational safety and health professionals and workers. 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 (OEH) (Patrick N. Breyse, PhD, CIH): Nine masters and 11 doctoral students were enrolled in our OEH program during this period, and six doctoral students and seven master's students graduated in May 2010. 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 11 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 2009-2010, OEH faculty had more than 20 peer-reviewed publications, seven 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; as a member of a National Academy of Sciences committee on Blue Water Vietnam Veterans and Agent Orange Exposure; 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 a panel member of the National Toxicology Program Report on Carcinogens Group review of glass wool fibers.

Occupational and Environmental Health Nursing (OEHN) (Sheila Fitzgerald, MSN, ANP, PhD): During the 2009-2010 academic year, five master's and four doctoral students were enrolled in the OEHN program. Two master's and one doctoral student graduated; two have positions in occupational health and one is exploring several opportunities. Our online course *Occupational Health of Vulnerable Workers* was taught for the second time and enrollment has doubled since its initiation in 2009. This course fulfills a need for our OEHN students and also engages a multidisciplinary group in the study of vulnerable workers. We have recently developed a collaborative effort with the Johns Hopkins School of Nursing on the nationwide recruitment of students to our respective programs. Telephone conferencing with noted experts in OEHN has been incorporated into our weekly OEHN seminars to accommodate high quality presenters who live at a distance from Baltimore.

Our program faculty serves in leadership positions within the school, locally and nationally. Drs. Agnew, Cadorette and Fitzgerald and Ms Doyle are engaged in Preparedness Education in Region III. Drs. Cadorette and Agnew were recognized for teaching excellence for their courses, *Fundamentals of Occupational Health* and *Occupational Health*, respectively. Additionally, Dr. Cadorette was appointed to the Institutional Review Board at the Department of Energy (DOE), thus utilizing her expertise as a principal investigator of a project that conducts medical surveillance for former DOE workers. Dr. Fitzgerald continues her research on cardiovascular risk in young workers and will apply for continuation funding; she was reappointed to the University Diversity Leadership Council and the Committee of Equity, Diversity and Civility. Of note, student Natalia Neifert, RN, MSN/MPH, received the Alice Gifford Award for the most outstanding capstone project.

Occupational and Environmental Medicine Residency (OEMR) (Virginia Weaver, MD, MPH): Our OEMR program had five residents during this period; three of whom graduated in June 2010 and have taken positions in occupational medicine (two at military bases and one in a hospital-based OEM clinic). During this period, two residents had military scholarships, and one was a recipient of the Occupational Physician Scholarship Fund (OPSF). Posters of two residents' research projects were presented at the 2010 American Occupational Health Conference. All three graduates and one current resident have

manuscripts in preparation, submitted, or published. Based on the increased breadth of OEM and the diverse career interests of the residents trained at Hopkins, we have expanded our elective rotation opportunities to provide greater depth in a wider range of OEM areas and to address areas of emerging importance, such as health promotion and management and disaster preparedness.

During this period, we increased our efforts towards outreach. Dr. Weaver gave OEM grand rounds at two Hopkins-affiliated primary care internal medicine residency programs. Additional regional conferences are planned for the coming year. Dr. Weaver is a member of the American College of Occupational Medicine (ACOEM) Task Force on Physician Recruitment, which carries on the work of the ACOEM Outreach Workgroup of the ACOEM Task Force on OEM Education that she co-chaired. She is working with two JHU residents on analyses of data from outreach surveys that were sent to OEMR directors and to ACOEM student/resident members. Our co-chief resident will give a career day presentation to Johns Hopkins medical students. OEM faculty continue to provide grand rounds and electives for medical students and internal medicine residents at the University of Maryland.

Occupational Injury Epidemiology and Prevention (OIEP) (Keshia Pollack, MPH, PhD): The OIEP renewal application submitted in August 2009 was awarded though June 2012 with a slight increase in funding, which enabled Dr. Pollack to recruit an additional trainee. There are currently four trainees; three are supported by the training grant, and one is a federal employee. The OIEP advisory board met via conference call in April 2010 and determined that they would meet twice per year (fall and spring). When possible, these meetings will occur in person, though Dr. Pollack is exploring the feasibility of utilizing Web technologies for these meetings.

OIEP faculty continued to demonstrate a high level of research productivity, as evidenced by peer-reviewed publications, book chapters, conference presentations and awarded grants and contracts. They conduct ongoing research in important areas of occupational injury epidemiology and prevention, including employee assistance programs and their association with injury prevention, work-related disability and return to work post-injury, self-management interventions, injury prevention among firefighters and professional athletes, motor vehicle crashes in the military and injuries among transportation workers. Students took part in many of these research projects. Dr. Pollack authored a book chapter on occupational injuries, and she published two abstracts for her research on employee assistance programs and their role in intimate partner violence prevention; this work will be presented at the Safety 2010 World Conference in September, 2010. Dr. Renan Castillo was recognized 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. He also agreed to be the faculty sponsor for the first-term injury seminar, which will focus on disability and trauma and include presentations on how these issues impact work. Professor Susan Baker continues to mentor Dr. Pollack in her role as OIEP director, and is contributing greatly to the knowledge on ensuring the safety of transportation workers, particularly in aviation. Our new faculty affiliate Dr. Stephen Wagener, an associate professor of physical medicine and rehabilitation at the Johns Hopkins School of Medicine, is conducting research on post-injury rehabilitation, primarily among military personnel, which complements the existing research by OIEP faculty.

Biomarkers of Occupational Exposure and Susceptibility (BOES) (Paul T. Strickland, PhD): The BOES program is currently training seven doctoral candidates, and one PhD student graduated in July 2009. Recent graduates have successfully transitioned to employment at government agencies, academic research departments and private research and consulting firms. PhD graduate Ellen Wells accepted a position as coordinator for the Center for Environmental Health and Human Ecology at the Cleveland Museum of Natural History, with an academic appointment at Case Western Reserve University School of Medicine. NIOSH support has helped leverage independent support for student training and is supplemented by tuition support from EPA STAR and school diversity fellowships.

BOES faculty demonstrated a high level of research productivity during this period, and continued to support doctoral-level training in other ERC programs and collaborating departments. Faculty make major contributions to the field, as evidenced by published papers, review articles and book chapters (many of which include students as authors), as well as numerous presentations at national and international conferences and participation on national and international professional committees. To

highlight some faculty achievements during this period: Dr. Strickland served as member of the Review Panel on PAH Mixtures of the EPA Science Advisory Board and served on the Standing Scientific Review Panel of the Lymphoma Foundation of America; Dr. Ana Navas-Acien served as a member of the WHO Expert Panel on Global Burden of Disease Caused by Lead, and was an invited guest speaker for the Occupational and Public Health Specialty Section at the Society of Toxicology 48th Annual Meeting in Baltimore; and Dr. Brian Schwartz serves as co-director of the Joint Geisinger-Johns Hopkins Environmental Health Institute.

Pilot Project Research Training (PPRT) (Peter S.J. Lees, PhD, CIH): We offer the Pilot Projects 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 request for proposals was distributed to 38 program directors at 20 different institutions. In response, 10 applications were received – two from doctoral students at the Johns Hopkins Bloomberg School of Public Health and eight from the following universities: the University of Pennsylvania Schools of Nursing and Medicine (two); the University of Maryland School of Nursing (two); West Virginia University Schools of Medicine and Engineering (three); and the Uniformed Services University of Health Sciences (one). Three proposals were funded: *Characterization of Occupational Bloodborne Pathogen Exposures in Health Care Workers at a University Hospital: A Three Year Retrospective Study*; *Assessing Workplace Phthalate Exposures Among Massage Therapy Students*; and *Field Evaluation of a Newly Designed Miners' Helmet Equipped with Cap Mount Muffs*.

Continuing Education and Outreach (CE) (Mary Doyle, RN, MPH, COHN-S/CM): The CE program continues to participate in the Healthy Homes training network as a university partner, increasing our trainings to four 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 has joined a consortium of regional occupational health associations to collaborate and coordinate professional training activities among the various professions. She is on the executive planning committee for the nursing regional occupational health conference and serves as an officer and on the executive board for the Metropolitan Washington chapter of AAOHN. The ERC collaborated with Organization Resources Counselors Worldwide to organize the Corporate Health Directors Network meetings, which were held twice during the grant year. Our CE program had nearly 600 trainees during this period.

Hazardous Substances Training (HST) (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 annual Professional Development Conference 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 Course*. A popular new course, *Investigating Public Health Complaints*, was developed in collaboration with local county environmental health directors last year and was offered twice during this grant period. More than 160 trainees enrolled in our HST offerings during this period.

Summary: During this reporting period, we have enhanced the nation's professional OHS workforce in several ways, with both immediate and long-term benefits that are consistent with the original purpose of ERCs. NIOSH support has launched careers in research and practice in the field and allowed us to provide, and mentor students who will provide, leadership and expertise in the field. Perhaps most important are the enduring benefits to the field that have been generated by producing a significant proportion of graduates who assume positions in academia – thus influencing the recruitment and preparation of OHS professionals over future times. The extent of our outreach and continuing education programs substantially increases the occupational safety and health resources available to our region and beyond. We will continue to respond to emerging issues that affect the health of workers and will contribute to their solutions. Our goals over the next funding period are to continue the leadership provided by faculty and the recruitment of students who will follow their lead. We will focus on the recruitment of minority students and pursue all avenues to increase student support.