



**The University of Iowa  
Heartland Center  
for Occupational Health & Safety**

**Summary Annual Report  
July 1, 2007 - June 30, 2008**

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**Submitted by:**

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## **Introduction**

The Heartland Center for Occupational Health and Safety, based at the University of Iowa (UI), has served DHHS Region VII (Iowa, Kansas, Missouri, and Nebraska) since 2000 as a center of excellence in interdisciplinary training, education and research. Since its inception the Heartland Center has grown from 3 academic training programs and a continuing education/outreach program to 7 nationally recognized academic training programs, a strong administrative structure, and dynamic regional continuing education and outreach programs. The Center's work is supported by the National Institute for Occupational Safety and Health (NIOSH); the University of Iowa Hospitals and Clinics; and the Deere Foundation. Our graduates are actively recruited to positions in both the public and private sectors, reflecting the regional and national need for practitioners trained in occupational health and safety. Highlights of the Center's impact in the region and the nation during the reporting period include:

- 62 student trainees who participated in our interdisciplinary training programs, 15% of whom are US citizen/minority students;
- 15 graduates, 93% of whom obtained employment in occupational safety and health ( 10 of them in DHHS Region VII);
- over 60 papers addressing important topics in occupational safety and health published in peer-reviewed journals;
- research findings translated into practice and policy through partnerships and dissemination of information
- research-based information on preventing occupational injuries and illnesses provided to workers, employers and practitioners through newsletters, trade journals, consultations, curriculum support and presentations;
- over 1,500 practicing professionals provided with current occupational health safety knowledge and skills through the Center's 48 interdisciplinary continuing education programs.

## **Major Accomplishments - Center-wide Activities**

**Administration** - Dr. Craig Zwerling (Director) and Dr. Patrick O'Shaughnessy (Deputy Director) provided Center leadership, supported by a time-tested administrative structure, composed of an Internal Advisory Board (training program directors, the Center Coordinator, and student representatives from each program) and a 12-member External Advisory Board made up of practicing occupational safety and health professionals from across Region VII.

**Outreach** – The Center influenced the practice of occupational safety and health through an array of direct outreach services and through a network of community hospital-based occupational health clinics (WORKSAFE IOWA). Altogether we estimate our outreach efforts impacted 12,000 employers and 400,000 workers. We continued to disseminate information promoting workplace safety and health through a monthly electronic newsletter.

**Diversity Recruitment** - Our recruitment strategies have increased the proportion of Heartland Center minority students from 0 in 2000-2001 to 15% in 2007-2008.

**Interdisciplinary Coordination** – We maintained the faculty collaboration across disciplines, departments and Colleges that is the basis of all our Center programs, and we fostered trainee interactions across programs/disciplines through courses, seminars, and special Heartland Center events such as an orientation gathering with faculty and staff and the annual, student-run academic “game show” (Family Feud in spring 2008).

**Pilot/Small Projects Program** – In 2007-08 the Center supported 6 projects with pilot grants, which are investigating 1) carpal tunnel syndrome among dental students, 2) stress in law enforcement, 3) work stress and preterm delivery, 4) the hazards of assistive technology use by agricultural workers, 5) pathogens in pork production shower facilities, and 6) pesticide exposure in commercial applicators’ homes.

**Continuing Education** - The Center again surpassed the 400-trainee annual requirement, holding 48 CE courses for 1,561 practicing occupational safety and health professionals (for 1,546 person-days). Compared to the previous year, these data represent a 23% increase in courses, 12% decrease in trainees, and 19% decrease in person-days.

### **Major Accomplishments - Program Areas**

**Agricultural Safety and Health (ASH)** – This program graduated its first 2 trainees with degrees in agricultural safety and health, and both are now employed in ASH jobs in DHHS Region VII. ASH had 3 peer-reviewed publications through interdisciplinary collaboration among faculty and trainees from occupational health nursing, industrial hygiene, and occupational medicine. In addition, Dr. Kelley Donham completed an ASH textbook entitled “Agricultural Medicine: Occupational and Environmental Health for the Health Professions.” The 742 copies sold to date provide information on prevention of occupational injuries and illnesses in ASH workers across the globe. Closer to home, research on the promotion of farm safety is being translated to practice in a corporate farm setting, through a unique outreach project involving the largest private farm in Iowa.

**Ergonomics (Ergo)** – Training in ergonomics and human factors at the master’s (MS, MPH), and doctoral (PhD) levels was provided for 10 trainees from diverse disciplines, including industrial engineering, biomedical engineering, public health and occupational health. This program continues to integrate its training with service delivery, as evidenced by a PhD trainee who is working with local manufacturing employers on worksite improvements and process management to prevent musculoskeletal disorders, as well as providing customized education to the employers’ workers and safety team members.

**Industrial Hygiene (IH)** - Six trainees graduated with MS or PhD degrees from this ABET-accredited program; all are employed (4 in Region VII). Among their accomplishments are “Best Aerosols Poster” at the 2008 AIHce conference and 3 scholarships awards, from the 3M Company, the American Industrial Hygiene Foundation, and the Clyde M. Berry Memorial Scholarship Fund. Research on tuckpointing by a PhD trainee and IH faculty member has had public health policy impact, leading California OSHA to consider regulations on the use of local exhaust ventilation to control silica exposures during mortar removal. In addition, a consensus standard with the American Society for Agricultural and Biological Engineering on air quality systems for tractor cabs and self-propelled agricultural machinery is being prepared, based on research carried out by program faculty. Finally, IH faculty and staff provided extensive outreach to regional professionals on flood remediation in the flood of 2008.

**Occupational Epidemiology (OE)** - This program had 7 trainees who were diverse in terms of discipline, background and minority status. Since this program was created in 2006, the first PhD will be awarded in August 2008, to a trainee who was the first student in the UI College of Public Health to receive one of the University's prestigious Presidential Scholarships (a fellowship program awarded annually to only 20 doctoral students). Two other OE trainees received the American Statistical Association's New Investigator Award, presented annually to only 6 scientists worldwide. Another trainee, one of 24 UI awardees, received a T. Anne Clearly International Dissertation Research Fellowship, which is allowing her to conduct research related to the health and safety of women farmers in The Gambia, West Africa. The OE program director was appointed as a member of the International Commission on Occupational Health and will serve on the Environmental Protection Agency's Science Advisory Board.

**Occupational Health Nursing (OHN)** - This program had 13 trainees during the reporting period, 3 of whom graduated with MSN's in occupational health nursing (all 3 are employed in Federal Region VII). One of them is also contributing to the field by serving a 2nd term on the Board of Directors of the American Association of Occupational Health Nurses (AAOHN), and she was appointed to the AAOHN Foundation Board of Trustees. In addition, this graduate was appointed to the NIOSH National OS&H Workforce Assessment Task Force. In 2007, a trainee was accepted to the competitive OSHA internship program and worked on a national research-to-practice initiative on hazards for volunteers in disaster recovery work. Two MSN trainees are pursuing PhD training through the Heartland ERC; one has a pending application and the other has been accepted and will focus on older adults in the workplace.

Occupational health nursing faculty and students published 5 interdisciplinary peer-reviewed articles, and a book chapter on occupational health nursing by the program director and a faculty member is in press. Consultations by program faculty with regional employers involved return to work, diversity in the workforce, specific job hazards, occupational injuries, and stress and cardiovascular risks of police officers. One OHN faculty member will complete a Doctorate in Nursing Practice (DNP) in July 2008. She gave a presentation on work-related injury management at the American Academy of Nurse Practitioners national conference in Washington, DC.

**Occupational Injury Prevention (OIP)** - The 8 OIP trainees distinguished themselves in terms of productivity and recognition. One was awarded a Dr. Eunice Bean Women in Science and Engineering (WISE) travel grant, another received an ERC pilot grant, and a third received a pilot grant from the UI Injury Prevention Research Center. An OIP graduate secured an academic position at a major university on the east coast. There were 38 peer-reviewed publications from this program, and faculty completed 9 invited presentations on topics such as translation of workplace violence prevention programs and the relation of injuries to psychological well-being. The OIP program director, who is president of the Society for Advancement of Violence and Injury Research, was appointed to the NIOSH National Training Task Force.

**Occupational Medicine Residency (OMR)** – The OMR program graduated 4 occupational medicine residents during this reporting period, and 3 obtained employment in occupational safety and health (one in Federal Region VII). One of the OMR trainees received an Occupational Physicians Scholarship, as well as a DOL-OSHA scholarship that allowed her to complete a two-month rotation with OSHA in Washington, DC. Only 4 individuals nationwide were selected for this special rotation.

There were 13 interdisciplinary publications involving OMR, ASH, OIP, and Ergonomics. The program director is actively involved with outreach to regional employers and workers through the network of 10 community hospital-based occupational medicine clinics known as WORKSAFE IOWA.

**ERC Enrollment** – program enrollment and number of graduates are presented below:

Heartland Program	Students	Graduates
Agricultural Safety & Health	5 (1-MSN, 1-MS, 3-PhD)	2 (1-MSN, 1-MS)
Ergonomics	10 (2-MPH, 3-MS, 5-PhD)	0
Industrial Hygiene	13 (8-MS, 5-PhD)	6 (4-MS, 2-PhD)
Occupational Epidemiology	7 (1-MS, 6-PhD)	0
Occupational Health Nursing	13 (MSN)	3 (MSN)
Occupational Injury Prevention	7 (PhD)	0
Occupational Medicine Residency	6	4

During this reporting period, the Heartland Center completed the NIOSH competitive renewal process for the Center as a whole and was awarded 5 years of funding for all program areas. The reviewers’ summary noted that “there is significant need in the region for trained OSH professionals and this Center fills the gap very well...There is good balance between research and applied practice...Overall this Center is clearly more than the sum of its parts.”