

Northern CA ERC

NORTHERN CALIFORNIA EDUCATION AND RESEARCH
CENTER FOR OCCUPATIONAL SAFETY AND HEALTH

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ANNUAL REPORT

July 1, 2016 – June 30, 2017

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UNIVERSITY OF CALIFORNIA,

BERKELEY, SAN FRANCISCO AND DAVIS

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Northern California Education and Research Center Annual Report

July 1, 2016 – June 30, 2017

Section I:

ERC Summary:

The goal of the Northern California Education and Research Center (ERC), a consortium of programs of the University of California, is to train professionals as practitioners 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 health and safety professionals and workers. 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:

To meet public health needs the ERC training program furnishes 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.

Northern CA ERC

Key Personnel:

Name	Position	Contact information
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Northern CA ERC

Section II:

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

Program highlights of high impact:

Occupational and Environmental Medicine Director, Paul Blanc, MSPH, MD.

The Occupational and Environmental Medicine Program under the leadership of Dr. Blanc has achieved multiple high impact accomplishments by program faculty and trainees at the local, regional, national and international levels. The program faculty, including with collaboration with trainees, has been active in understanding mechanisms of occupational injuries and diseases and their prevention in the workplace and in the environment, including particular interest in vulnerable populations. Recent examples of groups studied include: hotel cleaning workers (Harris-Adamson); cook stove users in developing economies (Balmes); high-altitude mine workers (Blanc); pesticide-exposed workers at risk of neurodegenerative disease (Goldman); and sex-film worker risk (Harrison). The OEM Program continues to offer an annual CME course that has an increasingly strong reputation and a national and international cadre of faculty and attendees. This has included a scientific poster session that provides an important forum for the OEM residents to present their own work. This past March, nine current OEM residents and one incoming resident presented ten poster abstracts. Our residents have also presented in the past year at WOEMA, AOHC and at society meetings such as the 2017 American Thoracic Society International Meeting.

Dr. John Balmes has assumed the leadership of the joint UCSF-UC Berkeley Medical Program which not only has increased even further his high academic standing, has also served to draw in student into OEM-related collaborations with other faculty. He also holds a very prominent position in the California Air Resources Board serving as a role model for practice to policy. Dr. Robert Harrison through his ongoing concurrent leadership of the California Department of Public Health Workers Health Branch also actively integrates public policy with public health practice, including recent initiatives in workplace violence, heat over-exposure, infection agent exposure. Dr. Paul Blanc similarly has recently engaged in prominent public discourse on workers' health through the publication of his well-received book *Fake Silk: The Lethal History of Viscose Rayon* (Yale University Press).

Ergonomics Training Program: Director, Carisa Harris-Adamson, PhD, CPE, PT.

The UC Ergonomics Research & Graduate Training (UC Ergo) Program has had a very productive year. During the reporting period, the program supported two PhD students (mechanical engineering) and one MPH student. The PhD students designed trunk and upper extremity exoskeletons and have focused on understanding how they can assist workers doing various occupational tasks to reduce shoulder and back injuries. Both students have been collecting data to assess how the exoskeletons will impact worker comfort, productivity and fatigue. This area of research will be extremely helpful to reduce physical exposures associated with manual material handling and overhead work. Additionally, these devices may be used to help aging workers to stay in the workplace longer. One of the PhD students advanced to PhD Candidate as he completed his qualifying exam. Additionally, the MPH student (part of the Joint Medical Program) researched the effects of concrete drilling on hand vibration, noise and silica dust exposure. He successfully earned his MPH degree and presented his work at the 2016 AIHce

Northern CA ERC

(American Industrial Hygiene Conference & Exposition) in Seattle Washington.

There are numerous other students involved in the UC Ergonomics Program that are not directly supported as trainees but also contribute important work. The UC Ergo Program, with the Center of Occupational and Environmental Health, also ran a successful continuing education summer institute workshop. This 2-day workshop entitled "New Exposure Assessment Methods in Ergonomics" included speakers from around the country and provided didactic and hands on learning opportunities for participants. Additionally, the UC Ergo Program hosted 5 student interns over the summer, 2 from the Occupational Health Internship Program and 3 from the STEER Program. The undergraduate and graduate students explored their career options in Occupational Health through research and class work, including the 2-day workshop described.

The primary faculty and staff at the UC Ergo Program have not only supported students through their research and as mentors, but have shared important work regionally, nationally and internationally through conferences, invited presentations and webinars. Much of the research is focused on high risk and/or vulnerable populations. Mr. Alan Barr, Senior Engineer continues to provide high quality research in the area of construction, particularly concrete drilling and now in the area of concrete grinding. Along with Dr. Rempel, he has a close affiliation with CPWR, Construction trades and union workers where they share their latest research. Dr. Harris works closely with the Hotel Housekeeping Union to advance research that will support the cardiovascular and musculoskeletal health of this vulnerable population. Additionally, with Dr. Bates, Dr. Harris is studying the musculoskeletal health, pelvic organ prolapse and disability among females carrying heavy loads in developing countries.

Industrial Hygiene: Director, S. Katharine Hammond, PhD, CIH.

Under the leadership of Dr. Hammond and Assistant Director, Sa Liu, PhD, CIH, the Industrial Hygiene Program has continued its upward trend to remain as a strong training and research program. The program had record high number of students (11), including 7 MPH, 3 doctoral and 1 DrPH students during the reporting period. The program faculty, including with collaboration with trainees, has been active in understanding occupational exposure and health effects and their prevention in the workplace locally, nationally and internationally. Recent examples of studies include: the interconnectedness of Catastrophic Risk Management, Organizational Psychology and Safety Culture (Moore, DrPH student); occupational exposure to flame retardants in fire station dust (Shen, PhD student); wildland firefighters' exposure of particulate matter and polycyclic aromatic hydrocarbons (Novorro, PhD student graduated); sanitation and workers' exposure to endotoxins during human waste handling in developing countries (Sklar, PhD student); workers' exposure to PM in aluminum manufacturing industry and cardiovascular effects (Hammond and Liu); workers' exposure to metalworking fluid and end-stage renal disease (Hammond and Liu); and untargeted analysis of workers' exposure to benzene in Chinese shoe manufacturing factories (Rappaport and Liu).

The IH Program continues to develop a strong curriculum to meet the need of current industrial hygiene practice and research. This has included regularization of Exposure Assessment and Control II (physical agents and ventilation) from an experimental course to a regular course, continuous effort of incorporating green chemistry into IH curriculum and the development of a new course on global

Northern CA ERC

occupational health. The global occupational health course will bring IH program alumni back to the classroom and use their practice and expertise to enrich current students' learning experience and to link classroom knowledge to real world practice.

Nine trainees did their summer internship (three in the summer of 2016 and six in the early summer of 2017) in research institutes and industry. Three IH trainees attended the annual industrial hygiene conference in Seattle (AIHce2017). We organized our program's traditional annual alumni gathering on campus and at AIHce2017. Both were well attended. For the coming year, we plan to use the capstone project, newly adapted by the Division of Environmental Health Sciences, as a platform to bring more industrial hygiene and occupational health research and practice into MPH training.