

MIDWEST CENTER FOR OCCUPATIONAL HEALTH AND SAFETY

SUMMARY ANNUAL REPORT

July 1, 2007 – June 30, 2008

NIOSH TRAINING GRANT

No. T42 OH 008434

SUBMITTED BY:

**SUSAN GOODWIN GERBERICH, PHD, MSPH
CENTER DIRECTOR**

**DIVISION OF ENVIRONMENTAL HEALTH SCIENCES,
SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF MINNESOTA
MINNEAPOLIS, MINNESOTA**

SEPTEMBER 2008

**MIDWEST CENTER FOR OCCUPATIONAL HEALTH AND SAFETY (MCOHS)
EDUCATION AND RESEARCH CENTER - UNIVERSITY OF MINNESOTA
July 1, 2007 – June 30, 2008**

Overview

The MCOHS continues to be extremely productive in a very supportive environment. There is extensive collaboration among disciplines, involving faculty, staff, students and external stakeholders engaged in teaching, research and outreach. Camaraderie, commitment, and enhanced interdisciplinary involvement among the center programs further strengthen this center of excellence (<http://cpheo.sph.umn.edu/mcohs>). Among the numerous active grants (n = 101), that support student and faculty research, there have been a minimum of 12 new grants funded that provide multidisciplinary opportunities for research training and dissemination of information through presentations, publications, and research-to-practice (r2p) efforts. Faculty, staff and students have been engaged in various collaborative, interdisciplinary efforts that have led to presentations at local, regional, national, and international meetings and publications in key journals. There were a minimum of 139 publications, during this period: 96 were published or in-press peer-reviewed articles; 34% involved one or more students. There were also at least 163 presentations; 26% involved one or more students. A minimum of 33 awards and honors were received by students (n=14) and faculty (n=19), respectively. During the past year, there were 48 trainees (19 MPH, 7 MS, 2 MSPH, 20 PhD) and 10 graduates (3 PhD, 2 MS, 4 MPH, and 1 MS/MPH).

Centerwide Activities

The MCOHS Executive Committee, Center Advisory Board, faculty, staff and students have worked with consultants to develop a strategic plan for the next five years. To further enhance activities within the region, center leadership recruited three new advisory board representatives: two from North and South Dakota, both of whom work with Occupational Health and Safety Administration (OSHA) consultation offices, located in academic settings; and a Director of Compensation and Benefits for a multinational corporation. The advisory board now totals 20 members, representing private industry, clinic-based settings, labor, state agencies, and educational institutions. Dr. Gary Olmstead (General Mills health and safety) was elected chair of this board in fall 2007 and, together with the advisory board, has been working closely with the center's leadership.

Interdisciplinary, Outreach, and Research-to-Practice (r2p) Activities

Numerous outreach activities were carried out during the year; examples include: 1) During fall 2007, the center hosted Dr. Elbert Sorrell, Director of the Risk Control Center and Dr. Brian Finder, Program Director, MS, in Risk Control at the University of Wisconsin-Stout (NIOSH Training Project Grant) to participate in a seminar and discussion with MCOHS students and faculty to identify common interests. Interest was expressed for their future involvement in teaching in our Continuing Education programs and, potentially, in selected research efforts. 2) A new MCOHS Centerwide Seminar Series, led by Dr. Bruce Alexander, has been very successful in providing cutting-edge presentations that attract MCOHS students, faculty, and staff and others from the University, community, and region. 3) In May 2008, Paul Hewett, PhD, CIH, president of Exposure Assessment Solutions, Inc., and former industrial hygienist for NIOSH Division of Respirable Disease Studies, provided a keynote speech to a NORA Symposium regional audience titled, "Impact of the EU REACH (Registration, Evaluation, and Authorization of Chemicals) Initiative on the United States." Many r2p efforts, conducted during the year, are integral to the MCOHS activities – both regionally and nationally. New and continued research funding provides numerous opportunities for interdisciplinary, outreach, and r2p activities important to health and safety.

Recruitment and Diversity Efforts

Characteristics of registered students in MCOHS programs: total = 48, including 12 new students; diversity accounts for 27% of our students – an important increase from past reports. From an initial meeting in August, involving the MCOHS Diversity Taskforce, strategies for increasing all-center diversity were discussed with the Executive Committee for implementation over the next few years. To further increase enrollment and diversity, recent PhD graduate, Quintin Williams, represented the MCOHS and participated in a national recruitment program involving travel to several Graduate School fairs; he also represented the Center as an invited speaker or panelist in on-campus programs, including: School of Public Health Preview Days; the Gates Millennium Scholars Program; the McNair Scholars Program; the Community of Scholars program; and several scholarship functions. Starr Sage, recent PhD graduate, has also been actively involved in recruiting students of color from several universities in California and University of Minnesota events through the Campus Ambassador Program. In September 2007, a major conference, designed to increase the recruitment of students from diverse backgrounds for the prestigious Gates Millennium Scholars program, was coordinated by the Centers for Public Health Education and Outreach, in which the MCOHS ERC CE program resides. Faculty and other students have also participated in these and other recruitment efforts. MCOHS leadership also recently developed and incorporated a comprehensive website link on diversity.

Industrial Hygiene (IH) Program: Gurumurthy Ramachandran, PhD, Director [16 Trainees (5 MPH, 5 MS, 6 PhD); 2 graduates (1 MPH, 1 PhD)]

The overarching goal of the IH program is to provide a source of well-qualified, well-rounded professional industrial hygienists to meet the continuing needs of industry and society, both in the region served by the ERC, and nationally. This period was very productive for the IH faculty and students in all categories; 23 peer-reviewed articles were published on various occupational health topics and 21 research presentations were delivered at several conferences, including the AIHCE in Minneapolis, in 2008. Students and faculty received a minimum of six awards and honors. The IH faculty has been very successful in obtaining ~ 13 external grants from federal, state, and industry sources that provide important opportunities for masters' and doctoral students to conduct research projects and to

obtain funding as research assistants. The faculty has also been active in numerous outreach efforts, thus, increasing the visibility of the IH program as well as the MCOHS, overall. One of the faculty member's RO1 grants from NIOSH led to successful r2p efforts that involve training of IH professionals in improving their exposure assessment accuracy.

Occupational and Environmental Health Nursing (OEHN) Program: Patricia M. McGovern, PhD, Director [9 Trainees (5 MPH, 2 MS/MPH, 2 PhD); 2 graduates (1 MPH, 1 MS/MPH)]

This program continues to provide excellent interdisciplinary education in occupational health and safety for nurses, with the goal of creating a cadre of OEHNs that will work to decrease the nation's burden of occupational illness and injury and promote and protect the health of its workforce. Accomplishments by faculty include: Dr. Olson was inducted into the Fellows of the American Association of Occupational Health Nurses, completed a Doctor of Nursing Practice (DNP) degree, and received the MERLOT (Multimedia Educational Resource for Learning and Online Teaching) Award for Exemplary Online Learning Resource. Dr. McGovern was promoted to the rank of full Professor and was awarded status as a Luminary, by the Luminary Project, which seeks to honor, and increase awareness about, nurses who are creatively and strategically addressing environmental problems to light the way to a healthier environment. She is also a Principal Investigator for a National Children's Study site, one of 22 new study centers participating in a nationwide 25-year research project. Faculty and students in the OEHN program produced 12 peer-reviewed publications and delivered over 24 professional presentations. Maggie Stedman-Smith (OEHN; ASH), was awarded a dissertation fellowship, Society for Public Health Education and Agency for Toxic Substances and Disease Registry, for her work with Professor McGovern in evaluating mothers' perceived exposures to pesticides and health concerns in the Red River Valley of Minnesota and North Dakota.

Occupational and Environmental Medicine (OEM) Program, Heidi RoeberRice, MD, MPH, Director [5 Trainees (5 MPH); 1 graduate (1 MPH)]

The OEM program has continued to demonstrate successful achievement of its goal of training physicians to improve the health and safety of workers. This is accomplished among a range of practice venues, including government agencies, corporate health departments, clinical practice and academia. During the past year, there were five residents in the OEM program. Two trainees, Drs. Michael Lockheart and Ryan Otten, were recipients of the Occupational Physicians Scholarship Fund Award through the American College of Occupational and Environmental Medicine. Dr. Otten was also honored for his exemplary performance with appointment to the HealthPartners Institute for Medical Education Board of Directors. Trainee and graduate Dr. Paul Anderson was selected as a Fellow with the Epidemic Intelligence Service through the Centers for Disease Control and Prevention and is working with NIOSH in Alaska. The addition of Dr. Jeffrey Mandel to the faculty has greatly enhanced research efforts within OEM. Through his initiative, a Memorandum of Understanding was signed between HealthPartners Research Foundation and the School of Public Health, Division of Environmental Health Sciences, enabling a strong partnership for collaboration among researchers. Dr. Mandel is the PI for two new multidisciplinary research efforts involving many other MCOHS faculty and students: 1) an investigation of health issues related to exposures in the taconite mining industry, including potential factors associated with 58 cases of Mesothelioma and a cohort mortality assessment of 72,000 former miners. Through cross-sectional screening, existing respiratory illness in current and former miners and their spouses will also be assessed (Dr. Greaves, OEM, Co-Investigator). This effort is collaborative with the University of Minnesota Natural Resources Research Institute (NRRI), a geological unit based at the Duluth campus, and the School of Engineering's Particle Technology Laboratory; seven faculty of the MCOHS, SPH and Medical School, numerous staff, three graduate students and five NRRI faculty are involved; 2) an assessment of a reported brain cancer excess within the research facility of a major company which involves a research cohort mortality assessment (Dr. Alexander, Co-PI). The brain cancer investigation is also a multi-disciplinary effort, involving a graduate student and faculty with backgrounds in occupational medicine, epidemiology, industrial hygiene and biostatistics.

Occupational Health Services Research and Policy Program: Patricia M. McGovern, PhD and Bryan Dowd, PhD Co-Directors [5 Trainees (5 PhD); 1 graduate (1 PhD)]

The Divisions of Environmental Sciences (EHS) and Health Policy and Management (HPM), at the University of Minnesota's School of Public Health, offer a joint doctoral-level education program in Occupational Health Services Research and Policy (OHSRP). The goal of this program is to prepare doctoral students with expertise in both occupational health and safety, and health services research and policy. Faculty and students in the program received a variety of awards during the past year: Student Genelle Lamont received the William Randolph Hearst Endowed Scholarship award from the School of Public Health to provide tuition and a stipend for 2008. Professor McGovern was awarded status as a Luminary, noted above (OEHN). Faculty and students also participated in a variety of presentations and publications during the past year. Professor McGovern is PI of one of 22 centers for the "National Children's Study," involving a 25-year study on the health and development of 100,000 U.S. children (see OEHN). Occupational health relevance includes: exposure assessment of maternal and paternal occupations and characteristics, specific occupations (e.g., agriculture, personal care and service, child care), other environmental exposures, and the effects on fetal and child health and development.

Occupational Injury Prevention Research Training Program: Susan G Gerberich, PhD and Bruce Alexander, PhD, Co-Directors [7 Trainees (7 PhD); 1 graduate (1 PhD)]

The Occupational Injury Prevention Research Training Program (OIPRTP) prepares rigorously trained, doctoral-level academicians and researchers who provide leadership in reducing the burden of occupational injury through teaching, research, and translation of research to practice. The OIPRTP faculty has been funded for numerous research efforts (≥ 32) that provided multidisciplinary training opportunities, resulting in many major national and international professional presentations ($n=46$), peer-reviewed publications ($n=68$),

and r2p efforts. R2p efforts include: 1) Identification of risk factors for work-related physical assault against nurses, e.g., working in environments with low lighting, not carrying cell phones or alarms, working in emergency and psychiatric departments and long-term care facilities, and having increased hours of patient contact, has been important to practitioners in application of relevant interventions. Providing this information through peer-reviewed publications and presentations to key professional groups is integral to the development of appropriate interventions. Leslie Nordgren's doctoral study, "Etiology and Consequences of Injuries to Veterinary Technicians" is being distributed to veterinarians across Minnesota; the results are being included in fourth year veterinary students' curricula at the University of Minnesota to increase their awareness of injury risk factors to the staff. During this period, OIPRTP has had seven full-time doctoral students. The research seminars and informal meetings and social interactions, involving all OIPRTP students, as well as those from other disciplines, are essential to the camaraderie that is more likely to ensure successful progress. Doctoral student, Denise Fedak, defended her thesis successfully in January. Awards, included: Dr. Gerberich, 2008 Excellence in Advising Award, School of Public Health; and students, Starr Kelly Sage, 2007 School of Public Health "Community Partners' Star" award and James W. Wright Scholarship; Deborah Merchant Langner, Susan G. Gerberich Scholarship in Injury Epidemiology and Prevention; Leslie D. Nordgren, Nancy A. Robertson Endowed Graduate Fellowship in Injury Prevention and Quintin Williams, Jr., Harold R. Shipman Award.

Hazardous Substances Academic Training (HSAT) Program: Peter Raynor, PhD, Director [6 Trainees (4 MPH, 2 MS); 3 graduates (1 MPH, 2 MS)]

During the 2007-2008 year, HSAT Program faculty and students collaborated on 14 peer-reviewed publications and made 16 research-oriented presentations in a range of venues. Drs. Raynor and Brosseau are participants in six newly funded projects this year, with funding obtained from federal, state, and private sources. Dr. Raynor led outreach activities to educate the public and public health staff on chemical, radiological, and biological hazards and the personal protective equipment that can be worn to limit exposures to these hazards. Dr. Brosseau received an Outstanding Service Award, 2008, Office of the Vice President for Research, University of Minnesota, for assistance provided in establishing procedures to ensure the safety and health of animal handlers at the university.

Agricultural Safety and Health Program: John Shutske, PhD, Director [1 Trainee (1 PhD); 0 graduated]

The agricultural safety and health (ASH) academic program has provided an academic minor special emphasis option to existing academic training programs, that are core to the ERC, as well as continuing education and outreach to key members of rural communities who influence issues of agricultural public health and rural medical and nursing practices. Awards included: Dr. Shutske, "Superior Paper" – American Society of Agricultural and Biological Engineers and student, Maggie Stedman-Smith (OEHN; ASH), dissertation fellowship (see OEHN). Dean Olson and Dr. McGovern collaborated with Dr. Shutske to provide a supporting program in ASH for OEHN and other students. A total of 18 students, enrolled in BBE 5212, primary course for ASH, in fall 2007. The course, IE 5513 (Engineering safety), taught by Drs. Chaplin and Shutske has been offered twice a year and filled to capacity each semester with 160 students, total, per year. Dr. Shutske presented two workshops to 23 family practice residents, participating in their Community Health rotation, regarding recognition and treatment of agricultural-related injuries and illnesses. ASH faculty/staff and students have been involved in a range of research projects, many with a direct "practice" focus. Dr. Shutske has advised nine masters' and doctoral students, engaged in agricultural safety-related research efforts; 23 publications and 10 presentations resulted.

Continuing Education and Outreach (CE) Program: Kathy Smith, MSN, FNP, RN, Director [60 courses provided; 2,838 trainees participated]

The CE Program of the MCOHS includes the Hazardous Substances Training Continuing Education (HST-CE) and Agricultural Safety and Health Continuing Education (ASH-CE) programs. The HST-CE program has conducted training in hazardous substances since 1984. HST-CE trainings doubled during this year. The ASH-CE program has been integral to MCOHS for 14 years and maintained trainings at the previous year levels. During the past year, the CE Program worked to expand its reach into neighboring states. This includes involvement with Safety and IH professionals at the University of Wisconsin-Stout in the Occupational Health and Safety event, scheduled in Minneapolis, February 2009. Relationships with the Wisconsin OHN Association and the Dakotas' States Nurses Associations enable linking of the websites from these organizations with the MCOHS and CE activities. CE Director Kathy Smith was appointed to the Minnesota OSHA (MNOSHA) advisory council. With the support of the Digital Learning Group (DLG), the CE Program has developed and hosts 17 online OHS modules. A new ASH module, titled *A Nurse's Guide to Children's Agricultural Safety*, was implemented and provides continuing education unit (CEU) certificate awards. During this year, the modules were accessed by 1,859 participants, with over 800 CEU certificates issued. Currently, there are two new educational activities available via pod-cast, with PowerPoint slides, available for participant download; two audio-only pod-casts have been accessed over 200 times during the year.

Summary

The Midwest Center for Occupational Health and Safety continues to be highly productive. Innovative research strengthens visibility of the MCOHS at the regional, national, and international levels and provides a basis for translating research to practice. Excellent quality interdisciplinary academic and research programs provide a strong foundation for student training and novel continuing professional education and outreach efforts, recognized globally, serve the needs of a diverse workforce in the Midwestern United States. Through these efforts, the MCOHS provides important contributions to the nation's workforce safety and health.