

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

SUMMARY ANNUAL REPORT

July 1, 2007 – June 30, 2008

NIOSH Training Grant

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Northern California Education and Research Center Annual Report

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Center-Wide Highlights

Director John Balmes, MD

The Northern California Education and Research Center of the Center for Occupational and Environmental Health (COEH) trains students for leadership positions in occupational and environmental health, while engaging in cutting-edge research in areas of interest to workers and employers. Thirty-two students or fellows in medicine, nursing, industrial hygiene, and ergonomics were part of the training program; 26 were at least partially supported by NIOSH. Primary teaching faculty in the core programs published 43 manuscripts; 19 former/current students from core/affiliated programs were co-authors on these peer-reviewed publications.

The Occupational and Environmental Medicine (OEM) program established a part-time practicum year training program for physicians who wish to complete their formal education, and become qualified to take the ABPM in OEM certification examination while they continue to practice medicine.

The interdisciplinary Research Training Seminar, focusing on research design and implementation, was launched by UC Berkeley epidemiologist Michael Bates. Occupational and Environmental Health Nursing (OEHN) doctoral students and medicine fellows attended this seminar which will be expanded in 2008-09 to include students funded by the NIOSH Targeted Research Training grant.

The Northern/Southern California Centers produced a document titled, "Green Chemistry: Cornerstone to a Sustainable California." Please visit: <http://coeh.berkeley.edu/greenchemistry/briefing/> for a copy of the report.

John Balmes was appointed by Governor Schwarzenegger to the California Air Resources Board.

The 2008 Symposium, coordinated by Marc Schenker of UC Davis, and Robin Baker, of the Labor Occupational Health Program, focused on “Immigrant Workers: A Population at High Risk for Occupational Injury and Illness.” More than 100 professionals, community members, and labor leaders attended this event.

The COEH) Student Award was given to a COEH doctoral student and OEM resident who traveled to Chile to investigate the association between arsenic in drinking water and lifelong lung function decrement.

Occupational and Environmental Medicine (OEM) Training Program

Program Directors: Gina Solomon, MD, MPH, and Sarah Jewell, MD, MPH

Gina Solomon and Sarah Jewell assumed directorship of the program. Dr. Solomon has been on the OEM faculty for 12 years, is Associate Director of the UCSF Pediatric Environmental Health Specialty Unit, and Senior Scientist at the Natural Resources Defense Council. Dr. Jewell has been an OEM faculty member for 13 years and is Associate Chief of the OEM Division at San Francisco General Hospital. Continuing the program’s tradition of excellence, they will expand the program focus on research, toxicology, international issues, and environmental health. Faculty research and education included: 1) Effects of heat waves on morbidity; 2) links between Parkinson’s disease and chemical exposures; 3) upper extremity surface EMG; 4) job stress in low-wage workers in the hospitality industry; 5) occupational factors and functional limitations in COPD; 6) psychosocial/environmental factors in asthma; and 7) health effects of air pollution.

Dr. Solomon partnered with the CA Dept. of Public Health to investigate excess emergency department visits and hospital admissions as a result of the 2006 California heat wave. Dr. Jewell participated in a landmark meeting on Parkinson’s disease and chemical exposures that developed a consensus statement and research recommendations. Drs. Balmes and Blanc participated in the writing of new American College of Chest Physicians guidelines for the diagnosis and management of occupational asthma.

Three fellows attended the program in 07-08. The two graduating residents worked on research projects with Drs. Goldberg and Krause and presented their research findings at the American Occupational Health Conference, one of which received the Resident Research Award. Both have found employment in OEM.

Industrial Hygiene (IH) and Hazardous Substances Academic (HSAT) Training Programs

Program Director: Mark Nicas, PhD, MPH, CIH

Two core faculty members, Drs. Nicas and S. Katharine Hammond, conduct IH research and serve as advisors. Other EHS faculty teach IH-related course work and serve on dissertation committees including Drs. Spear, Balmes, McKone, M. Smith, Holland, A. Smith, and Rempel. In addition, Ms. Plog directs the safety course which focuses on fatality case reports developed by staff of the NIOSH-supported FACE program.

There were 11 students enrolled in the IH Program; nine received NIOSH funding. The IH Program, a balance of practitioner and research training is based on foundational knowledge and technical skills, and practicum training (via internships and participation in clinical settings). Students were mentored on varied research topics such as microbial risk assessment, respiratory exposures from welding, particle transport and fate modeling, and droplet spray exposure.

Dr. Hammond was honored with a \$600,000 award from the Flight Attendants Medical Research Institute for her contributions to research on second hand tobacco smoke (SHS), as well as the Henry F. Smyth, Jr. award from the AAIH for teaching excellence and contributions to public welfare. Dr. Nicas’ risk-based method for selecting respiratory protection against airborne pathogens is a basis of a draft ANSI Z88.12 standard on bioaerosol protection, and Dr. Hammond’s research on exposure to SHS has supported prohibition of smoking

in private and public workplaces.

Graduates of the IH program continue to hold important staff positions in state government health agencies. This year, one graduate drafted a generic airborne pathogens standard which is being considered for adoption by the Occupational Safety and Health Standards Board; a second was appointed as the Chief of Cal/OSHA, while a third participated in the field investigations of diacetyl exposures on a state-wide level.

The HSAT program supported one MPH student. Nine MPH students benefited from the revised curriculum by taking two courses that allowed them to graduate as HAZWOPER certified professionals. In addition, 22 OSH professionals attended the academic course which was very successful and well rated. All trained MPH students applied new skills to summer internships in respiratory protection, hazard recognition, and health and safety programs.

Occupational and Environmental Nursing Training Program

Program Director: Oisaeng Hong, RN, PhD

New program director, Dr. Oisaeng Hong, joined UCSF after 5 years as the director of the OHN Program at the University of Michigan. Recruitment of a doctorally-prepared tenure track faculty member is currently underway to replace the position vacated by Dr. Julia Faucett. Dr. Hong led a community outreach/education on mercury exposure from subsistence fishing. She also obtained a R01-type research grant from the Department of Homeland Security to reduce noise-induced hearing loss in firefighters. Dr. Hong served on the UCSF Chancellor's Steering Committee on Occupational Health and Safety, as well as serving on dissertation committees for doctoral students at the Universities of Michigan and Illinois at Chicago.

NIOSH appointed Dr. Faucett as Chair of the OEHN Taskforce. Ms. Burgel served on an AAOHN Task Force to review the proposed "Consensus Model for APRN Regulation: Licensure, Accreditation, Certification and Education." Ms. Segovia-Bain began a clinical faculty practice with the expanded UCSF Occupational Health Clinic, served on the UCSF Sustainability Committee, and provided volunteer services to day laborers.

Dr. Hong served on dissertation committees for doctoral students in Brazil and Korea and Dr. Faucett in Thailand. Dr. Hong served as a coordinator/mentor for Brazilian government-sponsored nursing students in the "Doctoral Student Training Abroad Program," and was appointed as Visiting Professor of the OHN program in the College of Nursing at the University of Sao Paulo. Drs. Gillen and Hong provided research mentoring for OHN visiting scholars from Korea, Taiwan, and Thailand. Drs. Faucett and Hong participated in the international collaborative on global changes in nursing employment and OH, funded by the University of OEH, Japan. Further, Dr. Hong was invited as a keynote speaker to the World Congress on Safety and Health at Work and the Korean OHN Association Annual Conference, increasing visibility of the ERC and COEH.

Fourteen students attended the program in 07-08 (8 MS and 6 PhD), of whom three MS students graduated. Twelve additional MS students and one PhD student were recruited to the program for 08-09, 46% of whom were from under-represented groups. A doctoral graduate was appointed as a NIOSH EIS Fellow. Several doctoral students received extramural financial support from the Gordon and Betty Moore Foundation, a Eugene Cota-Robles Fellowship, and the AAOHN Foundation.

Ergonomics Graduate Training Program

Program Director: David Rempel, MD, MPH

For the 07-08 year, there were 3 MS students, 1 PhD student, and 1 post-doctoral fellow in the program. The three MS students graduated in 07-08 and all have decided to pursue doctoral work in ergonomics. Two of the MS students and the PhD student were supported on the training grant. Two new MPH students will join the

program in 08-09. One, a gastroenterologist, will study the tools/workstation design for colonoscopies in order to reduce clinician overuse wrist and shoulder injuries. Four PhD students continue in the program in 08-09. Their research focus ranges from improving the accessibility of medical equipment for patients and health care professionals with disabilities (mobility, vision, and manipulation impairment) to decreasing lumbar spine load for material handling tasks. One is studying the effects of computer monitor placement on visual fatigue. They are also involved in the evaluation/design of workplace tools and devices, including alternative keyboards and mice and overhead drilling devices. During the reporting period, students were involved in publishing 11 peer reviewed papers and presentations at eight scientific meetings. A very exciting highlight is the number of undergraduates involved in the program. Eight, primarily from Bioengineering, are paired with a graduate student or staff on research projects.

Graduate students are now required to take a course in ethics and to complete their own applications for human subjects review. Curricula changes include improved training in experimental design. An advanced seminar focuses on experimental design by reviewing recent literature and student discussions on research proposals. The Occupational Biomechanics course taught by post-doctoral fellow, Dr. Matt Camilleri, focuses on experimental/quantitative research methods. New sites for internships have been added including the Department of Energy Joint Genome Institute, Pixar Studios, and the San Francisco Municipal Railway.

Continuing Education (CE) and Hazardous Substances Training (HST) Programs

Program Director: Barbara Plog, MPH, CIH, CSP

The CE Program trained over 2500 OSH professionals in 83 courses representing a 4% increase, holding steady during an economic downturn. As a result of outreach to OHNs, the number trained more than doubled from 144 to 306. IH trainee numbers increased by 6% to 517, and safety professionals saw an 11% increase to 229. The number of physicians trained decreased from 538 to 435. Attendees came from private industry (741); federal government (191); state government (156); local government (359); academic institutions (1,021); and international locations (17). Fifty-one percent of attendees described themselves as White, 12%, Asian/Pacific Islander, 6%, Hispanic/Latino, 2%, African-American and 41%, Other. COEH and the OEHN program jointly sponsored "Focus the Nation: Global Warming Solutions for America," at UCSF where 186 health care workers attended two half-day sessions.

The HST program trained 185 professionals from CA, NV, HI, and AZ reaching every state in the designated region. The program provided full scholarships to all attendees. However, the number of trainees decreased most likely due to the economy and a ferocious wildfire season that affected firefighter ability to attend even onsite, all-shift offerings.

The audience was as varied and vital as in the past. The "*Hazards of Pesticides to Emergency Responders*" class was co-sponsored by government and private organizations, including FEMA, National Fire Protection Assn., CA Governor's Office of Emergency Services, CA State Fire Marshal, and CA Fire Chiefs Assn. Attendees included state, county and municipal hazardous materials specialists/managers, EH specialists/investigators, fire chiefs, fire service hazmat personnel, safety coordinators, environmental technicians and IHs. Many county, state and municipal agencies were represented (including 25 county and city fire agencies from CA, HI, NV, and AZ) as well as hazardous materials response specialists from government agencies, police departments, Cal/EPA and the CA Dept of Toxics Substance Control. In April/May 2008, the program trained firefighters and HazMat/EMT responders on-site and accommodated all shifts in Grover Beach and Irvine, CA. Occupational MDs and OHNs took the online class, "*Recognition, Management and Reporting of Pesticide Illnesses*," cosponsored with the CA Dept. of Pesticide Regulation and Cal/EPA. The CE Program initiated impact evaluation surveys for all courses and is also in the process of designing a regional needs assessment.

Outreach Program

Robin Baker, MPH and Diane Bush, MPH

The Labor Occupational Health Program (LOHP) coordinated 8-week internships for five students as part of the national Occupational Health Internship Program (OHIP), two of which were funded by NIOSH funds. One project, conducted in partnership with UNITE-HERE, focused on the impact of work organization and speed-up on the health/safety of in-flight catering workers. The interns completed a literature review, conducted worker/key informant interviews, and prepared a report describing health and safety impacts. The union is using the report to educate leadership about this new work practice. The second project focused on home care health hazards. In partnership with LOHP, the Service Employees International Union, and the county employer, the students assisted in a participatory research project to explore how to improve workplace safety. Students worked with advisory groups to collect vignettes and identify effective strategies for getting information and resources to both workers and the vulnerable employer/consumers they serve.