



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

**Summary Annual Report
July 1, 2008 - June 30, 2009**

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Submitted by:

Craig Zwerling, MD, PhD, MPH
Center Director
The University of Iowa
Iowa City, Iowa 52242-5000

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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 Center has grown from three academic training programs to seven nationally recognized academic training programs 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.

Summary and Specific Improvements in Occupational Safety and Health Resulting from Heartland Center Activities

The overall goal of the Center is to provide first-rate graduate-level training, innovative continuing education and unique outreach services in occupational safety and health (OSH). Accomplishments during this reporting period include:

Trainees and Graduates: Sixty student trainees participated in our interdisciplinary training programs, 15% of whom are US citizen/minority students. Thirteen trainees graduated during this reporting period. Center graduates are highly recruited for OSH positions in both public and private sectors – many of which are in Region VII. Three graduates from this reporting period are pursuing PhD degrees at the UI. The high caliber of our Center is evidenced by the many national academic and research awards received by the trainees, for example:

- *Ergonomics:* PhD trainees won *Best Presentation* for the Mathematical, Physical, & Engineering Sciences division at the 11th Annual James F. Jakobsen Conference at the UI and *Best Ergonomics* poster at AIHCE in Canada. A PhD trainee was the recipient of the CDC Public Health Dissertation Fellowship Grant.
- *Industrial Hygiene:* *Best in Session* poster and *Best Aerosols* poster were awarded to two IH trainees at the 2009 AIHCE in Canada. Additionally, two IH trainees received scholarship awards from the Clyde M. Berry Memorial Scholarship Fund;
- *Occupational Epidemiology (OE):* The first PhD was 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 and the recipient of the 2009 UI College of Public Health Milford Barnes Award for exceptional academic work. Two other OE trainees were recipients of the prestigious American Statistical Association's *New Investigator Award*;
- *Occupational Health Nursing (OHN):* A 2007 graduate was inducted as a fellow of the American Association of Occupational Health Nurses (AAOHN);
- *Occupational Injury Prevention (OIP):* One OIP trainee was awarded pilot project funding from the UI Injury Prevention Research Center to conduct their doctoral research;
- *Occupational Medicine Residency (OMR):* OMR graduates have a 100% pass rate (since 2000) on the American Board of Preventive Medicine (ABPM) examination in occupational medicine;

Continuing Education (CE): Our innovative offerings provided 1,310 practicing professionals with current OSH knowledge and skills through 35 interdisciplinary CE programs for 1,799 person-days (a 16% increase compared to 2007-2008):

- In addition, to nursing CEUs, IH preventive maintenance points and general safety CEUs, our CE program provides ABPM-approved continuing medical education (CME) that may be used to fulfill the Lifelong Learning and Self-assessment component of the ABPM's *Enhancing Professional Improvement & Quality (EPIQ)* program— an American Board of Medical Specialties (ABMS) maintenance of certification program;
- We continued to develop asynchronous distance-based offerings utilizing a web-based format in conjunction with Iowa Courses Online (ICON). Course topics include respirators and risk assessment.

Center-wide Outreach: The Center influenced the practice of OSH 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 over 12,000 employers and 400,000 workers. We continued to disseminate information promoting workplace safety and health through a monthly electronic newsletter.

Research to Practice: Research findings translated into practice and policy through partnerships and dissemination of information included:

- The California OSHA Standard Board approved a Concrete and Masonry Standard that incorporates IH faculty and trainee research findings related to occupational safety and health of concrete and masonry workers;
- IH research findings on air quality systems for tractor cabs were utilized by the American Society of Agricultural and Biological Engineers to create a new standard on agricultural tractor cab environments;
- OSHA publication 3362-2009 Guidance Document: Controlling Silica Exposures in Construction references IH faculty and trainee research findings;
- An IH graduate ('07) in an OSH position with a major corporation was recognized for designing a conveyor system to prevent workers' musculoskeletal injuries;
- A method for determining the spatial variation of nanoparticles in production facilities, which was developed by one of the IH faculty, is being adopted by NIOSH field assessors;
- Research on the promotion of farm safety (through a special program called Certified Safe Farm) is being translated to practice in a corporate farm setting, through a unique outreach project involving the largest private farm in Iowa.

Major Accomplishments - Center-wide Activities

Administration - Dr. Craig Zwerling (Director) and Dr. Patrick O'Shaughnessy (Deputy Director) provided Center leadership with weekly management team meetings, biannual meetings of the Internal Advisory Board (composed of program directors and student representatives from each program) and biannual meetings of the 12-member External Advisory Board (EAB) made up of practicing OSH professionals from across Region VII.

Outreach – Information on preventing occupational injuries and illnesses has been provided to workers, employers and practitioners through newsletters, consultations, and presentations. The Ergonomics program area integrates 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 safety team members. In addition, the 2008 flood in Iowa resulted in outreach to various organizations related to mold and flood remediation.

Diversity Recruitment - Our recruitment strategies have maintained the proportion of Center's minority students at 15% in 2008-09 (compared to 0% in 2000-01).

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 through courses, seminars, and special events (i.e., orientation gathering with faculty/staff and the annual, student-run academic "quiz show" - Jeopardy in spring 2009)

Pilot/Small Projects Program – The Center supported three projects with pilot grants, which are examining the 1) estimation of physical exposures experienced during highly variable work tasks in residential construction, 2) prevalence of staphylococcus aureus colonization in children and adults present in daycare facilities, and 3) improving the health, safety, and productivity of women vegetable farmers in the Gambia.

Continuing Education - The Center surpassed the 400-trainee annual requirement, demonstrating a 16% increase in person-days (since the last reporting period) used to train OSH practitioners. Impact evaluation data from CE trainees indicate course information is implemented in practice (e.g. information on irritant induced vocal cord dysfunction used to prevent worker injury).

Major Accomplishments - Program Areas

Agricultural Safety and Health (ASH) – This program has two ASH trainees seeking PhD degrees. The ASH Program Director’s textbook entitled *Agricultural Medicine: Occupational and Environmental Health for the Health Professions*, now in its third printing, provides information on prevention of occupational injuries and illnesses in ASH workers across the globe. This text was used by practitioners in the CE program entitled *Agricultural Occupational Health Training* offered in Iowa and Vermont during 2008-2009.

Ergonomics (Ergo) – Training in ergonomics and human factors was provided for nine trainees (four graduated) from diverse disciplines, including industrial engineering, biomedical engineering, public health and occupational health. Ergo faculty hosted the inaugural *ERC Interdisciplinary Forum on Measurement Systems for Occupational Health and Safety Research*, a collaborative effort between the Heartland Center and the Colorado ERC that was attended by both trainees and faculty from both centers. Faculty transition is discussed in the Administrative section.

Industrial Hygiene (IH) –Four trainees, of a total enrollment of thirteen, graduated with MS or PhD degrees. An IH trainee was elected Vice President of the national AIHA Student Association. The IH program received full ABET accreditation through 2012. Faculty transition is discussed in the Administrative section.

Occupational Epidemiology (OE) - This program had eight trainees (one graduate) who were diverse in terms of discipline, background and minority status. The OE Program Director is an appointed member of the International Commission on Occupational Health, served on the EPA’s Science Advisory Board and spoke on indoor air pollutants at the President’s Cancer Panel.

Occupational Health Nursing (OHN) - This program had 15 trainees with three graduates. All MSN graduates are employed in DHHS Region VII. OHN faculty accomplishments include serving as the Inter-Tribal Vice Council Leader for the UI Native American Council and completing a Doctorate in Nursing Practice (DNP) degree with induction as a fellow in the American Academy of Nurse Practitioners. The Program Director received the Hector Perez award for diversity from the Iowa Nurses Association. There were four published peer-reviewed articles, and a book chapter.

Occupational Injury Prevention (OIP) - The ten OIP trainees distinguished themselves in terms of productivity and recognition. OIP trainees co-authored six peer-reviewed journal articles and overall there were over 30 peer-reviewed articles from this program. Currently, 60% of OIP faculty and 20% of OIP trainees are of minority status.

Occupational Medicine Residency (OMR) – The OMR program graduated one resident, who obtained employment in DHHS Region VII. Additionally, OMR had three trainees at various stages of their training. Three OMR graduates were appointed to the Board of Governors for the Central States Occupational and Environmental Medicine Association.

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

Heartland Center	Trainees	Graduates
Agricultural Safety & Health	2 (2-PhD)	0
Ergonomics	9 (2-MPH, 2-MS, 5-PhD)	4 (1-MPH, 3-MS)
Industrial Hygiene	13 (7-MS, 6-PhD)	4 (4-MS)
Occupational Epidemiology	8 (1-MS, 7-PhD)	1 (1-PhD)
Occupational Health Nursing	15 (MSN)	3 (MSN)
Occupational Injury Prevention	10 (PhD)	0
Occupational Medicine Residency	<u>3</u>	<u>1</u>
	60	13

Publications - Over 60 papers addressing important topics in OSH were published in peer-reviewed journals. To access a complete list of publications click the following link: [http://www.public-health.uiowa.edu/heartland/Pubs for ERC.pdf](http://www.public-health.uiowa.edu/heartland/Pubs%20for%20ERC.pdf)

Administrative Report – Two faculty changes occurred during this reporting period, Nathan Fethke, PhD, CPE (a 2006 Ergo graduate) returned to Iowa joining the Ergo faculty in January 2009, and the IH program gained a new faculty member, Renee Anthony PhD, CIH, CSP, who has 12 years of industrial and academic experience in IH. Dr. Anthony replaces William Heitbrink. PhD, CIH who retired in June 2009 after seven years of service to the program.