

**UNIVERSITY OF MICHIGAN EDUCATION AND RESEARCH CENTER FOR
OCCUPATIONAL SAFETY AND HEALTH**

SUMMARY ANNUAL REPORT

July 1, 2007 – June 30, 2008

NIOSH Training Grant

No. T42 OH 008455-04

SUBMITTED BY:

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ANN ARBOR, MI 48105

OCTOBER, 2008

The University of Michigan Center for Occupational Health and Safety Engineering (COHSE), a NIOSH Education and Research Center (ERC) (the 'Center'), has been continuously funded by NIOSH since its establishment in 1982. The mission of the Center is to serve the region, nation, and world as a center of excellence for research and graduate education in Occupational Health and Safety. We maintain academic and research programs in the disciplines of Industrial Hygiene (IH), Occupational Health Nursing (OHN), and Occupational Safety Engineering and Ergonomics (OSE), Occupational Epidemiology (OE), and Hazardous Substances Academic Training (HSAT). Other programs in the Center include Continuing Education (CE), Outreach, Pilot Project Research Training (PPRT), and Targeted Research Training (TRT). We provide broad-based, interdisciplinary academic training in occupational health to ensure that graduates are qualified to pursue careers and assume leadership roles in the practice of occupational health and safety.

Highlights of past year (July 2007 through June 2008)

Faculty Promotions, Development and Awards

The productivity and quality of our ERC faculty has been outstanding over the past year:

- Two new tenure track Center full-time faculty joined COHSE:
 - Marjorie McCullagh, PhD, RN (Assistant Professor, School of Nursing, OHN Program Director): Dr. McCullagh, a graduate of our U of M OHN Program, was successfully recruited as the planned new director of the OHN program following a nationwide search. Her research interests focus on occupational noise-induced hearing loss.
 - Laura Rozek, PhD (Assistant Professor, OE): Dr. Rozek holds a Ph.D. in epidemiology, and is trained in genomics and at the genetics. Her research interests focus on epidemiologic studies of gene-environment interactions in disease causation.

- Adjunct Professor Paul S. Adams (OSE) began a one-year term as President of the Board of Certified Safety Professionals. Dr. Adams is also a Ph.D. alumnus of the OSE program.
- Professor Barry Kantowitz (OSE) completed the ninth edition of his Experimental Psychology textbook.
- Associate Professor Yili Liu (OSE) and Ph.D. Alumna Cristina Pomales-Garcia won the 2007 Wedemeyer Award for the best paper published in the Journal of Distance Education.
- Associate Professor Yili Liu (OSE) won the 2007 Alpha Pi Mu Professor of the Year Award (selected by IOE undergraduate students)
- Professor Monroe Keyserling (OSE) won the 2007-08 College of Engineering Outstanding Service Award.
- Professor James Vincent (IH) received the Donald E. Cummings Memorial Award from the American Industrial Hygiene Association for outstanding contributions to the knowledge and practice of industrial hygiene.
- Professor John Meeker (IH) became a Certified Industrial Hygienist.
- Professor Stuart Batterman (Director of HSAT) received a joint appointment as Professor of Science and Technology at the University of Coimbra in Portugal.
- Professor Marie O'Neill (OE) received an outstanding new environmental scientists (ONES) award from the National Institute of Environmental Health Sciences which will fund a research study on exposures and risk of prematurity relevant to working women with occupational exposures.

Student enrollment and graduation, continuing education programs offered and attended, PPRT projects funded.

During the 2007-2008 reporting year, the academic programs within the Center enrolled 79 students (49 Masters students and 30 doctoral students) and graduated 25 students (18 Masters and 7 Doctoral students). Among the 25 graduates, 19 entered positions in occupational and environmental health and organizations around the world, and 5 of the Masters students entered doctoral programs.

Enrollment				
	MPH	MS	PhD	Total
IH	19	4	7	30
HSAT	8	1	0	9
OE	5	0	4	9
OHN	0	5	3	8
OSE	0	7	16	23
Graduates				
	MPH	MS	PhD	Total
IH	5	0	1	6
HSAT	5	0	0	5
OE	3	0	0	3
OHN	0	0	0	0
OSE	0	5	6	11

During the reporting year, 767 people attended 18 Continuing Education programs sponsored by the Center, accounting for 2750 person-days of training. A wide range and large number of outreach activities were undertaken by individual UM ERC faculty and staff, such as curriculum and research assistance to other academic institutions, professional consultation to a range of organizations and presentations to various groups.

During the reporting year, funding was provided for 7 pilot research (PPRT) projects. These projects included:

1. Adaptation of a Novel Portable GC to the Determination of Breath Biomarkers of Lung Cancer
2. Noise, Lead and Age-Related Hearing Loss
3. Emission and Permeation Characteristics of Biofuels: Potential for Worker Exposure
4. High Resolution Breath Monitoring of VOC Mixtures
5. Controlling Power Hand Tool Reaction Through Mechanical and Electronic Torque Control
6. Establishment of a Bench-Scale System for Studying Metalworking Fluids-Associated Biofilms
7. The Role of Inflammatory Response in Noise-Induced Hearing Loss

Student awards, recognition, and accomplishments

1. Four American Industrial Hygiene Foundation scholarships were awarded to students in industrial hygiene (two to Beth Osterlink, and one each to Darren Brown and Wendy Guo).
2. Five HSAT students received scholarships from the School of Public Health Deans Award, a prestigious and merit-based award.
3. OSE Ph.D. students Thomas Ferris and Shameem Hameed won the 2007 Alphonse Chapanis Best Student Paper Award at the annual meeting of the Human Factors and Ergonomics Society.
4. Two OSE Ph.D. students, Thomas Ferris and Marc Berman, were supported as National Science Foundation Graduate Fellows.

Development of Curricula, Courses, Teaching and Reference Materials

1. **NP-OHN Concentration.** The School of Nursing approved a new Nurse Practitioner-Occupational Health Nursing (NP-OHN) Concentration, under the leadership of OHN faculty member Deborah Sampson. Recruitment commenced for this concentration which will provide graduates ready to meet an identified statewide need.
2. **Interdisciplinary projects course, EHS 600 Professional Perspectives in Environmental Health.** The redesigned version of this course was offered for the first time in fall 2007. It was redesigned as a projects course that teamed students, both residential and nonresidential in our On Job/on Campus program to work under the supervision of a faculty mentor and a field preceptor on occupational and environmental health and safety issues in the University of Michigan health and hospitals system. The course afforded interdisciplinary teams of students the opportunity to integrate academic principles, research findings, practical skills, and concepts in environmental health as related to the broader scope of public health, and required students to interact with colleagues having different backgrounds/perspectives in solving real-world, practical problems.
3. **Redesign of the industrial hygiene curriculum.** In the 2007-2008 reporting period, the redesigned industrial hygiene curriculum was offered. This redesign merged curricular components of IH and EH (Environmental Health) Programs within the EHS Department with overlapping/complementary content, including our introductory course on occupational and environmental hygiene (EHS 550) and our course on field/laboratory methods for sampling/analysis of chemical/microbial contaminants (EHS

653). These consolidations retain the key cross-cutting concepts related to exposure measurement, assessment, and control. New courses offered to IH students included: *Advanced Exposure Assessment* (EHS 657) taught by Prof. Meeker; and *Environmental Microbiology* (EHS 576) taught by Prof. Xi. A new 1-credit-hr IH/EH lab course has also been included in the OJ/OC MPH curriculum.

4. **Restructuring of the On Job/On Campus (OJ/OC) curriculum through the use of distance learning modalities.** For many years, OHN, IH, and OM students in our nonresidential degree program known as On Job/On Campus (OJ/OC) had completed masters degrees by attending monthly four-day sessions. During the 2007-2008 reporting period, the first ever cohort to receive 50 percent of the course content in distance learning modalities (both synchronous and asynchronous), with the remainder of the course content still involving face-to-face contact, completed the bulk of their program.
 - **HSAT.** New courses offered in 2007-8 that provided options for HSAT students included: *Advanced Exposure Assessment* – Dr. Meeker; *Environmental Microbiology* – Dr. Xi; and *Life Cycle Assessment: Human Health and Environmental Impacts* - Dr. Jolliet.
 - **OE.** We increased the amount of methodologic content in the curriculum, by requiring students to initiate their epidemiology coursework by taking EPID 600 Introduction to Epidemiology, followed by a new course EPID 601 Principles and Methods in Epidemiology. This sequence takes the place of a previous single introductory course. We expanded the breath of epidemiologic training by adding a course by Dr. O'Neill, *Environmental Epidemiology*, to the curriculum.

Other Major Developments and Progress

1. **NORA Research Support Program.** During the 2007-2008 reporting period, the NORA program served to enhance our research training through a number of activities and mechanisms. Enhancements include:
 - **Funding of a NORA multiyear pre-doctoral scholarship.** Four outstanding applicants (1 in OHN, 1 in IH, and 2 in OE) were awarded NORA scholarships and entered our doctoral programs.
 - **Sponsorship of conferences and symposia.** A UM sponsored NORA Symposium was delivered at the Michigan Safety Conference free of charge to the regional audience.
 - **Funding of guest speakers and collaborators.** NORA provided direct support for travel of many of speakers at our interdisciplinary seminars.
 - **Direct support of doctoral students and their research in NORA priority areas.** Direct stipend/tuition support was provided to doctoral students in Occupational Epidemiology, HSAT, and IH.
2. **International Occupational Health and Safety.** **Dr. Batterman** assisted the Ministry of Health in Mozambique in addressing health and safety issues in medical waste management, including the development of a National Plan and equipping hospitals with appropriate waste disposal systems and management capability. He provided an assessment, training at a national meeting, and helped to specify and select appropriate waste management and infection control systems. **Dr. Robins** served as Project Director of a Fogarty International Center grant with a focus on occupational health and safety in Southern Africa.