North Carolina Occupational Safety and Health Education and Research Center (#8673)
University of North Carolina at Chapel Hill
Principal Investigator: Bonnie Rogers

Annual Report
July 1, 2016 – June 30, 2017

SECTION I: ERC Summary and Relevance, and Current Contact Information

ERC Summary

The North Carolina Occupational Safety and Health Education and Research Center (NC OSHERC) is located at the University of North Carolina, Gillings School of Global Public Health with collaborating units at NC State University (NCSU) and Duke University. Academic training is provided in the core disciplines of Occupational Health Nursing, Safety and Ergonomics (NCSU), and Occupational Medicine (Duke University). In addition, specialized training in Occupational Epidemiology is available. An allied program in Occupational Exposure Science is at UNC. Both master's and doctoral degrees are offered. There are more than 50 faculty within the NC OSHERC with more than 100 enrolled students each year in these programs. We also offer an extensive Outreach and Continuing Education (CE) program.

The mission of the NC OSHERC at UNC-Chapel Hill is to provide high quality education and research training in the occupational health and safety sciences for the protection and promotion of worker health and to prevent occupational illness and injury. This is accomplished through interdisciplinary training, research, and service in occupational health and safety.

Education: Train occupational health and safety professionals to acquire an expanded knowledge base, provide occupational health and safety services, and develop research skills.

Research: Define and develop the discipline of the occupational health and safety sciences to reduce work-related health hazards and improve worker health and working conditions. The purpose of the program is to:

1. Train practitioners and researchers in the academic disciplines of occupational medicine, occupational health nursing, safety/ergonomics, occupational epidemiology, and occupational exposure science within the field of occupational health and safety.
2. Provide interdisciplinary learning experiences through coursework, field projects, and seminars.
3. Provide an outreach and continuing education training program to meet the needs of practitioners and those interested in occupational safety and health.

Programs are offered at the master's and doctoral levels in the different academic disciplines, or post-doctoral level in medicine. Training activities include coursework, practica, seminars, field projects, and research activities, many which are interdisciplinary in nature. Distance education is an option for the OHN Program. An academic certificate program in occupational health nursing is also offered. Students who complete coursework in the OHN certificate program can transfer those credits into the MPH degree program upon acceptance to the program.

A variety of individual CE interdisciplinary courses are offered on-site, on contract basis, or through our week-long Summer and Winter Institutes. In addition to the continuing education, seminars with topics relevant to education, research, and practice in all disciplines are offered

quarterly through the NORA (National Occupational Research Agenda) Interdisciplinary Seminar Series. Interdisciplinary collaboration is a key component of the NC OSHERC among faculty, students, and community partners engaging in joint projects to improve worker health and safety. Outreach to the local occupational safety and health community is an integral part of the NC OSHERC.

Relevance

This education and research program is designed to prepare practitioners and researchers in occupational health and safety. These professionals work to protect and promote the health and safety of our nation's workforce. Education and research in occupational health and safety is essential to eliminate these hazards and make the workplace safer and healthier for all workers.

Key Personnel

Name	Role in ERC	Contact Information
Bonnie Rogers, DrPH	Principal Investigator, NC OSHERC; Program Director, Occupational Health Nursing	UNC-Chapel Hill 919-966-1765 rogersb@email.unc.edu
Susan Randolph, MSN	Deputy Director, NC OSHERC; Faculty, Occupational Health Nursing	UNC-Chapel Hill 919-966-0979 susan.randolph@unc.edu
Dennis Darcey, MD	Program Director, Occupational Medicine	Duke University 919-684-3591 dennis.darcey@duke.edu
David Kaber, PhD	Program Director, Occupational Safety & Ergonomics	North Carolina State University 919-515-0312 dbkaber@ncsu.edu
Leena Nylander-French, PhD	Program Director, Occupational Exposure Science	UNC-Chapel Hill 919-966-3826 leena_french@unc.edu
David Richardson, PhD	Program Director, Occupational Epidemiology	UNC-Chapel Hill 919-966-2675 david.richardson@unc.edu
Angelique Lawyer, MSN, MPH	Director, Outreach & CE Program	UNC-Chapel Hill 919-962-8555 angeliqu@email.unc.edu

ERC Web Link

http://osherc.sph.unc.edu/

SECTION II: Program Highlights of High Impact Outcomes

Occupational Medicine
Program Director: Dennis Darcey

Occupational Medicine resident, Edward Lee, MD, MPH, JD along with faculty members Dennis Darcey, MD, MSPH and Gregg Stave, MD, MPH, JD, published the first National Survey of Animal Bite Anaphylaxis in U.S. animal facilities identified by the National Institutes of Health Office of Laboratory Animal Welfare. Part 1 reviewed previously unreported cases and included a review of the literature. Results showed that while uncommon, anaphylaxis from laboratory animal bites occur more frequently than suggested by the literature. Part 2 documents current treatment protocols for laboratory animal bite anaphylaxis in the workplace. Results showed a minority of responding organizations had protocols in place to address laboratory animal bite anaphylaxis, indicating a need for organizations with workers at risk to implement protocols for assessment and treatment.

Occupational Health Nursing
Program Director: Bonnie Rogers

Natasha Collins, MPH candidate, completed her practicum experience at the U.S. Department of Labor, Office of Occupational Medicine and Nursing as part of the Graduate Nurse Internship Program. Ms. Collins reviewed a random selection of workplace violence (WPV) cases to determine whether there was a learning curve for OSHA Compliance Safety and Health Officers (CSHOs) investigating these cases, what resources were helpful, and what factors determined if the case received a citation or Hazard Alert Letter (HAL). Approaches were identified to decrease the number of incidences of WPV cases in the healthcare social services sector.

Dr. Bonnie Rogers was elected to the ACOEM Medical Center Occupational Health Group. This group provides opportunities for participation in educational sessions, open forums, and Internet guideline updates for those with a particular interest in the health and safety of health care facility employees.

Occupational Safety & Ergonomics (OSE) Program
Program Director: David Kaber

During the reporting period, OS students and faculty published two papers in the *Journal of Applied Ergonomics* on evaluation of police officer use of mobile-computing terminals (MCTs) in patrol cars and implications for driving distraction. This research was also covered by WNCN CBS North Carolina (Channel 17; available at: https://youtu.be/NOO_BWSYF9A) and was distributed to 19 CBS affiliates, nation-wide.

The first study characterized the frequency and importance of MCT-supported tasks by using a cognitive work analysis with patrol officers from a southern suburban police department. The study identified MCT interface usability issues and made recommendations of design enhancements with the potential to reduce cognitive demands and task completion times. The second study involved a driving simulator-based assessment of police officer visual behavior, performance, workload and situation awareness with current and enhanced MCT interface designs. Results revealed substantial improvements in officer roadway attention and driving

environment awareness with the enhanced MCT design. Dissemination of this research led to Panasonic engineering contacting Dr. Maryam Zahabi with interest in collaboration on redesign of the MCT interface for police patrol cars.

This research was supported by a pilot project grant through the NC OSHERC with funding to NC State University and Maryam Zahabi in 2016.

Occupational Exposure Science
Program Director: Leena Nylander-French

Kaitlyn Phillips (MSPH 2017; Adviser Leena A. Nylander-French) presented her MSPH thesis research, entitled “Viability of Cultured Primary Human Skin Cells Treated with HDI Monomer and HDI Isocyanurate,“ at the Society of Toxicology conference in Baltimore, MD in March 2017. After graduating in May 2017, she is employed as a contractor, through AECOM for NIOSH at Cincinnati, and working with Dr. Cherie Estill and our alumni Dr. Kenny Fent.

Outreach & Continuing Education
Program Director: Angel Lawyer

Angel Lawyer, MPH, MSN was hired as Director of Outreach and Continuing Education in April 2017. Most recently she served as the Nurse Consultant and Deputy Chief Occupational Health Nurse for the National Guard Bureau, in Arlington, VA. Before beginning her career in Occupational Health, she spent 22 years on active military duty in the US Army Nurse Corps as a public health, emergency department, med/surg, and orthopedic nurse.

During the fiscal year of July 1, 2016 through June 30, 2017, NC OSHERC Outreach/Continuing Education Program trained 5,740 participants in 134 educational offerings from all disciplines of occupational and environmental safety and health areas. The CE Program objectives have been met, reaching all states in the Southeast region with a national and international following. Several collaborations with the other ERCs in the Southeast region have continued to be fulfilling and successful. According to students’ reports, because of this Program, they have been able to work more safely and maintain OSHA and EPA compliance for their businesses. Many have received promotions because of the education received and the Technician Certificate Programs completed. Of note, 52 General Motors employees completed the course work to earn their Industrial Hygiene Certificate through an onsite outreach effort.