

**NORTHERN CALIFORNIA EDUCATION AND RESEARCH CENTER FOR
OCCUPATIONAL SAFETY AND HEALTH**

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**ANNUAL REPORT
July 1, 2015 – June 30, 2016**

**SUBMITTED BY:
JOHN BALMES, M.D.
CENTER DIRECTOR
UNIVERSITY OF CALIFORNIA,
BERKELEY, SAN FRANCISCO AND DAVIS**

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Northern California Education and Research Center Annual Report
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Section I:

ERC Summary:

The goal of the Northern California ERC, a consortium of programs of the University of California, is to train professionals as practitioner and research leaders in occupational safety and health by offering graduate degrees, residency training, clinical experiences, and research mentorship to trainees. The aim of the ERC is to provide a broad, multidisciplinary educational experience involving student and faculty collaborations in the classroom and on research and service projects. Activities are grounded in multi-campus, interactive teaching programs that translate knowledge into information that can be used to improve worker safety and health. In addition, through the Continuing Education Program and the Outreach components of the Labor Occupational Health Program, the ERC provides continuing education courses and outreach activities to other health professionals. The Center aims to provide an educational bridge from the University to external constituencies to ensure that practicing professionals, workers, their representatives, supervisors, and other educators benefit from the University's occupational health and safety expertise. The ERC strives to integrate an occupational safety and health perspective in all of its activities, including such activities as the STEER program, a summer internship program funded by the National Institute for Environmental Health Sciences, which is designed to encourage students to consider further study in one of the ERC programs.

The Northern California ERC trains professionals in the following areas:

Industrial Hygiene (UC Berkeley) – MPH, MS, PhD degrees

Occupational Epidemiology (UC Berkeley) - MS, PhD degrees

Ergonomics (joint program at UC Berkeley/UCSF) – MS, MPH, PhD degrees

Occupational and Environmental Health Nursing (UCSF) – MS, PhD degrees

Occupational and Environmental Medicine (UCSF) – Residency Training, MPH degrees

Agricultural Safety and Health (UC Davis) – PhD degrees

Targeted Research Training (joint program at UC Berkeley/UCSF)

Relevance:

The aim of the ERC training program is to produce graduates with strong problem solving skills and the ability to synthesize diverse information in order to effectively address both typical and unusual problems that arise in the technically, institutionally, and culturally complex workplaces which characterize the current economy. Issues facing low-wage and immigrant workers are particularly important to the ERC, as are health and safety issues in emerging sectors such as green jobs.

ERC web link: <http://coeh.berkeley.edu/>

Section II:

All of the Northern California ERC programs have been productive over the reporting period, but we will highlight the following three:

Program highlights of high impact:

Occupational and Environmental Health Nursing: *Director, OiSaeng Hong, PhD, RN, FAAN, FAAOHN*

The Occupational and Environmental Nursing Program under the leadership of Dr. Hong has achieved several high impact accomplishments by program faculty and trainees at the local, regional, national and global levels. The program faculty continued to do high quality research with trainees in the areas of prevention of occupational injuries and diseases among special populations such as taxi drivers (Burgel), immigrant dry cleaner workers (Chin, Hong, Nouredini), firefighters (Chin, Drew Nord, Hong, Phelps), hospital nurses (Buss, Lee), and custodial workers (Hong, Lee).

The Nursing Program continues to provide leadership in scientific conferences for OHNs at local and state levels. Burgel served as the Co-Chair of Planning Committee for a 3-day California State Association of OHNs (CSAOHN) Conference. We continued our biannual tradition of co-sponsoring a CECRAOHN continuing education program at UCSF, where we featured a timely update on the Zika virus (George Rutherford, Director of UCSF Institute of Global Health) and a discussion of vendor health services in employer settings (OEHN program alumnus, Frances Childre, Vice President of Operations, Premise Health). Three of our graduating Master's students (Low, Surratt, and Teng) presented on their evidence-based OEH quality improvement projects, and the OEHN faculty made 6 poster presentations to disseminate the findings of their research projects.

At the national level, MS student Dawn Surratt completed the Occupational Health Internship Program (OHIP), and participated in the first-ever study of hazards facing Latino immigrant workers employed in the shipyards of Southeastern Louisiana. She shared the findings with the workers and the OSHA-Baton Rouge staff and presented it at the American Public Health Association (APHA) conference. Her work clearly made a contribution to improving working conditions for Latino immigrant shipyard workers. At the global level, Dr. Hong, along with Dr. Rautio (Head of the OH Development Centre at the Finnish Institute of Occupational Health), was invited by Taiwan Occupational Safety and Health Administration (OSHA) and the Taiwanese Association of Occupational Health Nurses to train 50 nursing faculty from schools of nursing across the country for development of a graduate level occupational health nursing specialty in Taiwan. Dr. Hong and Dr. Francisco Santos O'Connor, Specialist in Occupational Safety and Health at the International Labour Office (ILO) in Geneva agreed to initiate OEHN students' internship opportunities at the ILO for their global OH work exposure.

Agricultural Safety and Health: Director, Fadi A. Fathallah, PhD

The Agricultural Safety and Health Program at UC Davies led by Dr. Fathallah provides research and training with the goal of eliminating safety hazards, reducing agricultural injuries and fatalities, and improving worker health. Dr. Fathallah leads a multidisciplinary team of researchers and educators, and works closely with the Californian agricultural industry.

The program is at the forefront of research into current issues facing agricultural workers. One such issue is climate change. Global climate change is increasing, posing a threat to heat-related illnesses to workers in many outdoor occupations, such as agricultural workers. Agricultural workers are exposed to strenuous physical labor when working in varying conditions of extreme heat, which puts them at a higher risk of experiencing heat-related illness. We highlight our work in this critical area. One NIOSH supported trainee (Vega) in the Agricultural Safety and Health Program is conducting a cross-sectional study in a sample of agricultural workers in California's Central Valley, which assesses the clothing schemes to find the optimal and feasible garments to wear when working under these conditions. The study will also validate a proposed thermography tool under non-laboratory conditions. Further, this study will determine the effects of wearing multiple layers of clothing when working in hot outdoor conditions. This will help to develop preventative methods and educational programs for farm workers that will be practically implemented in agricultural and other outdoor occupational settings and help reduce the

prevalence of heat-related illness among this vulnerable population.

Occupational Epidemiology: Director, Ellen A. Eisen, Sc.D

Under the leadership of Dr. Eisen, the Occupational Epidemiology Program, within the Division of Environmental Health Sciences at UC Berkeley, has developed a research group focused on Methods for Occupational Epidemiology. The group consists of current PhD students (in Epidemiology EHS or Biostatistics) who are trainees in the NIOSH ERC training program in Occupational Epidemiology, as well past trainees, post-doctoral fellows, researchers and data analysts in EHS. The group's major area of interest is on epidemiologic methods to address the healthy worker survivor effect (HWSE) in exposure-response studies. HWSE is a common feature of occupational studies that arises when leaving work is both a time-varying confounder (predicts future exposure and the outcome) and is also affected by prior exposure. When HWSE is present, standard regression methods will be biased and G-methods are needed to correctly handle the time varying confounding.

Berkeley is one of the only two places in the country now applying cutting-edge G-methods to occupational health data (the other is University of North Carolina). As evidence of our productivity, 2 current trainees (Izano & Garcia) and 4 researchers (Costello, Picciotto, Neophytou, & Brown (former trainee) presented work at the 2016 Epidemiology in Occupation Health Conference (EPICOH) in Barcelona. The current NIOSH supported students presentations were: "An Analytical Approach for the Estimation of Causal Effects of Occupational Exposures in Left Censored Cohorts" (Izano) and "Assessment of the Healthy Worker Survivor Effect in the United Autoworkers-General Motors Cohort" (Garcia). The various presentation topics included a simulation study to estimate the bias induced by delayed reporting of cancer incidence, silicosis as a possible mediator of the silica and lung cancer relation, and etiologic versus realistic exposure-response parameters, as well as estimation of causal effects of occupational exposures in cohort studies of non-metal miners, silica exposed workers, and autoworkers exposed to metalworking fluids.

Continued NIOSH support allows us to continue this research program in Methods in Occupational Epidemiology that enriches the academic and research experience of all NIOSH trainees.