



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

**Summary Annual Report
July 1, 2009 - June 30, 2010**

**NIOSH Training Grant
T42OH008491**

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October 2010

Introduction

The Heartland Center for Occupational Health and Safety (Center), 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 as well as dynamic regional continuing education and outreach programs. The Heartland 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 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, 18 percent of whom are US citizen/minority students. Seventeen 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. One graduate from this reporting period is pursuing a PhD degree at the UI. The high caliber of the Center is evidenced by the many national academic and research awards received by the trainees, for example: *Agricultural Safety and Health:* a PhD trainee received an Outstanding Student Award at a national meeting this past year. Another PhD trainee received grant funding to study MRSA in Poultry; *Ergonomics:* a 2010 PhD graduate has been appointed as an Epidemic Intelligence Service Officer with CDC/NIOSH. Another 2010 graduate is now an assistant professor at the Worcester Polytechnic Institute; *Industrial Hygiene:* Four trainees received awards for their poster presentations at the 2010 AIHCE in Denver, CO. One of these received the “Best of Conference” award for a student poster. Additionally, two IH trainees received scholarship awards from the Clyde M. Berry Memorial Scholarship Fund; two received a scholarship from the Iowa Governor's Safety Council; one received a scholarship from the Iowa Occupational Safety and Health Advisory Council; additionally an IH trainee was elected Vice President of the National American Industrial Hygiene Student Association; *Occupational Epidemiology:* The second PhD was awarded, to a trainee who was the recipient of the UI College of Public Health Milford Barnes Award for exceptional academic work. Four trainees were inducted into Delta Omega, an honorary society for graduate studies in public health; *Occupational Health Nursing:* one student received the UI College of Nursing Dean's Minority Study Award at the Spring 2009 convocation; *Occupational Injury Prevention:* Trainees were awarded two pilot grants and presented eight presentations at scientific meetings. Dr. Peek-Asa (Program Director) was named a ResearchAmerica! Public Health Hero for her work in translating violence prevention programs to small businesses; *Occupational Medicine Residency:* Graduates have a 94% pass rate (since 2000) on the American Board of Preventive Medicine (ABPM) examination in occupational medicine; one resident received the Occupational Physicians Scholarship Fund; and two residents were offered rotations at OSHA in Washington, D.C.

Continuing Education (CE): Our innovative offerings provided 1,048 practicing professionals with current OSH knowledge and skills through 28 interdisciplinary CE programs for 1,612 person-days (a 20 percent decrease in courses resulted in only a 10 percent decrease in person-days compared to 2008-2009). The NIOSH Spirometry Program Course Approval Committee approved our NIOSH-Approved Spirometry Refresher Training Course #103 through 08/31/15. Our first refresher course was held on 08/25/10. We completed pilot testing of the continuing education offering entitled *Respirators: What You Need to Know to Protect Workers*, an asynchronous distance-based offering utilizing a web-based format in conjunction with Iowa Courses Online (ICON). Nursing CEU approval is pending.

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 Occupational Medicine Associate Network). 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 – *Health & Safety Bulletin* and a monthly OSH alert – *OSH Heads-Up*.

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

- Occupational Injury Prevention trainees have been integrated into the NIOSH-funded FACE program to develop first-hand experience in the translation of fatality investigations to prevention priorities; three trainees are working on two NIOSH-funded translational research projects. One of these projects involved the translation of a small business robbery and violence prevention program into law enforcement agencies. The second involves translating tabletop scenario exercises into a large company for workplace violence training. Three publications have addressed translation of research findings;

- A presentation on Stress Factors in Law Enforcement was presented by an Occupational Health Nursing faculty member at the American Association of Occupational Health Nurses national conference and a study of voluntary flu vaccination rates in long-term care health workers was conducted by Occupational Health Nursing;
- Agricultural Safety and Health research to determine the efficacy of respirator use among swine workers has progressed to the point of aiding in the establishment of a voluntary-use respirator program established in a large, integrated swine production company;
- The Agricultural Safety and Health 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, North Carolina, Vermont and Wisconsin training for over 100 health care practitioners;
- The Occupational Epidemiology Program Director translated research findings on radon to practice by presenting to the President's Cancer Panel on environmental factors in cancer.

Major Accomplishments - Center-wide Activities

Administration -Dr. Patrick O'Shaughnessy (Director) and Dr. Tom Cook (Deputy Director) provided Heartland 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. Examples include: *interdisciplinary consultations*-pulmonary function testing for worker emergency response teams (OM, IH & OHN) and subcontractor worker safety near a swine processing plant (OM, IH, ASH, & OHN); and *information dissemination to practitioners*-ACOEM Position Statement on Spirometry supports the need for NIOSH-approved Spirometry training courses and amendments to Federal DOT drug testing of workers;

Diversity Recruitment - Our recruitment strategies have maintained the proportion of Center's minority students at 18 percent in 2009-2010 (compared to zero percent in 2000-2001).

Interdisciplinary Coordination – Forty two ERC trainees (75 percent of all trainees) participated in the newly initiated Heartland Center Interdisciplinary Forum on 08/19/10. Four of the trainees utilized the distance-based Elluminate Live format. The forum included pilot project presentations, an interdisciplinary get-to-know-you ice breaker game, and trainee funding orientation. A group picture highlighted the event. Additionally, we maintained the faculty collaboration across disciplines, departments and Colleges that is the basis of all Heartland Center programs, and we fostered trainee interactions across programs through courses, seminars, and other special events (i.e., a picnic following the 08/24/10 interdisciplinary seminar bringing together trainees with faculty/staff and the annual, student-run academic "quiz show" – Family Feud in spring 2010). Also, our interdisciplinary course, *175:230 Occupational Health*, required of all trainees, involved plant visits where trainees from across all core disciplines worked together in teams to evaluate industrial sites in eastern Iowa.

Pilot/Small Projects Program – The Center supported four projects with pilot grants, which are examining 1) occupational antineoplastic drug exposure among nursing staff, 2) development of a nanoparticle deposition sampler, 3) effect of parkinsonism on work productivity and work injuries in welding-exposed workers, and 4) association between depression and long-term exposure to organophosphate pesticides among farmers.

Continuing Education - The Center surpassed the 400-trainee annual requirement used to train OSH practitioners. Impact evaluation data from CE trainees indicate course information is implemented in practice (e.g. 93.3 percent of 75 CE trainees at OH Symposium improved competency related to disability management, workers' compensation, worker suicide risk and FMLA and 100 percent of 98 CE trainees at the CSOEM spring seminar improved competency and 94 percent improved practice related to the MRO interview process, referring workers with spinal injuries, handling FMLA, and worker safety and medication use).

Major Accomplishments - Program Areas

Agricultural Safety and Health (ASH) – This past academic year, two PhD trainees graduated in ASH. One graduate is working for the National Pork Board in the Occupational Health Program. The other graduate is working for the World Health

Organization/Food and Agricultural Organization on occupational health issues of farmers in West Africa. Currently, we have three ASH trainees seeking PhD degrees and three pursuing MS degrees.

Ergonomics (Ergo) – Training in ergonomics and human factors was provided for five trainees (three graduated) from diverse disciplines, including industrial engineering, biomedical engineering, public health and occupational health. With the numbers of trainees graduating in the 2009-2010 reporting period, Ergo program faculty emphasized recruiting and secured commitments from four new trainees for 2010-2011. Ergo faculty and trainees assisted in the organization of and participated in two conferences: *2nd ERC Interdisciplinary Forum on Measurement Systems for Occupational Health and Safety Research* and the *3rd American Conference on Human Vibration*. The *ERC Interdisciplinary Forum* expanded in its second year to include faculty and students from four ERCs (Heartland Center-IA, Mountain & Plains Center-CO, Rocky Mountain Center-UT, and Deep South Center-AL).

Industrial Hygiene (IH) – One trainee, of a total enrollment of fifteen, graduated with an MS degree. Four industrial hygiene trainees are first authors on peer-reviewed papers published in the past year or in press. The IH program received full ABET accreditation through 2012. Two IH faculty were promoted in professorial rank; P. O’Shaughnessy to full professor and T. Peters to associate professor with tenure. All fifteen IH trainees attended the 2010 AIHCE in Denver, CO in May.

Occupational Epidemiology (OE) – The OE Training Program had eight doctoral trainees, including one MS trainee who graduated in 2009 and is now a doctoral trainee. The trainees’ primary departments include Occupational and Environmental Health, Epidemiology, and Biostatistics. The most recent trainee to obtain a PhD received a NIOSH Fellowship during the last year of studies and is currently working as an Epidemiologist/Fellow at the Industry wide Studies Branch of NIOSH. Another trainee received a doctorate in May 2010. The trainees have presented numerous poster presentations at regional and national meetings. Two OE trainees attended the Life Table Analysis Software training at NIOSH.

Occupational Health Nursing (OHN) - This program had 10 trainees with seven graduates. Five of the MSN graduates are employed in DHHS Region VII. OHN faculty accomplishments include submitting a R15 NINR for studying heat-related illness in seasonal farm workers and a R01 for analyzing cardiovascular risk in law enforcement officers.

Occupational Injury Prevention (OIP) – This year OIP had two graduates (PhD) and have recruited two new trainees. One additional trainee is on track to complete a PhD degree in December 2010. OIP trainees co-authored eight peer-reviewed journal articles with four more under review (two of these as primary authors). Two of our recent graduates have received academic appointments following their training, and now 80 percent of the OIP graduates have academic appointments. Overall, there were over 25 peer-reviewed articles from this program.

Occupational Medicine Residency (OMR) – The OMR program graduated one resident, who obtained employment in DHHS Region VII. Additionally, OMR had four trainees at various stages of their training. One resident was awarded an Occupational Physicians Scholarship Fund. Two residents were offered rotations at OSHA in Washington, D.C.

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

Heartland Center	Trainees	Graduates
Agricultural Safety & Health	4 (2-MS, 2-PhD)	0
Ergonomics	5 (5-PhD)	3 (3-PhD)
Industrial Hygiene	15 (8-MS, 7-PhD)	0
Occupational Epidemiology	9 (2-MS, 7-PhD)	4 (1-MS, 3-PhD)
Occupational Health Nursing	12 (MSN)	7 (MSN)
Occupational Injury Prevention	10 (PhD)	2 (PhD)
Occupational Medicine Residency	<u>5</u>	<u>1</u>
	60	17

Administrative Report – Patrick O’Shaughnessy, PhD, CIH, is Center Director (previously Deputy Director and currently IH Program Director) and Tom Cook, PhD (Ergo) was named Deputy Director. Other faculty changes during this reporting period: Craig Zwerling, MD, PhD, MPH (previous Center Director) continues to hold a faculty position while Wayne Sanderson, PhD, CIH, left the University of Iowa. A replacement for Dr. Sanderson is being sought.

Publications - Over 50 papers addressing important topics in OSH were published and are in press 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>