ILLINOIS EDUCATION AND RESEARCH CENTER FOR OCCUPATIONAL SAFETY AND HEALTH

ANNUAL REPORT
July 1, 2005 – June 30, 2006

SUBMITTED BY:
Lorraine M. Conroy, ScD, CIH
Center Director
University of Illinois at Chicago
Chicago, Il 60612

October 2006

II. Introduction and Executive Summary

The Occupational and Environmental Health and Safety Education and Research Center at the University of Illinois at Chicago (Illinois ERC) exists to improve, promote, and maintain the health of workers and communities by applying innovative and interdisciplinary approaches to:

- prepare professionals to be leaders in occupational and environmental safety and health who will direct and manage occupational and environmental safety and health programs, teach other occupational and environmental health professionals, and research issues pertinent to occupational and environmental safety and health;
- provide continuing education to occupational and environmental health and safety professionals and outreach to workers and communities to improve their knowledge, skills, and awareness of key issues in occupational and environmental safety and health, devoting special attention to the problems and needs of at risk and underserved workers and communities;
- contribute to the knowledge base in occupational and environmental safety and health by preparing doctoral students, performing faculty and student research on problems of regional, national, and global significance, and disseminating the results of their research; and
- serve as a regional information resource.

The Occupational and Environmental Health and Safety Education and Research Center (Illinois ERC) is comprised of 12 programs. There are 6 academic programs: Industrial Hygiene (IH), Hazardous Substances (HSAT), Occupational Medicine at the University of Illinois at Chicago (OM-UIC), Occupational Medicine at Cook County Hospital (OM-CCH), Occupational Health Nursing (OHN), Agricultural Safety and Health (ASH-A). There are three continuing education and outreach programs: Continuing Education and Outreach in industrial hygiene, occupational medicine, occupational health nursing, and occupational safety (CEO); Hazardous Substances (HST); and Agricultural Safety and Health (ASH-CE). The ERC also has Center Administration (CA), a Pilot Projects Research Training program (PPRT), and a NORA Research Support program (NORA).

A. Major Accomplishments

During the reporting period, we graduated 19 students, 13 of whom received NIOSH support. All but one of these trainees are working in occupational and environmental health fields or continuing in graduate school. One trainee is seeking employment in occupational health nursing, but is working as a hospital nurse. During the reporting period, faculty and trainees have more than 46 published or submitted papers and scientific presentations.

UIC hosted the NORA town hall meeting for the construction sector on December 19, 2005. More than 100 people attended the meeting.

An outreach project in the ERC was instrumental in the Passage of Lead Poisoning Prevention Act in the State of Illinois. We have been working on a project to promote lead safe work practices (LSWP) during renovation and remodeling. We are trying to reach small and medium sized contractors and have been working with hardware and paint stores to promote LSWP. The success of the program led the legislature to believe that our interventions were feasible and included language in the Lead Poisoning Prevention Act to require hardware stores to carry the necessary supplies and to post and distribute information about LSWP.

Seven IH trainees presented their research at the American Industrial Hygiene Conference and Exhibition in 2006. Robert Malcolm's poster was awarded "Best in Session" in the graduate student poster session. John Halpin, an occupational medicine resident, presented his research at the International Congress on

Occupational Health in Milan, Italy in 2006. Faculty, staff and students from the ERC made 4 presentations at the 2006 NORA symposium.

Julia Lippert (IH trainee) was awarded the Michael Bruton Workplace Safety scholarship in 2005-2006. John Halpin (OM trainee) was awarded an Occupational Physicians Scholarship Fund scholarship in 2005-2006.

We continued to receive generous support of our Industrial Hygiene program from the Chicago AIHA. They have provided support for students to attend their monthly meetings, have provided travel funds for attendance at the national meeting, and have funded scholarships through the American Industrial Hygiene Foundation.

Several of the instructors from our HST program were deployed to assist with the Katrina Hurricane disaster. The experience was great for the instructors and has provided them with a wealth of information regarding national emergency response on a large scale and its effect on people. Many of our students were deployed to the area as well.

B. Significant Changes since July 1, 2004 – June 30, 2005

There were no significant changes in the program during the reporting period.

C. ERC Website

Continuing Education and Outreach
http://www.uic.edu/sph/glakes/ce/index.html

Pilot Projects Research Training
http://www.uic.edu/sph/glakes/funding.html

Industrial Hygiene, Hazardous Substances, Occupational Medicine
http://www.uic.edu/sph/eohs.htm

Occupational Health Nursing
http://www.uic.edu/nursing/ohn/

Combined Occupational/Internal Medicine
http://medicine.johnstrogerhospital.org/medicineresidency/occupational.html

III. Program Progress Report: Center Wide Programs

A. Program Title: Center Administration

B. Program Director: Lorraine M. Conroy, ScD, CIH

C. Program Description

The ERC is administratively part of the Environmental and Occupational Health Sciences (EOHS) division at the SPH. EOHS is one of four academic divisions in the SPH. The IH, HSAT, OM-UIC, CEO, HST, ASH-CE, PPRT, NORA and CA are administered through EOHS, allowing the ERC to have a more centralized administration and to rely on some administrative support from the division staff, particularly in the area of student affairs. Rosemary Sokas, MD, MOH is the Director of EOHS and reports directly to the Dean of the SPH.

The OM program includes residency programs at two institutions: a straight occupational medicine residency program in EOHS, SPH, UIC and a combined occupational medicine/ internal medicine residency program at Cook County Hospital (one year of the CCH residency is an MPH in EOHS at SPH). A subcontract governs the relationship between the University of Illinois and Cook County Hospital. The OHN program is in the UIC College of Nursing, Department of Public Health, Mental Health, and Administrative Studies. The ASH-A program is in the College of Agricultural, Consumer, and Environmental Sciences at University of Illinois at Urbana-Champaign (UIUC).

Center Administration is directed by Dr. Lorraine Conroy, Center Director, Ms. Leslie Nickels, Deputy Director, and Ms. Barbara Harper-Smith, Center Administrator. Responsibility for various activities related to administering the ERC are shown in Table 1.

D. Program Activities and Accomplishments

The CA provides support for each of the component programs and manages interdisciplinary activities such as the Occupational and Environmental Health and Safety seminar series. The ERC has an Executive Committee that meets monthly and is composed of the ERC Director, Deputy Director, and directors of each ERC program area. The ERC also has an external advisory committee that meets 2-3 times per year.

Interdisciplinary activities and programs have not changed significantly since the last reporting period and consist of several overlapping activities: Common coursework including interdisciplinary group projects; Weekly Occupational and Environmental Health Seminar Series ; Occupational History Tours; Occupational Medicine Clinic; Plant Visits, and Interdisciplinary Research These are described in more detail in the Interdisciplinary Coordination section.

We continue to meet regional needs through our academic programs, research activities, and continuing education and outreach program. Our advisory board is instrumental in helping us to define the needs of our region as well as to advise us on innovative and effective ways to meet that need. Membership on the ERC Advisory Board represents all disciplines and includes representatives from government, industry, and labor. The Advisory Board is chaired by Dr. Linda Murray and meets 3 times per year. Dr. Murray is the co-Medical Director of the Cook County Bureau of Health Services, Ambulatory Care network. Her commitment to the ERC has been exceptional. She is a voluntary attending physician in the CCH Division of Occupational Medicine. She has facilitated and collaborated on a number of continuing education and outreach activities, and her work as Chair of the Advisory Board for the last 4 years has

been very valuable. Her experience in occupational health and in working with communities as well as NIOSH has provided valuable insight for the activities of the ERC.

E. Program Products

Please see section *II. A. Major Accomplishments* and *Appendix C Publications.*

F. Future Plans (Include in summary form plans for the next budget period.)

We continue to make progress on our Measures of Effectiveness. We included a chart of activities related to the goals of the Center in our last competitive renewal. We update the activities and outcomes on this chart regularly. We will be conducting a regional needs assessment in Academic Year 06-07 and will incorporate the results of that assessment into our Measures of Effectiveness, defining new goals and activities as warranted.

Table 1: ERC Responsibilities

Activities/Tasks	Director	Deputy Director	Program Directors	Administrator
Center Activities	Monitor center activities	Communicate with NIOSH on grant content		Assist Director with core activities
	Attend center directors' meeting	Provide leadership on NIOSH funding issues		Maintain financial records
	Communicate with NIOSH			Maintain faculty/staff/student appointments
				Communication with University business officials
Executive Committee	Chair executive committee	Communicate funding opportunities	Executive committee (attend meetings)	
			Program reports	
Advisory Committee	Identify chair	Work with chair	Recommend membership	Keep advisory committee list
	Work with chair to develop agendas	Attend meetings	Attend meetings	Scheduling; Minutes
	Attend meetings			
Interdisciplinary Activities	Coordinate activities		Coordinate clinic participation- Rubin, Buchanan, Scheff, Lizer	
	Research and research Training	Seminar	Occupational history tours- Nickels	
			Process tours- Rubin	
			Training methods and tools orientation- Nickels	
Recruitment/ Publicity	Web site/ directory contact person		Program recruiting	
Grant Submission	Coordinate grant submissions		Write program area sections	Assist program directors and center director with budget development
	Write center wide activities		Develop program budgets	Maintain grant records
	Develop budgets for center wide activities			

III. Program Progress Report: Center Wide Programs

A. Program Title: Outreach

B. Program Director: Leslie Nickels, MEd

C. Program Description

Outreach is administratively based at the University of Illinois, School of Public Health in the Division of Environmental and Occupational Health Sciences and has component programs in Agricultural Safety and Health and Hazardous Substances. The mission of outreach is to provide involvement and interaction with occupational and environmental health and safety professionals and workers to improve their knowledge, leadership and technical skills, and awareness of key issues in occupational safety and health.

Ms. Nickels is a full time academic professional and Program Director of Outreach. Joseph Zanoni, MILR, is a full time academic professional and Associate Director for Outreach. School of Public Health administrative staff who actualize the Outreach program are Marilyn Bingham, MS, Natesa Sutton, and Barbara Harper Smith as well as faculty in each of the program areas. Outreach components include occupational medicine, occupational health nursing, industrial hygiene, and safety as well as targeted programs in Agricultural Safety and Health and Hazardous Substances.

In the current reporting period, Ms. Bingham became a Program Manager in a newly created position. Additionally, Ms. Virginia Warren continued her appointment as a 51% Program Coordinator. Ms. Sutton's time has been reduced. Staff development includes Mr. Zanoni participating in academic course work in curriculum studies and Ms. Nickels completed her preliminary written examination in curriculum studies.

The program goals are to:

1. Define and address the needs of the occupational and environmental health and safety community in Illinois, Wisconsin, and Indiana by coordinating outreach activities.
2. Continue to develop partnerships with local occupational and environmental health and safety professional associations, government agencies, and non-governmental organizations (advocacy groups, labor organizations and trade associations) to conduct needs assessments and outreach activities.
3. Develop outreach programs using the best learning context including, conferences, workshops, seminars, laboratories, small group activities, one-on-one mentoring, self study, and field trips.
4. Identify underserved and minority populations and develop outreach initiatives to meet the needs.
5. Develop outreach skills in students in the academic program areas.
6. Create interdisciplinary opportunities for faculty, staff, students, and professionals through outreach implementation.
7. Increase resources (financial and faculty) for program development and implementation.

D. Program Activities and Accomplishments

We met our first two goals by defining and addressing the needs of the occupational and environmental health and safety community in Illinois, Wisconsin, and Indiana by coordinating activities and partnering with local occupational and environmental health and safety professional associations, government agencies, and non-governmental organizations by our continuing work in the areas of lead exposure prevention, Healthy Homes programming, Health in the Arts program, Healthy Schools Campaign,

National Occupational Research Agenda Intervention Effectiveness programs with worker's centers and blood borne pathogens programs with home care workers.

We develop training programs using the best learning context and identified the most effective training methods and tools for delivering training by creating conferences and workshops to meet the needs of our partners such as creating posters to communicate lead safe practices for home owners and contractors, partnering with local and national organizations to conduct outreach for healthy homes, created auditing tools for environmental/occupational health in schools and participated in worker's center events to learn about how these organizations may be resources for worker injury and illness prevention.

We identified underserved and minority populations, developed continuing education initiatives and developed interdisciplinary teaching and training knowledge and skills in students in the academic program areas through the NIOSH Pilot Project of Leslie Nickels. In the project we partnered with four worker's centers in Chicago and involved IH trainees Nadine Remington and Julia Lippert in the qualitative research to understand the worker organizing activities of the centers and how this action relates to occupational safety and health.

We increase resources (financial and faculty) for program development and implementation through a contract with Healthy Schools Campaign to consult on the ongoing National Institute for Environmental Health Sciences Environmental Justice grant project examining asthma and obesity prevention with two community based Latino organizations.

Occupational Medicine

We communicated with the leaders of four Chicago worker's centers conducting observations and focus groups with participants in each center. Dr. Susan Buchanan, Occupational Medicine Physician, provided clinic days at a day labor site near a large home construction supply retailer, providing tetnus vaccine and taking blood lead samples. At Centro San Lucas we participated in a community health fair and provided information on occupational health. We also participated in an action day that toured different community locations with members of the worker's center and the community to document conditions and to educate on the work of the center. At Chicago Interfaith Committee on Worker Issues we participated in a community meeting at a church and learned about their efforts to support low-wage workers. We presented on our outreach work at conferences at the UIC College of Education, the University of Toronto, the UIC Immigrant Initiative Conference and the International Congress on Occupational Health.

Occupational Health Nursing

In the current period we conducted an environmental/occupational health walk through with Linda Pietens, School Nurse and project coordinator at Hearst School. The walk through was an opportunity to use the audit tool that was part of our ongoing collaboration with Healthy Schools. We also assisted in the preparation of a poster on the Latino schools project for the NIEHS conference. We assisted in an outreach meeting in Lombard with 60 participants on the program themes of Healthy Schools. Rochelle Davis, Executive Director, presented during the NIOSH Town Hall meeting. We met with Dean Susan Scrimshaw on community based participatory research to share our experiences with IRB training in the community and with Dean Victoria Chou on board recruitment. We also participated in a very successful school community event to hightlight parent involvement in nutrition, physical activity and environmental health.

Industrial Hygiene

In terms of lead exposure prevention outreach continues it project based on the coalition work of Lead Safe Chicago. Leslie Nickels is leading a project to provide information to contractors and home owners at hardware stores throughout Chicago. In this time period the first part of the community based outreach

effort was implemented and evaluated by MPH students of the Division of Environmental and Occupational Health Services. Ms. Nickels presented the evaluation of the project at APHA and other scientific conferences. She will continue to work with the Chicago Department of Public Health, students from UIC School of Public Health and Loyola University and Ms. Kirsten Almberg. The Healthy Homes Initiative is another development from community outreach work where Ms. Nickels cooperated with the Howard Area Community Council to conduct home assessments led by peer educators. The findings of the community survey showed that much work is needed in terms of developing capacity and assessment skills in community-based organizations and with environmental health professionals. The first Healthy Homes course was planned and implemented in June, 2006.

Safety

The Health in the Arts Program continues its initiative of outreach to arts education teachers at the primary, secondary and college levels. Based on a successful course in January, 2004 with art teachers in Chicago, a working group was formed with Joseph Zanoni and Virginia Warren of the UIC School of Public Health, Dr. Katherine Duvall, MD, MS, MPH, of the Occupational Health Service Institute (OHSI), Irene Stasula, RN, OHSI, Becky Lockart of Illinois EPA, and Carol Knepp, Illinois Waste Management Research Center. To complement the program offered in Northern Illinois the partners decided target central Illinois and plan for an event in Springfield. The successful course was held in April, 2006 and was reported as part of our continuing education program. In the planning stage is a theater health and safety course with leadership from Ms. Margie Skimina, CSP, Environmental health and Safety Director of the Art Institute of Chicago and Mr. Ken Weiss, Fire Protection Specialist who has worked consulted in theater health and safety. In terms of Ergonomics, Diane M. Devereux, Director of Human Resources, Illinois Guardianship and Advocacy Commission, contacted Mr. Zanoni to discuss training and consultation regarding work station ergonomics for employees of her program throughout Illinois. While Mr. Zanoni offered the services of CE, Ms. Devereux requested services at no cost. He directed her to Ms. Dana Root, OSHA Region 5 ergonomist for training resources and networked with Ms. Rita Mosley of the Illinois On-Site Consultation Program and to Ms. Edna Lugubuin, Industrial Hygienist, Illinois Department of Labor, Safety Education and Inspection Program. Ms. Lugubuin contacted Ms. Devereux to provide her services at no cost.

Other

Outreach has an initiative to understand and improve the skills and capabilities of bloodborne pathogen exposure prevention with home care workers. Our partners in this initiative are Local 880, Service Employees International Union (SEIU) in Illinois and Local 150, SEIU, in Wisconsin. Following up our focus group inquiry with union member home care workers we conducted validation meetings in Chicago and Milwaukee to answer the questions: “Did we get it right? And, did we get it all?” We found we heard recurring themes in both of these groups. Our partners analyzed and presented the findings of the data at APHA in December, 2005. In April, 2006, we conducted a meeting of Local 150’s partners to discuss long term care and home care policy and how health and safety protection may be integrated into these efforts. We continued our inquiry by cooperatively developing and piloting a survey of home care workers outlining their exposure to blood, their use of protective equipment and practices and their perception of organization of work issue impacting blood exposure. We held several sessions with the Local 880 and Addus Healthcare, Inc., labor management committee.

Outreach worked briefly on three other projects. Mr. Joseph Burns, Attorney, who represents the Amalgamated Transit Workers Union contact Mr. Zanoni to propose a conference addressing stress and fatigue related to injury and illness of transit workers. Mr. Zanoni contacted Dr. June Fisher, MD, and cooperated with her in presenting a conference proposal to Mr. Burns and the leaders of the ATWU. In Fall, 2005, Mr. Zanoni lead a effort to survey the participants of two conferences held in Illinois called Strategies for Safety and Success in Long Term Care. The goals of the conferences were to promote voluntary efforts to adopt ergonomic programs in long term care facilities and to showcase successful

models of labor-management cooperation and new products to support ergonomic programs. Thirty of the 200 participants responded and stated that they would like follow up, particularly in other area such as Wisconsin and to highlight practical efforts. These results were shared with the group of professionals and partners who planned and implemented the successful conferences. Finally, Mr. Zanoni lead a session for the staff of the Stroger Hospital of Cook County Department of Trauma on peer training, leadership development and focus group methodology for the injury and illness prevention efforts lead my Ms. Susan Avila, RN, Nurse Epidemiologist of the Department of Trauma.

E. Program Products (Include in summary form: publications and presentations of program faculty and trainees [list in Appendix D]; conferences/symposia sponsored; CE courses presented; successful R2P projects; research projects completed having significant trainee involvement; unique training courses presented.)

1. Industrial Hygiene

a) Educational Development

- Serve on the board of the campus-wide Institute for Environmental Science and Policy (Esmen (IHF) and Scheff (IHF))
- Collaboration with faculty in the College of Engineering on the development of the test facility for emission from welding (Conroy (IHF) and Erdal (IHF))
- Collaboration with faculty in the College of Engineering on proposals to the National Science Foundation on evaluation of environmental data (Erdal (IHF) and Scheff (IHF))
- Collaboration with faculty in the College of Engineering on exposure to toxic compounds in jet-engine manufacturing facilities (Esmen (IHF), Scheff (IHF) and Franke (IHF))
- Collaboration with faculty and staff in the College of Medicine on environmental and occupational health issues for animal-care workers (Dorevitch (OMF) and Conroy (IHF))
- Collaboration with faculty in the Division of Epidemiology on personal exposure issues (Erdal (IHF) and Dorevitch (OMF))
- Ongoing curriculum development for Lead-based Paint Hazard Control course for Georgia Tech Research Institute (Cali (IHF))
- Consultant to the Atmospheric Chemistry program of the State of Illinois Water Survey, University of Illinois at Urbana on program development (Scheff (IHF))
- Co-instructor collaboration with faculty in the Division of Epidemiology to develop and implement a new course offering: EOHS/EPID 408 - Biological, Chemical, Explosives and Nuclear Weapons as Public Health Threats (Lacey (IHF))
- Instructor for the College of Engineering: IE 461 Safety Engineering (Lacey (IHF))
- Instructor for the College of Engineering: IE 341 Ergonomics (Lacey (IHF))
- Development of six environmental statistics courses for webcast, U.S.EPA Air Pollution Training Institute, 2005-2006 (Scheff (IHF))

b) Presentation - Lectures - Awareness Seminars

- AIHA Engineering Committee to University of Illinois at Chicago Department of Mechanical and Industrial Engineering, *Industrial Hygiene as a Career Option for Engineers*, February 2005 (Lacey (IHF))
- Children's Environmental Health Symposium planned and organized by the Society for Risk Analysis and hosted by UIC. ERC presentations include introduction by Dr. Daniel Hryhorczuk (OMF), presentation "Health Protectiveness of Soil Cleanup Standards for Children in the Midwestern States" by Dr. Serap Erdal (IHF), "Mold and Moisture Study" by Dr. Myrtis Sullivan and Salvatore Cali (IHF). (November 17, 2005)
- SAWG to George Washington University Department of Mechanical Engineering, *Industrial Hygiene as a Career Option for Engineers*, December 2005 (Lacey (IHF))

- SAWG to George Mason University Women in Engineering, *Industrial Hygiene as a Career Option for Engineers*, December 2005 (Lacey (IHF))
- SAWG to NIOSH IH Program Directors Meeting, *Orientation to the AIHA SAWG*, February 2006 (Lacey (IHF))
- SAWG to AIHA Leadership Conference, *Orientation to the AIHA SAWG*, March 2006 (Lacey (IHF))
- SAWG to AIHA Board of Directors, *Orientation to the AIHA SAWG*, March 2006 (Lacey (IHF))
- SAWG to Johns Hopkins University Society of Women Engineers, *Industrial Hygiene as a Career Option for Engineers*, April 2006 (Lacey (IHF))
- Study results for "Illinois Beach State Park (IBSP): Determination of Asbestos Contamination in Beach Nourishment Sand at Interdisciplinary Occupational & Environmental Health and Safety Seminar, August 31, 2005 (Cali (IHF))"Indoor Air Quality" and "Health & Safety Regulations" for Building Operators Certification, Midwest Energy Efficiency Alliance (Illinois) and Focus on Energy, Wisconsin, 2005-2006 (Cali (IHF))
- "Folk Remedies and Public Health" for Wisconsin Environmental Health Association Joint Conference, September 21, 2005 (Cali (IHF))
- Site visit and consultation regarding VOCs with Illinois Department of Public Health, ATSDR, and Illinois EPA in Hartford, IL, July 6, 2005 (Hryhorczuk (OMF), Cali (IHF))
- Presentation and recording of six environmental statistics courses for webcast, U.S.EPA Air Pollution Training Institute, 2005-2006 (Scheff (IHF))
- Erdal (IHF), S. and L. Berman (IHT). 2006. Metal Sculptors: Occupational Environment and Risk Factors. Accepted to be presented at the Annual Meeting of the American Industrial Hygiene Association, Chicago, IL, May 13-18, 2006.
- Berman (IHT), L. and Erdal (IHF), S. 2006. Welding Fume Exposure of Welders Working in Isolation. Accepted to be presented at the Annual Meeting of the American Industrial Hygiene Association, Chicago, IL, May 13-18, 2006.

c) Consultations

- Dr. Lacey (IHF) is the Chair of the AIHA Student Activities Working Group (SAWG), to attract and retain young scientists and engineers to the field of industrial hygiene
- Dr. Lacey (IHF) is the immediate Past Chair of the AIHA Engineering Committee
- Dr. Lacey (IHF) is the Co-Chair of the AIHA Engineering Committee Awards sub-committee
- Dr. Lacey (IHF) is a co-author on a collaborative effort with the American Institute for Chemical Engineers Center for Chemical Process Safety and the AIHA Gas & Vapor Detection Committee for technical handbook on continuous detection systems for hazardous substances
- Dr. Lacey (IHF) volunteers as a Safety Officer for the Illinois Medical Emergency Response Team (IMERT)
- Dr. Lacey (IHF) is Chair of the Student Activities Section of the AIHA Chicago Local Section Conference Planning Committee for the AIHce 2006
- Dr. Lacey (IHF) is Chair of Student Activities Planning Committee, AIHce 2006
- Dr. Lacey (IHF) is Faculty Advisor, UIC Industrial Hygiene Student Association, 9/06-present
- Dr. Lacey (IHF), member of AIHA Future Leaders Institute – Inaugural Class, 2005
- Dr. Lacey (IHF), Student and Early Career Professionals Committee, Member, 3/05-present, Founding Chair, 3/05-present
- Dr. Lacey (IHF), member of ANSI/AIHA Z88.14 Subcommittee: Respirator Use for Emergency Response and Operations against Terrorism and Weapons of Mass Destruction
- Dr. Serap Erdal (IHF) is a member of the Illinois Health and Hazard Substances Coordinating Council, the State of Illinois, Department of Public Health
- Dr. Serap Erdal (IHF) is a member of the Illinois Public Health Association Scholarship Committee
- Dr. Serap Erdal (IHF) is a member of the International Society of Exposure Analysis International Committee
- Consult and sampling with CDC personnel for fungemia outbreak in a dialysis clinic, December

2005-January, 2006 (Cali (IHF))

- Consultations with the Illinois Attorney General's Task Force on Asbestos at Illinois Beach State Park. The Task Force includes representatives from the Illinois Department of Public Health, Illinois Department of Natural Resources, Illinois EPA, USEPA, and the Waukegan Park District, 2003-2006. (Sokas (OMF), Scheff (IHF), Hryhorczuk (IHF), Cali (IHF))
- Consultations with suburban police department regarding lead exposure at a practice firing range, November 2005-January, 2006. (Cali (IHF))
- Consultations with Amtrak relative to locomotive engine noise evaluation, December, 2005. (Cali (IHF), Scheff (IHF))
- Mr. Salvatore Cali (IHF), Advisory Board member for OAI, Inc., educational program for minority Hazardous Waste Worker Training
- Dr. Franke (IHF) is Industrial Hygiene Manager of Evanston Hospital, which involves oversight of three hospitals as well as a number of out-patient clinics.
- Dr. Franke (IHF) is past-President of the Wisconsin Section of the AIHA, and a member and former Chair of the Modeling Subcommittee of the Exposure Assessment Strategies Committee for the national AIHA
- Dr. Peter Scheff (IHF) Peer Review, USEPA QAPP for alternative procedures for demolition of buildings with ACM, January, 2006.
- Peer reviewers of the AIHA Journal, Applied Occupational and Environmental Hygiene, and other professional journals (Scheff (IHF), Conroy (IHF), Esmen (IHF), Franke (IHF))

2. Occupational Medicine

a) Educational Development:

- Susan Buchanan, residency director teaches the occupational and environmental portion of the UIC Family Medicine clinical clerkship. This is a 6-week rotation required of all third year medical students. This entails one 2-hour session every 6 weeks.
- Rachel Rubin, Anne Krantz, David Marder. Various lectures on Occupational and Environmental Medicine to medical students and Internal Medicine residents as part of the IM educational program at Stroger Hospital. (1995-present).
- Susan Buchanan organized a monthly Occupational Medicine clinic at Chicago Community Health, a free clinic staffed by UIC volunteer medical students.

b) Presentations/Lectures/Awareness Seminars

- Susan Buchanan (OMF) gave a Ground Rounds presentation to the University of Vermont Department of Family Medicine entitled "Mold and Sick Building Syndrome: Myth vs. Evidence." May 2005.
- Susan Buchanan (OMF) and Peter Orris (OMF) presented at the American College of Occ and Env Medicine State-of –the –Art conference (SOTAC); "Hours of Service Regulations." October 2005.
- Susan Buchanan (OMF) presented a lecture to UIC engineering students entitled "Overuse Musculoskeletal Disorders." September 2005.
- Forst L. (OMF) Occupational Lung Diseases. 3-day course in Masters program in Occupational Health. Leon, Nicaragua. July 2005
- Forst L (OMF), Aragon A. Occupational Health Training Needs in Nicaragua. Poster. ICOH Education and Training Conference. Strasbourg, France. September 15-16, 2005
- Forst L. (OMF) Distance Education in Occupational Health. Presentation. ICOH Education and Training Conference. Strasbourg, France. September , 2005 20.
- Forst L. (OMF) Moderator. Hispanic Workers Health and Safety session. Am Pub Health Assn. Philadelphia, December 2005.

- Sokas, Rosemary (OMF) Presentation to OSHA's Office of Occupational Medicine through the OSHA Training Institute, "Workplace Safety and Health in the Poultry and Meat-packing Industry: The US GAO Report", 10/27/05
- Sokas, Rosemary(OMF) Presentation. "Vulnerable Working Populations: A Framework", SOTAC, Chicago, 10/30/06
- Sokas, Rosemary (OMF) "Trainers' Evaluation of the SmartMark Curriculum for the OSHA 10-hour Course", APHA, Philadelphia, 12/12/06.
- Halpin J.(OMT), Orris, P. (OMF) "Hotel Housekeeper Injuries: Analysis In The Face Of Incomplete Data", abstract accepted for presentation at the Annual ICOH meeting in June, 2006.
- Halpin J. (OMT), Orris P. (OMF) "Occupational Burn Injury in an Acute Care Clinic", abstract submitted to the Annual AOHC meeting in May, 2006.
- Halpin J. (OMT) Presentation for the *National Youth Leadership Forum* to a group of 200 high school students; "An Introduction to the field of Occupational Medicine and my career in this field." August, 2005.
- Halpin J. (OMT) Presentation to McCain International Food Company executives; "Occupational Health Aspects of Avian Flu and Corporate Preparations for a Pandemic." December, 2005.
- Halpin J. (OMT) Presentation to the University of Illinois Department of Internal Medicine, Grand Rounds presentation, "Clinical Aspects of Avian Flu from an Occupational Health Perspective." January, 2006.

c) Consultations and Other

- Susan Buchanan (OMF) is a member of the Governor's Panel on Latino Worker Safety, State of Illinois.
- Linda Forst (OMF) is a member of the Governor's Panel on Latino Worker Safety, State of Illinois.
- Susan Buchanan (OMF) represented the Illinois Academy of Family Physicians at the Illinois State Medical Society Workers Compensation Task Force, January, 2006
- Peter Orris (OMF), Journal Reviewer:
  American Journal of Industrial Medicine (Contributing Editor)
  Journal of Public Health Policy (Management Committee & Editorial Board)
  Revista Cubana De Salud Y Trabajo (Member, Editorial Board)
  New Solutions (Member, Editorial Board)
  American Journal of Public Health, (Reviewer)
  Environmental Research (Reviewer)
  Journal of the American Medical Association (Reviewer)
  Journal of Occupational and Environmental Medicine (Reviewer)
  Journal of Health Services Research (Reviewer)
  Environmental Toxicology and Pharmacology Journal (Reviewer)

3. Agricultural Safety and Health

a) Educational Development

Developed and conducted three one day agricultural confined space training programs for industry representatives in the states of Nebraska, Iowa and Illinois. These programs were partially funded by the NIOSH Ag Center at the University of Iowa. A total of 107 persons participated in the programs. Each participant received a resource notebook and a CD with instructional aids and references in agricultural confined spaces.

Served on the program planning committee for the Midwest Forum on Agricultural Safety and Health that was held in Des Moines, Iowa and sponsored by the NIOSH Ag Center at the University of Iowa. There were approximately 65 professionals in attendance at the conferences. The Great Lakes Center was a co-sponsor of the program.

b) Presentations/Lectures/Awareness Seminars

Conducted a session on agricultural injury causation at national agricultural safety and health training program for agricultural professionals that was sponsored by the National Institute for Farm Safety. There were 33 participants.

Conducted two agricultural youth safety training program for Extension professionals. There were approximately 30 participants.

Assisted in conducting and offering 3 two day farm accident rescue training program for fire/rescue and EMT's personnel. These programs were attended by 84 persons.

c) Consultations and Other

Developed a comprehensive grain elevator safety training program for Hillandale Farms of Florida. The farm had received willful violations from OSHA and the Federal Court required them in a plea agreement to contract with an agricultural safety professional do evaluate their current program and redevelop it. Hillandale Farms is one of the largest poultry producers in the country with over 150 million dollars in sales annually. Dr. Aherin developed a comprehensive resource manual and library for the company. He also conduced a one day training program for 12 of its managers. Additionally, he developed an overall educational program plan of work for the company that was presented and accepted by the Federal judge involved in the case.

Served on the NIOSH Ohio State University Ag Center program advisory committee.

F. Future Plans

Outreach program plans for the next budget period include:

In Occupational Medicine, outreach continues to focus on projects with worker's centers. Dr. Susan Buchanan will lead the continuing efforts. Mr. Zanoni will lead interaction with the worker's centers in 2006 and 2007 to understand the role of informal education, leadership and problem-solving to reduce injury and illness with low-wage workers and day laborers.

In Occupational Health Nursing, we will develop new initiatives to involve nurses and continue our work with the Healthy Schools Campaign with the asthma and obesity project in Latino Schools.

In Industrial Hygiene, both the Lead Safe Work Practices Initiative with hardware stores and community partners and the Healthy Homes Initiative will move forward with expanded activities and events.

In Safety, the Health in the Arts Program plans to conduct outreach for the Theater Health and Safety Course that is planned for Fall, 2006. To coordinate and implement these efforts Ms. Kirsten Almberg has been hired and will be supervised by Ms. Leslie Nickels.

III. Program Progress Report: Center Wide Programs

A. Program Title: Interdisciplinary Coordination

B. Program Director: Lorraine M. Conroy, ScD, CIH

C. Program Description

Our Interdisciplinary Interactions program has not changed significantly since the last reporting period. It consists of several overlapping activities: *Common Coursework including interdisciplinary group projects; Weekly Occupational and Environmental Health Seminar Series ; Occupational History Tours; Occupational Medicine Clinic; Plant Visits, and Interdisciplinary Research and attendance at regional, national, and international conferences.*

D. Program Activities and Accomplishments

The ERC has a set of courses required by all trainees including:

EOHS421 Fundamentals of Industrial Hygiene
EOHS455 Environmental and Occupational Toxicology
EOHS551 Occupational and Environmental Diseases
EOHS482 Occupational Safety Science

In 2005-2006 reporting period a needs assessment of trainees revealed that participation of some students was limited by geographic barriers. To overcome this barrier, the EOHS 551 classroom course was offered using real time computer based technology. Additionally, an interdisciplinary subcommittee of the Executive Committee was established to explore using real-time computer based technology to offer other courses. A pilot project in 2005-2006 recommended that this technology be used to deliver EOHS421 and the interdisciplinary seminar series described below.

We sponsor a weekly seminar during the Fall and Spring semester. Faculty, students, and area professionals present at these seminars. The weekly seminar schedule and number of trainees participating are shown in Tables 2 and 3. The seminar is a mix of speakers and problem solving sessions. Seminar speakers include faculty and students as well as those in industry, labor, government, and advocacy from each of the core program areas. This series has been identified as one that will be delivered using real-time computer based technology in 2006-2007. The Continuing Education program sponsors two occupational history tours per year, one to the Pullman Historic District and the other to sites related to the Haymarket riot and subsequent events. Faculty and trainees participate in these half day events that are led by a labor historian. Industrial hygiene, HSAT, and occupational health nursing trainees regularly attend weekly occupational medicine clinics where they participate in interviewing patients and assisting the occupational medicine residents with evaluation of patients. All trainees are required to conduct research as part of their academic training. Many of the trainees work on interdisciplinary research coordinated by our NORA research support program. Details of these projects are described in the NORA Research Support section. Finally, faculty and trainees are supported to attend conferences that are interdisciplinary such as ICOH. In 2006-2007 the ICOH meeting was attended by physicians, nurses, industrial hygienists and safety professionals from our program.

The interdisciplinary plan consists of a mix of courses, seminars, field trips, clinic participation and research. We believe this mix has maximizes our trainees opportunities to gain an first hand understanding of the role of each of the core programs in preventing workplace injuries and illnesses and experience the value of interdisciplinary work.

E. Program Products

Faculty and students in the ERC published 47 papers during the reporting period. As described above, one required course was offered in a way that allowed students in Rockford and Peoria to participate. We are currently pilot testing a computer based software package in EOHS 421 Fundamentals of Industrial Hygiene and our weekly seminar series.

F. Future Plans (Include in summary form plans for the next budget period.)

The ERC executive committee will evaluate the success and limitations of the pilot testing and finalize plans for making the core ERC courses and weekly seminar accessible to non-Chicago based students.

Table 2. Seminar Attendance, Fall 2005

TITLE	SPEAKER	IH	EOHS	OM	OHN	OTHER	TOTAL	STUDENT HOURS
Education and Research: NIOSH Protecting Workers Health and Safety	Lorraine Conroy	9	9	6	5	1	30	22.5
Health Hazard Evaluation: Determination of Asbestos Contamination in Beach Nourishment Sand at Illinois BeachState park	Salvatore Cali	11	6	9	3	0	29	21.75
Risk Mapping Activity	Joseph Zanoni	11	2	8	3	0	24	18
Using the Environment for Building Capacity in Occupatonal and Environmental Health: A Global Electronic Library of Training Materials in Occupational and Environmental Health	Leslie Nickels	9	8	5	1	0	23	17.25
Brick by Brick: Building the Public Health Research Agenda for Healthy Homes and Healthy Communities	David Jacobs	11	7	8	0	3	29	21.75
Video: History of OSHA	Lorraine Conroy	7	4	6	2	0	19	14.25
Case Studies in Occupational Medicine: Fatality Investigations	Patricia Bray John Piacentino	7	7	7	0	1	22	16.5
Eye Injury Prevention in Latino Farm Workers	Linda Forst	7	7	6	1	2	23	17.25
Measurement of Hazardous Air Pollutants in Region 5	Peter Scheff	8	7	5	0	2	22	16.5
Assessment of Exposure of Artist Welders to Welding Fume in Field and Under Laboratory-controlled Conditions	Laurel Berman	3	7	5	0	0	15	11.25

Table 3. Seminar Attendance, Spring 2006

			TRAINEE HOURS			
DATE	SPEAKER	TOPIC	IH	OM	OHN	Others
11-Jan-06	Dean's Forum	Entering the Body Via the Lungs: From Toxic Metals to Insulin				
18-Jan-06	Wayne Burton, MD	Employee Health, Productivity and the Bottom Line	8.25	3.75	1.5	6.75
25-Jan-06	Patrick MacRoy	Availability of Supplies and Information for Reducing Lead Dust at Chicago Hardware Stores	9	6.75	0	1.5
01-Feb-06	Peter Orris, MD, MPH	International Occupational and Environmental Health	7.5	7.5	0.75	6
08-Feb-06	Peter Orris, MD, MPH	Labor History	8.25	6.75	0	2.25
15-Feb-06	Theodore Hogan, Ph.D, CIH	Hospital Laboratory Ergonomics	9.75	6.75	1.5	0
22-Feb-06	No Seminar	No Seminar				
01-Mar-06	Gary Hutter	Are there Still Unsafe Products/ Workplaces? Who Knows?	7.5	4.5	0.75	2.25
08-Mar-06	Theodore Hogan, Ph.D, CIH	Public Health Approaches to Disaster Management	9	6.75	0	0
15-Mar-06	Myrtis Sullivan, MD, MPH	Children's Environmental Health	12	5.25	1.5	0
22-Mar-06	Spring Break	Spring Break				
29-Mar-06	Patrick A. Hessel, PhD	Asbestos-related Disease among Vehicle Mechanics	9.75	6.75	0	0.75
05-Apr-06	Dean's Forum	Dean's Forum				
12-Apr-06	Dr. Sam Dorevitch	Air Quality and Inner City Asthma in Chicago	8.25	8.25	1.5	0
19-Apr-06	Serap Erdal, Ph.D	Epidemiological Investigation of Brain Cancer: Exposure Characterization	8.25	6.75	0.75	0
26-Apr-06	Colleen Olsberg, Ph.D	Toxicity and Exposure Assessment for Children's Health (TEACH)- A Web Site on Environmental Toxicants Affecting Children's Health	9	8.25	0.75	0.75

III. Program Progress Report: Center Wide Programs-

A. Program Title: Pilot/Small Projects

B. Program Director: Rosemary Sokas, MD, MOH, Director, Division of Environmental and Occupational Health Sciences

C. Program Description

The purpose of the ERC Pilot Project Research Training Program (PPRTP) is to encourage new investigators to develop research careers that will address the priority areas described by the National Occupational Research Agenda (NORA). The PPRTP uses a competitive peer-reviewed process to award funding for graduate students, junior faculty, and senior faculty without prior occupational research experience to explore new and creative research approaches that will generate pilot data on which full-scale research applications can be based. The research training objectives of this program are to:
1) Develop research expertise and capacity in ERC research trainees and new investigators;
2) Support new investigators in establishing new research areas; and
3) Encourage established investigators from other fields to apply their expertise to NORA topics.

Program announcement and competition
The procedure for soliciting and awarding funds is as follows: The ERC Research Committee mails and e-mails the Request For Proposals to ERC faculty and trainees, other investigators at our participating institutions who are engaged in research in related fields, TPG programs in our region and their trainees, other academic institutions in our region who have investigators working in these areas, members of the ERC Advisory Board, and occupational safety and health researchers in labor and industry in our region. In addition, e-mails are sent to researchers in related health care fields, such as physical and occupational therapy.

The ERC Research Committee has prepared Request for Proposal (RFP) forms and instructions in electronic format that are easily downloaded from web pages or e-mailed as attachments. Based on committee discussion during past years' selection process, additional guidance and updates are provided in application instructions. These include requesting a more explicit description of research goals and objectives, and a letter of support from a more experienced research advisor/mentor. Copies of the instructions and application forms are attached in the Appendix to this proposal. The RFP forms include:

- Background about the Program;
- Eligibility of Applicants;
- Types and Categories of Support;
- Format of Application;
- Budget Guidelines;
- Review Process;
- Review Criteria;
- Administration of Awards;
- Instructions for IRB review for proposals that involve human subjects or animal research and where to obtain additional information.
- Scientific merit review process and criteria

The proposals are compiled the day after the proposal deadline and briefly reviewed by the project coordinator to ensure that they are complete and appear to meet the basic application criteria. Copies of the proposals are distributed to the Research Committee for review. Committee members are assigned primary and secondary review responsibilities, and complete written evaluations of the proposals prior to

a formal grant review meeting. The Research Committee is chaired by Rosemary Sokas and coordinated by Salvatore Cali. The committee includes the following members with specialties listed:

The Research Program is a high priority at the Center. Key faculty members in various programs are on the Research Committee, including:

- Dr. Rosemary Sokas is Chair of the Committee and Professor and Director of the Division of Environmental and Occupational Health Sciences at UIC.
- Dr. Peter Scheff is a Professor of Environmental and Occupational Health Sciences and Director of the Industrial Hygiene and Hazardous Substances Programs at UIC.
- Dr. Shannon Lizer is a Professor and Director of Occupational Health Nursing at UIC.
- Dr. Rachel Rubin is the Director of the Occupational Medicine Residency Program at Cook County Hospital.
- Dr. Susan Buchanan is the Director of the Occupational Medicine Program at the University of Illinois.
- Dr. Linda Forst is an Associate Professor in the Division of Environmental and Occupational Health Sciences at UIC and is the Deputy Director of the Occupational Medicine Program at the University of Illinois.
- Dr. Robert Aherin is a Professor in the College of Agricultural, Consumer, and Environmental Sciences and is the Director of the Agricultural Safety and Health Program at the University of Illinois at Champaign/Urbana (UIUC).
- Dr. Richard Steffen is a Professor of Agricultural Safety and Engineering Technology at Southern Illinois University.
- Dr. Pamela F. Levin is a Professor of Nursing at Rush University College of Nursing, Community and Mental Health Nursing

D. Program Activities and Accomplishments

This program provides an opportunity for new researchers to:

- Learn how to develop their ideas into competitive proposals;
- Plan research time lines, budgets, and task completion;
- Perform their own research under the supervision of a mentor;
- Develop presentations, posters, and publications from the results of their own research;
- Develop new proposals for expanded research based on their original findings.

The Illinois ERC Pilot Project Research Training Program has been has been successfully established and fully operational since the year 1999 (FY2000). The program was modeled on a UIC program in existence for 10 years before the NIOSH PPRT. The program provided small amounts of funding to ERC trainees in occupational health for research training purposes. Even though this program had very limited funds, it provided the researchers an opportunity to work on projects of interest to them and provided them a great deal of investigator experience.

Collaboration with Regional Research Training Institutions, Including TPGs

The program collaborated with the University of Iowa's TPGs, until that institution established its own Education and Research Center in 2002. Nancy L. Sprince, MD, MPH, a Professor of Occupational and Environmental Health and Internal Medicine at University of Iowa College of Public Health, served on the Research Committee during its first years. Dr. Richard Steffen, PhD, is currently serving on the committee and, together with Dr. Aherin, providing an agricultural safety vision to the committee. Dr. Steffen and Dr. Levin also represent outside institutional participation.

On April 21, 2004, Illinois ERC hosted a symposium of nine presentations by NIOSH funded Pilot Project Research Training Grantees, with the participation of the Heartland Center for Occupational

Health & Safety at the University of Iowa. The Heartland Center presenters participated via televised distance conference technology. Twenty-six persons attended the symposium at UIC. The symposium generated a great deal of interest from participants and served to highlight the research training opportunities offered by the PPRT program. Illinois ERC plans to offer the symposium again in the spring of 2007.

The program has solicited and received proposals from a variety of regional institutions, including two regional TPGs (University of Wisconsin-Stout and Purdue) in addition to the University of Iowa, mentioned above. Other regional institutions receiving awards include University of Wisconsin-Milwaukee, Department of Occupational Therapy (2 awards) and other campuses within the University of Illinois system (University of Illinois Urbana-Champaign 2 awards).

In addition to enhancing the research capacity of the principal investigators, these awards funded graduate students at the Master's and Doctoral levels to work as Research Assistants on the research projects, amplifying the impact of the research training.

E. Program Products

The formal PPRTP program at UIC is currently in its seventh year of funding. To date, 38 awards have been given to fund 35 projects since the inception of the ERC Pilot Project Research Training Program in 1999 (FY2000). These projects have helped support 18 junior faculty, six PhD student principal-investigators, and 32 student research assistants for one semester or more (For details, please see Appendix D).

The projects and the preliminary data and findings generated from the projects have generated six subsequent grant proposals based on the pilot project research findings, four of which were successfully funded. The amount of additional funding generated (at least $825,000) from the initial pilot project hypotheses and data exceeds the full cost ($497,330) of the PPRT program to date.

In addition, the pilot projects have generated 23 presentations at regional or national meetings, 13 reports/abstracts/posters or papers, and 12 publications. Four Pilot Projects received supplementary funding from other sources and twelve resulted or are expected to result in findings used toward MS or PhD degree theses. Two awards were given to persons in postdoctoral positions in the current year.

Training Program Evaluation

The success of the PPRTP program is quantitatively evaluated on the basis of the number and quality of PPRT proposals submitted; the number and types of grant proposals submitted on the basis of pilot work conducted through the PPRTP program; the number of proposals funded; the number of research publications produced by the grant; the number of publications and presentations generated from the funded projects; and the number of trainees, young investigators, or new investigators engaging in occupational safety and health research as a result of the PPRTP program.

The program is also intensifying its effort to solicit and receive proposals from other regional institutions. Proposals received from other institutions will be quantitatively tracked for evaluation of outreach.

The PPRTP program at UIC is currently in its eighth year of funding. The program is on track in most of the evaluation categories, showing a continual and steady increase in the project outcomes after project completion. In general, the number and quality of applications submitted is also showing a steady increase. Overall, the trend towards increasing numbers of applications held steady until FY 2005, when a slight dip in applications appeared to stem from the increased competitiveness of the FY 2004 process

(due to record numbers of applicants). The pool of applicants increased again to 2004 levels in FY 2006, and is expected to remain relatively high due to a new post-doctoral training program in UIC SPH. In addition, the PPRT program tracks the history of PPRT research that leads to other research projects in a less direct manner and grows into interesting lines of study.

For example, the "Immunologic Risk Factors for Laboratory Animal Allergen" study was initially funded in July, 2001 and received further funding in 2003. Since that time, the project has developed from a relatively small project involving a single investigator to a series of projects involving several other departments and investigators. Two veterinarians at UIC have become interested in allergen and irritant levels in the animal research facility studied in the original project. Investigations have been conducted in which mouse and rabbit allergen concentrations, as well as total dust and airborne endotoxin have been measured. One of these projects was the basis of a research study by a veterinary medicine trainee, and another was the basis for a masters degree thesis by an industrial hygiene trainee. An intervention study that employed a relatively low-cost engineering control of allergen level exposure to workers at the facility has also been performed. In addition, a PhD student in immunology and another masters degree student participated in a study of in vitro responses of lymphocytes of workers in the same facility. Furthermore, in 2004, an occupational medicine resident participated in the laboratory animal allergy surveillance of workers at the facility and two other UIC departments. Since the launch of the original project, 193 research subjects have participated. Data from the research has been presented at regional and national meetings. Data analysis is ongoing, and it is anticipated that manuscripts will be submitted for publication by researchers in a variety of disciplines, including epidemiology/biostatistics, environmental and occupational health sciences, immunology/microbiology, and veterinary medicine. Data from the original project was used as preliminary data for one aspect of a successful KO8 award of $584,886 in direct funds.

These projects are examples of interdisciplinary research that has supported new investigators in establishing new research areas and encouraged established investigators from other fields to apply their expertise to NORA topics. Another example is of a continuation of a PPRTP line of inquiry is a group of studies related to welding and welding fume exposure health outcomes. These studies were initiated at UIC with initial funding from the PPRT program for a welding fume exposure chamber. The subsequent studies focused on a number of aspects of welding work, including laboratory characterization of welding fume and emission, occupational exposures, exposures to artist-welders, and studies of the mechanisms of metal exposures on lung epithelial cytotoxicity. The investigator for the initial study recently received federal funding for a three-year career development award of $240,237 for a study of welding fume characterization and deposition. Four MS theses were generated from related studies, while another PPRTP welding study generated data used for the investigators' PhD thesis.

F. Future Plans

Continued efforts to enhance outreach to other disciplines and organizations will be expanded and will incorporate multidisciplinary training programs that include behavioral scientists, psychologists, economists and sociologists, as well as other disciplines, working in collaborative programs related to occupational health. These programs are believed to place more emphasis on translational research and on intervention effectiveness, and may attract more competition from PhD candidates or new researchers. The need for research training in the region will be justified and utilized as a consideration for proposal review, especially for agricultural research.

Plans are underway to reconfigure the selection committee to include one representative from a social or behavioral science discipline, as well as one practice representative to help assess need and applicability.

III. Program Progress Report: Center Wide Programs

A. Program Title: NORA Research Support

B. Program Director: Lorraine M. Conroy, ScD, CIH

C. Program Description

1. Goals and Objectives

The goal of the NORA Research Support program is to foster and support interdisciplinary research training for trainees and junior faculty in the ERC. The specific objectives are:

a) To form and support interdisciplinary work groups focused on topics or issues relevant to NORA; and
b) To develop and conduct pilot scale or developmental projects as a mechanism for training students and post-doctoral fellows in research methods

The interdisciplinary work groups are composed of faculty and trainees. The planned outputs are publications and pilot data that can be used in larger project proposals. The outcomes include a cadre of graduates that have research skills and experience working on an interdisciplinary team.

2. Responsible Conduct of Science Training

The work groups are an important source of training in the responsible conduct of science. Many of the projects conducted through the group involve human and/or animal subjects. In accordance with university requirements, all researchers and students are required to receive formal training in human research subject protection and protection of health information. If applicable, training in the humane use of animals is also required. The formal university training is enhanced by the work group, where ethical concerns in specific protocols are discussed. Junior faculty and/or trainees are often responsible for completing the protocols, but are mentored by more experienced researchers in the work group.

3. Faculty Participation

ERC faculty are involved in all aspects of NORA research training. Each work group is comprised of ERC faculty, faculty from other disciplines where appropriate, and trainees. The composition of the current work groups is given in the next section.

D. Program Activities and Accomplishments

The NORA Research Training program supports research training in all capacities across a broad spectrum of research disciplines. Administrative support is often management of data and Internal Review Board documents. Technical support in the form of tools, technology, and knowledge enables exposure assessments and worker health protection to cooperating partners. The support is provided to interdisciplinary research teams comprised of faculty and trainees in the ERC. The program continues the coordination of training and research among students, faculty, and staff in the ERC and from other disciplines. Trainees involved in projects are specifically trained from hypothesis to technical details in preparation for studies. Components of each activity are executed by trainees, other graduate students, and post-doctoral fellows who will then analyze samples and data for potentially use as thesis, dissertation, or research topics. Two strong interdisciplinary teams have emerged through this effort. One group is focused on research training and research related to Mixed Exposures, Exposure Assessment, and Respiratory Disease (Mixed Exposure group) and the other is focused on research training and research related to Intervention Effectiveness and Special Populations at Risk (Intervention Effectiveness group).

1. Mixed Exposure Group

Table 4 shows the participants in the Mixed Exposure Group. The group is working on several projects assessing health outcomes related to mixed exposures. The mixed exposures vary by setting but are composed of complex mixtures of particulate matter, and in many cases, simultaneous exposure to irritant gases. The projects fall into four general areas: welding (complicated mixture of metal particles with ozone and nitrogen dioxide); concentrated animal feeding operations (organic dust and endotoxin with ammonia); laboratory animal facilities (organic dust and endotoxin with ammonia); and demolition (particulate matter).

New Welder Field Study

Several new cohorts were contacted in the pursuit of a suitable population of welders new to the profession. One was selected as suitable to execute a successful field study. The cohort consists of welders in training and just entering the welding and pipe fitting profession. The rationale is that this cohort is likely to have had little to no welding exposure and will be better suited to investigate early and more subtle health effects associated with welding fume exposure. A new research proposal was drafted and submitted to the UIC Institutional Review Board and subsequently approved. The new proposal involves the recruitment of forty non- smoking welder trainee research volunteers. Volunteers will be asked to undergo a battery of health effects measures before and after four hours of welding instruction and will wear personal exposure monitors during instruction. Area monitoring and a facility assessment will also be conducted to try to relate the amount of welding with welding fume area concentrations.

Welding Fume Characterization

Construction is in progress to extend the existing welding fume emissions chamber to include a fume dilution and aging system. The objectives are to characterize newly formed and aged welding fumes by differential analysis of particle sizes and morphologies, along with fume mass, number, and metals concentrations.

Cellular responses to metal exposure

We have been conducting *in vitro* studies examining the effects of metals on lung epithelial cells. One study looked at direct toxicity and cellular signals in the presence of chromium, hexavalent chromium, nickel, and manganese. The study was the basis for a PhD trainee (IH). An MS trainee (IH) has extended the initial research to examine the effects when cells are exposed to welding fumes. He has been developing methods of collecting air samples of welding fume and processing them in a way that they can be used in *in vitro* studies.

Agriculture Exposure

Data analysis and manuscript preparation for the field project conducted in Jan 04 is continuing. One IH trainee is using the data for his MS thesis. An OHN trainee completed the NIOSH spirometry course and used some of the data in her research methods course.

Laboratory Animal Exposure

We have completed a study to determine occupational exposures to and emission rates of various animal related agents in a rabbit housing room. Another project to determine emission rates and occupational exposures as well as the effects of changing the cage design was conducted during this time. One IH trainee used the data for her MS thesis. We expect 2 publications to result from this project. Another project looking at the development of allergies in workers in an animal housing facility was also conducted. These data are being analyzed for publication. Three IH trainees, one OM trainee, an undergraduate biology student, and a post-doctoral fellow in veterinary medicine, along with 3 ERC faculty and staff members and two faculty veterinarians were involved in these projects.

Demolition

A study characterizing the size, composition, and concentration of dust generated during demolition of high-rise public housing buildings was conducted. The project involved measuring dust concentrations upwind and downwind of demolition, detailed observations of demolition activities, and measurement of oxidative stress in a panel of public housing residents during the demolition. Five ERC faculty and staff members and 8 IH trainees were involved in the project. The results of this study were published: *Dorevitch S, Demirtas H, Perksy VW, Erdal S, Conroy L, Schoonover T, Scheff PA: Demolition of high-rise public housing increases particulate matter air pollution in communities of high-risk asthmatics. J Air Waste Manag Assoc. 2006 Jul;56(7):1022-32.*

Table 4. Mixed Exposure Group

Lorraine Conroy, ScD, CIH	Working group leader; ERC Director; Associate Professor, Environmental and Occupational Health Sciences (IH)
Todd Schoonover	Research Coordinator, EOHS (IH)
Samuel Dorevitch, MD, MPH	Research Assistant Professor, EOHS and Epidemiology (OM)
Daniel Tessier, PhD	Assistant Professor, EOHS (Tox)
Peter Scheff, PhD, CIH	Professor, EOHS (IH)
Serap Erdal, PhD	Associate Professor, EOHS (IH)
Linda Forst, MD, MPH	Associate Professor, EOHS (OM)
Lilia Chen	MS trainee (IH)
David Vinson	MS trainee (IH)
Srinivas Durgam	MS student (IH)
Kimberly Hopp	MS trainee (IH)
Joy Schnackenbeck	MS trainee (IH)
Julie Plavka	MS trainee (IH)
Laura Pascal	PhD trainee (IH, Tox)
Bogdan Catalin	MS trainee (IH, Tox)
Robert Malcolm	MS trainee (IH)
Jeffrey Fortman, DVM	Director, UIC Biological Resources Laboratory (animal research facility)
James Artwohl, DVM	Clinical Veterinarian, UIC Biological Resources Laboratory
Tara Ooms, DVM	Post-doctoral fellow, UIC Biological Resources Laboratory
Cong Zhao, MD	OM trainee
Leslie Tharenos, MD	OM trainee

2. Intervention Effectiveness and Special Populations at Risk

Table 5 shows the participants in the Intervention Effectiveness group. This group is focused on projects that identify occupational health and safety issues in special populations at risk, identifies available resources and services and barriers to obtaining services, establishes partnerships, and develops interventions in collaboration with partners.

Integration of Clinical Occupational Services and Labor Rights Training and Prevention

The goal of this project is to improve workplace safety and health for low-wage immigrant workers with three objectives: 1) to improve identification of occupational hazards among outreach volunteers at the Chicago Interfaith Workers' Rights Center; 2) to identify appropriate referral needs and enable at risk workers to access occupational medicine services; and 3) to improve the ability of the occupational medicine clinic staff to identify and refer patients for follow up at the Interfaith Workers' Center for counseling and follow up. A series of interventions with evaluation of the outcomes are planned. The project involves 1 IH trainee, 2 SPH students, 2 CDC-funded post-doctoral fellows, and 2 ERC faculty members.

Occupational injury, hazards among immigrant and minority workers in Chicago
The goal of this project is to reduce day laborers exposure to hazards on the job. Components include working with advocacy groups to create good worker health and safety practice and increase day laborers access to occupational health services.

Intervention effectiveness for reducing injuries and illnesses through workers centers in Chicago
The focus of this project is day and temporary laborers working in informal sector (employers generally "under the radar"). They are mostly Latino males, work in dangerous occupations (demolition, construction, and landscaping), and face a variety of work, community and home issues. An intervention to reduce injuries and illnesses in this group is planned. The intervention will be conducted in collaboration with 4 worker centers in Chicago. The project involved two IH trainees and two faculty from the working group.

Blood lead levels and clothing dust wipes for lead in day laborers
Pilot project of blood lead levels and clothing dust wipes for lead in day laborers who perform demolition. The project involved 1 IH staff member, 1 OM faculty member, and 1 PhD student.

Lead poisoning prevention during remodeling and renovation
The project focused on reducing generation of lead using lead safe work practices (LSWP). Components include working with suppliers (hardware and paint stores) to ensure supplies available and promoted; working with renovators and remodelers to increase awareness and change behaviors in the use of LSWP; and work with day laborers to increase awareness of LSWP in construction. The ultimate goal is to harmonize public health, small business and worker implementation of LSWP. The project involved 4 students in EOHS and 1 faculty member.

Intervention Research to Reduce Eye Injuries in Latino Farm Workers
This goal of this project, which is collaborative between UIC, U S Florida, Florida A & M University, is to develop, evaluate, and disseminate a model for reducing traumatic injuries to Florida citrus workers. Currently drafting two manuscripts for publication, and planning a collaborative proposal for funding.this project involved 2 faculty and staff members.

Intervention Research to Reduce Burns in Food Vendors
Research is being undertaken to characterize burns among food vendors at O'Hare Airport as the first step in an intervention project. Most of the workers are minimum wage, and Latino. This project was used by an OM resident as his capstone research project.

Occupational Injuries in Hispanic Workers
This project will be utilizing datasets from IDPH and Illinois Workers Compensation Commission to look at specific sentinels (burns, carpal tunnel, death, pneumoconiosis, traumatic injuries) and Latino workers. This project was part of the research project of one PhD student.

3. Interdisciplinary Research Seminar Series

To support the work of the interdisciplinary work groups, we developed and are delivering a research seminar series that was included into our weekly interdisciplinary seminar. In the second year of the program, we have held special two-hour seminars with an informal meeting/reception following the seminar. This allows a longer discussion of the topic than could be had during the one-hour weekly seminar. We invited four recognized researchers and/or policy makers to present on topics related to the proposed interdisciplinary research. In order to include the widest possible audience for these research seminars, we presented the seminars via computer link to remote sites (University of Illinois campuses in Urbana, Rockford, Peoria, and Quad Cities).

Table 5. Intervention Effectiveness Group

Leslie Nickels, MEd	Working group leader; ERC Deputy Director; Director of Continuing Education and Outreach
Nadine Remington	MS trainee (IH), working group coordinator
Rosemary Sokas, MD, MPH	Division Director and Professor, EOHS
Susan Buchanan, MD, MPH	Clinical Assistant Professor, EOHS and Family Medicine; OM Residency Director, UIC (OM)
Linda Forst, MD, MPH	Associate Professor, EOHS (OM)
Joseph Zanoni, MILR	Associate Director, Continuing Education and Outreach
Kathleen Rospenda, PhD	Assistant Professor, Psychology, UIC Department of Psychiatry
Butch DeCastro, PhD	Post-doctoral fellow, EOHS
Kaori Fujishiro, PhD	Post-doctoral fellow, EOHS
Julia Lippert	MS trainee (IH)
Virginia Warren	Research specialist, ERC
Lezah Brown-Ellington	PhD student (IH)
Rachel Rubin, MD, MPH	Adjunct Assistant Professor, EOHS; OM Residency Director, Stroger Hospital (OM)
Katherine Bissell	Chicago Interfaith Workers' Rights Center
Anne Buckley	Industrial Hygienist, Stroger Hospital of Cook County (IH)
Karen Conrad, PhD	Research Associate Professor, UIC School of Public Health (OHN)
Anne Evens	Program Director, Lead Poisoning Prevention, Chicago Department of Health
Michele Issel, PhD	Clinical Associate Professor, Community Health Sciences, UIC SPH
Pamela Levin, PhD	Clinical Assistant Professor, Rush College of Nursing (OHN)
Jose Oliva	National Network of Worker's Centers
Linda Murray, MD, MPH	Co-medical Director, Ambulatory Care, Cook County Bureau of Health Service
John Halpin	OM trainee
Lee Friedman	PhD student
Douglas Myers, ScD	Post-doctoral Fellow, Epidemiology

E. Program Products

Table 6 shows manuscripts resulting from NORA research training support. Table 7 shows presentations and abstracts, and Table 8 shows student research projects.

F. Future Plans (Include in summary form plans for the next budget period.)

During the next year, we are proposing to continue the research seminar series, where we will invite recognized researchers and/or policy makers to present on topics related to the proposed interdisciplinary research. We will continue to computer-link the seminars to other campuses (University of Illinois campuses in Urbana, Rockford, Peoria, and Quad Cities) in order to include the widest possible audience. We are proposing on research seminar every other month during the academic year.

Table 6. Manuscripts

Erdal (IHF), S. and L. Berman (IHT). Occupational Exposure Environment, Risk Factors, and Hazard Awareness of Metal Sculptors and Artist Welders in the U.S. Submitted to International Journal of Environmental Health Research. (in press)

Dorevitch S, Demirtas H, Perksy VW, Erdal S, Conroy L, Schoonover T, Scheff PA: Demolition of high-rise public housing increases particulate matter air pollution in communities of high-risk asthmatics. J Air Waste Manag Assoc. 2006 Jul;56(7):1022-32.

Dorevitch, S. (OMF), Demirtas, H., Scheff, P (IHF) and Persky, V.: Bias and Confounding in Longitudinal Measures of Exhaled Monoxides. Journal of Exposure Science and Environmental Epidemiology, 23-Sep-2006.

Lacey (IHT), (IHF), S., Forst, L., et al. Eye injury in migrant farm workers and suggested hazard controls. Submitted and under review, J Ag Safety and Health (2006).

Lacey, S., Conroy, L., et al. Dust emission rates from food processing. Submitted and under review, Ann Agric Environ Med (2006).

Lacey SE, Conroy LM, Forst LS, Franke JE, Wadden RA, Hedeker DR.: Personal dust exposures at a food processing facility. J Agromedicine. 2006;11(1):49-58.

Forst, L.(OMF), Martinez, I., Lacey (IHT), (IHF), S., et al. Barriers and benefits of protective eyewear use by Latino farm workers. Accepted for publication, J Agromedicine (2006).

Buchanan, et al.: Collaboration with a Worker Center in Day Labor Occupational Research. American Journal of Public Health. In press.

Conroy, LM, Schoonover, TM, Chen, L, Dorevitch, S.: Effect of cage top use on airborne concentrations of particulate matter, endotoxin, and mouse urinary protein in an animal research facility. In preparation

Chen, L, Conroy, LM, Schoonover: Modeling allergen, dust, and endotoxin emissions from laboratory mice. In preparation

Schoonover, TM, Conroy, LM, Plavka, J, Dorevitch S, Erdal, S: Personal Exposure to Metals, NO_2, and O_3 in a Production Welding Facility. In preparation.

Malcolm, R, Conroy, LM, Schoonover, TM, Dorevitch, S: Personal exposures and health outcomes in a swine facility. In preparation.

Table 7. Abstracts

Authors	Title	Association
Zanoni	Workers' Centers Qualitative Inquiry and Antonio Gramsci and Peer Education	UIC College of Educ. Conference
Zanoni	Day Laborer Learning: Analysis Of Worker Centers' Focus Groups	Intl. Commission on Occ. Health
Zanoni	Workers' Centers as sites of critical capacity and cultural development of vulnerable immigrant workers	Sociology and Equity Studies in Education
K Fujishiro, B de Castro, JL Oliva	A Conceptual Model for Minority Worker Experiences: Identifying Problems of Work Organization	NORA Symposium, Poster 0097
CC Cho, E Sweitzer, J Oliva, J Nevarez, J Zanoni,RK Sokas	An Interfaith Workers' Center Approach to Workplace Rights	NORA Symposium, Poster 0096
LA Nickels, J Zanoni, N Remington, J Lippert	Understanding the Philosophical, Organizational, and Educational Role of Workers' Centers for Developing and Sustaining Programs on Workplace Health and Safety	NORA Symposium, Poster 0098
Schoonover	Control of Allergen, Endotoxin, and Particulate Matter in a Laboratory Animal Facility	American Industrial Hygiene Association
Malcolm	Particulate Matter and Endotoxin in a swine facility	American Industrial Hygiene Association
Berman, et al.	Welding Fume Exposure of Welders Working in Isolation	American Industrial Hygiene Association
Berman, et al.	Metal Sculptors: Occupational Environment and Risk Factors	American Industrial Hygiene Association

Table 8. Student Research Projects

Project	Setting	Trainee
Markers of inflammation, pulmonary function	Welding, Demolition	David Vinson, IH trainee, (MS), Cong Zhao OM trainee (MPH), Jorgia Conner, OHN trainee (PhD)
Laboratory characterization of welding fume	Welding	Laurel Berman, IH Trainee (PhD), Srinivas Durgam, IH student (non-trainee, MS), Todd Schoonover
Metals exposure, relationship of area and personal metals	Welding	David Vinson, IH trainee, (MS), Joy Schnackenbeck, IH Trainee (MS), Kimberly Hopp, IH Trainee (MS)
Area concentrations of bio-relevant aerosols	Welding, Woodworking, Demolition	Kimberly Hopp, IH Trainee (MS)
Biomarkers of exposure in welding study	Welding	David Vinson, IH trainee, (MS)
Review paper on personal welding fume exposure	Welding	Todd Schoonover, Research project Coordinator
Generation, sampling methodologies, and characterization of fresh and aged welding fume	Welding	Todd Schoonover, Research project Coordinator

Table 8 (continued)

Welding fume collection and in-vitro epithelial cell exposure study	Welding/Toxicology	Bogdan Catalin, IH trainee (MS)
Spirometry, Occupational history and respiratory health (questionnaire)	Swine Confinement	Jorgia Connor, OHN Trainee (PhD)
Personal exposure and workplace characterization	Swine Confinement	Robert Malcolm, IH Trainee (MS)
EBC endotoxin in exposed and unexposed populations	Swine Confinement	Todd Schoonover, Research project Coordinator
Measures of asthma severity	Demolition, public housing residents	Cong Zhao, OM trainee (MPH)
Comparison of the prevalence of sensitization to common allergens in workers exposed and unexposed to animal allergens	Laboratory animal handlers	Leslie Theranos, OM trainee (MPH)
Mouse allergen, dust, and endotoxin exposures before and after cage design change	Laboratory animal handlers	Lilia Chen, IH trainee (MS)
Understanding worker centers in Chicago: a qualitative/descriptive analysis	Intervention effectiveness, working with workers centers	Nadine Remington, IH trainee (MS)

III. Program Progress Report: Core Academic Programs

A. Program Title: Industrial Hygiene

B. Program Director: Peter A. Scheff, PhD, CIH

C. Program Description

1. Goals and Objectives

The two major goals of the academic training program are to:

- Develop industrial hygiene practitioners with as much practical experience as possible within the limits of an academic program, and;
- To provide a cadre of trainees, who have aptitude for research, with research training in occupational and environmental health. This research-trained group has the capability of entering into research-type activities in industry, as consultants, or in academe.

The thrust of the IH training is to give students both an overall appreciation of the whole process of disease detection and risk evaluation leading to hazard control, and a competence in using the methods specific to the IH field. The overall emphasis of the training program is to give our students quantitative skills to aid them in solving occupational problems. We continue to refine our training and student recruitment to meet the requirements of ABET accreditation, to incorporate as much hands-on field experience as possible into our student training and to support the industrial hygiene track specializing in hazardous waste control. No significant changes are proposed for the 2006/07 academic year.

2. Responsible Conduct of Science Training

In an effort to support the research endeavors of School of Public Health investigators, advance their own interest in research, and ensure that research at the University of Illinois is carried out in accord with the highest ethical standards, all students are required to receive formal training in human research subjects protection, the protection of health information, and if applicable, training in the humane use of animals in research and teaching. This formal training is organized through the Office for the Protection of Research Subjects, which also provides administrative support for the review and approval of research protocols involving humans, animals, and recombinant DNA or infectious agents. This training in research integrity, ethical behavior, and responsible conduct is also underscored in the classroom.

3. Faculty Participation

Table 1 summarizes contributing faculty to the IH program. Dr. Peter A. Scheff, CIH, is the Director of the Industrial Hygiene Program. He is Professor of Environmental and Occupational Health Sciences (EOHS) within the School of Public Health and commits 60% of his time to the IH and Hazardous Waste training programs. Dr. Lorraine Conroy, CIH, Associate Professor in EOHS and Director of the ERC, commits 50% (40% IH, 10% HSAT) of her time to the program in teaching, research advising, and outreach activities. Dr. John Franke, CIH, PE, is Industrial Hygiene Manager of Evanston Hospital, and also has an appointment as a Research Assistant Professor. He oversees our IH field research activities, teaches two of our required IH courses, and commits 45% of his time to our training and research activities. Dr Nurtan Esmen, CIH, Professor, is a senior research mentor with the Institute for Environmental Science and Policy at UIC and contributes 20% of his time to our training and research activities. Mr. Salvatore Cali, CIH, is Deputy Director of Industrial Hygiene, contributes 25% of his time to the Industrial Hygiene and HSAT programs, teaches Industrial Hygiene Laboratory I and supervises student field experiences. Other supporting faculty includes Drs. An Li, Dan Tessier, Serap Erdal, Linda Forst, Dan Hryhorczuk and Steve Lacey. Drs. Scheff, Esmen, Conroy, Li, Hryhorczuk, Forst, Tessier, and Erdal hold tenured/tenure track positions supported by State salaries for the academic year. Professors

Franke and Lacey, and Instructor Cali are supported from soft money. All decisions on curriculum, student support, and trainee recruitment and selection are determined by a committee consisting of Drs. Scheff, Esmen, Conroy, Lacey and Franke, and Mr. Cali.

We continue to make significant use of our adjunct IH faculty, all in active IH practice. Mr. Michael Selway (CIH) teaches Environmental Acoustics (EOHS 424) and EOHS 529, IH laboratory (field studies). Mr. Jack Standard (CIH, CSP) teaches EOHS 482, Occupational Safety Science. Dr. Ted Hogan (CIH) taught EOHS 556, Risk Assessment (EOHS 556) in the spring of 2001, gave several lectures in the same course in spring 2002, and has frequently contributed a series of lectures on personal protective equipment to Hazardous Materials Management (EOHS 570).

4. Curricula

The curricula for the ABET MS and MPH programs are presented in Appendix A. All NIOSH supported IH students complete one of the ABET accredited curricula.

D. Program Activities and Accomplishments

In the 2005-2006 academic year, five (Alcazar, Bigger, Breskey, Doughty, Priester) new IH trainees entered the EOHS program as MS candidates and one (Brima) entered as an MPH candidate. For continuing NIOSH-supported trainees, three IH trainees (Chen, Matwyshyn, and Palmer) and one HSAT (Ford) trainee graduated with MS degrees, one IH trainee (Brima) graduated with MPH degree, and one IH trainee (Berman) graduated with a PhD degree. In addition, two non-NIOSH supported IH trainees (Baker and Song) graduated with PhD degrees, one (Durgam) with MS degree, and one (Porter) with MPH degree. Nine (Malcolm, Berman, Nevarez, Barr, Ford, Dula, Catalin, Lippert, and Remington) IH and HSAT trainees continued in the program from the previous year. The trainees' learning experiences include:

- R. Malcolm (3rd year IH trainee) is finishing his thesis on occupational exposure and respiratory health in a swine confinement facility after taking a one semester leave for active duty in the National Guard performing occupational health evaluations. He presented "Personal Exposure to Total Dust, Ammonia, and Endotoxin Among Workers in a Swine Confinement Facility" at the 2005 AICHE and plans on applying for the EOHS PhD program. Mr. Malcolm received "Best in Session" for the Graduate Student Posters, American Industrial Hygiene Conference and Exposition, Chicago, IL (May, 2006);
- L Brown-Ellington (former IH trainee and current PhD student) was awarded Best Epidemiology presentation for her paper "Work and Life Measures of Injuries and Illnesses" at the 2005 AICHE, and won a Special Recognition Award at the American Industrial Hygiene Association's Minority Special Interest Group, American Industrial Hygiene Conference and Exposition, Chicago, IL (May, 2006);
- L. Berman (IH trainee) completed her PhD thesis titled "Welding Fume Exposure Assessment under Isolated Process Conditions';
- L. Chen (IH trainee) completed her MS thesis titled "Mouse Endotoxin and Particulate Matter Emission Factor Modeling Applied to a Working Animal Facility" and was awarded Best Exposure Modeling presentation at the 2005 American Industrial Hygiene Conference and Exposition (AIHCE);
- M. Matwyshyn (IH trainee) completed her MS degree and presented a poster at the 2005 AIHCE titled "prevalence of Wheezing Illness in Three Cities in Ukraine".
- J. Ford (HSAT trainee) completed his MS thesis on "Sedimentation in the Laurentian Great Lakes Determined by Pb-210 Alpha Spectroscopy";
- J. Nevarez (2nd year HSAT trainee) is working with Dr. Forst on pesticide poisonings in Illinois, using data from the Poison Control Center;

- N. Remington (2nd year IH trainee) is preparing her thesis on the capacity of day worker centers to provide occupational health and safety services;
- J. Lippert (2nd year IH trainee) is investigating the exposure to electromagnetic waves from the use of Magnetic Particle Inspection instruments for a retrospective exposure estimate and was awarded the 2005 Michael Bruton Workplace Safety Foundation Award;
- M. Barr (2nd year IH trainee) is performing a mass balance estimate of hexavalent chromium in electrochemical milling processes for a retrospective exposure estimate;
- J. Palmer (2nd year IH trainee) is investigating exposure to metalworking fluids from a variety of machining processes for a retrospective exposure estimate;
- T. Alcazar (1st year IH trainee) is comparing worker recall of occupational tasks relative to documented company procedures in order to estimate the accuracy of recall for an epidemiological study;
- J. Breskey (1st year IH trainee) is assisting with research on a quantitative assessment of inhaled concentrations of welding fumes inside and outside of the welder helmets;
- S. Bigger (new IH trainee) is incorporating time motion studies to exposure analysis;
- S. Brima (new IH trainee) is performing a noise exposure assessment using sound level and octave band analysis at a train locomotive engine maintenance facility;
- C. Priester is a new IH trainee.
- B. Catalin (2nd year HSAT trainee) is completing his thesis on toxicity of welding fumes to lung epithelial cells in the molecular toxicology laboratory;
- C. Dula is a continuing HSAT trainee.
- S. Durgam (IH graduate, 2005) was awarded Best Engineering presentation for his paper "Design, Testing, and Validation of an Exposure Chamber for Welding Fume Emission Characterization Studies" at the 2005 AICHE;
- D Vinson (former IH trainee) presented two papers "Respiratory Health Effects in Welders" and "Metal Biomarkers in Welding" at the 2005 AICHE;
- T. Schoonover (former IH trainee) presented "Endotoxin in Exhaled Breath Condensate (EBC)" at the 2005 AICHE;
- Two IH trainees (Lilia Chen and Robert Malcolm) were awarded scholarships by the American Industrial Hygiene Foundation;
- Dr. Nurtan Esmen, a Professor of Industrial Hygiene and fellow for the UIC campus-wide Institute for Environmental Science and Policy, is PI on a large project that is looking at retrospective occupational exposure at a large jet engine manufacturing facility. Six IH trainees are working on this project as research assistants. He presented "The Characteristic Changes in Exposure Levels in Chloroprene Monomer and Polymer Production" at the 2005 AICHE;
- In fall, 2005, Dr. Serap Erdal, Assistant Professor of Industrial Hygiene, received a NIOSH KO1 award for an investigation titled "Fundamental Study of Welding Fume Inhalation";
- Dr. Steve Lacey, a Research Assistant Professor and new core member of the IH faculty, is teaching IE 461 Safety Engineering for undergraduate industrial engineering students and a new course, EOHS 408 - Biological, Chemical, Explosives, and Nuclear Weapons as Public Health Threats, which is cross-listed in the epidemiology department. He presented "Exposure Reconstruction Data for a Cohort Mortality Study of Jet Engine Manufacturing Workers" at the 2005 HICHE;
- Non-NIOSH-supported IH Trainee Mauricio Mensones received 1) 1st place in the Masters Student paper/poster Competition; 2) 1st Place in the Sustainable Development Pollution Prevention Student Paper/Poster Competition (both at the Air and Waste Management Association Annual Conference, June 2006)
- The EOHS department and the Illinois ERC moderated and publicized a NIOSH Town Hall Meeting held at UIC on December 19, 2005. The objective of the meeting was to provide comments for the NIOSH research agenda;
- PhD student Wenlu Song won the UIC Dean's Scholar Award for 2004-2005;

- Many of our research efforts and some of our training activities include a Service aspect. Recent projects (7/1/2003 – present) include activities with the UIC Environmental Health & Safety Office, the Illinois Department of Public Health (for which the SPH is the primary research contractor), the Chicago Department of Public Health, the Wisconsin Department of Child and Family Services, Evanston Northwestern and Highland Park Hospitals, the Illinois State Police Ballistics Laboratory, the Illinois Attorney's General Office, ATSDR, Illinois EPA, Region 5 EPA, GM Electromotive Division and ALCOA;
- All of the current graduates seeking jobs obtained jobs in the field;
- We are able to continuously support 15 MS and PhD students in the IH/HSAT programs with stipend and Research Assistantship support;
- NORA research support has contributed greatly to the breadth and depth of the learning experience of our students. Industrial hygiene trainees and occupational medicine residents involved in projects are specifically trained from hypothesis to technical details in preparation for field studies. Projects include evaluation of personal and area monitoring, spirometry, and collection of exhaled air and exhaled breath condensate.
- We carried out a variety of major field tests or field evaluations. Recent projects (7/1/2003 – present) include: analysis of samples and field consultation for the HUD Healthy Homes initiative; air sampling at a wood shop to field test thoracic particle samplers; 5 days of sampling particle emissions from public housing demolition; field sampling for components of diesel exhaust at a fire station; 5 days of personal and biological monitoring of exposures for a group of industrial welders; 3 days of personal and biological monitoring of exposures at a hog-farm in Illinois; 3 days of monitoring of organic emissions at an aluminum rolling mill testing conventional and bio-based lubricants; sand and sediment sampling for asbestos at the Illinois Beach State Park; 28 days of personal sampling of respirable particles, reactive gases and volatile organics for children at two summer day-camps in Chicago; 40 days of exposure monitoring for artists welding; one day of personal sampling at a police department firing range.

E. Program Products

Five MS (2 NIOSH funded), 2 MPH (1 NIOSH funded), and 3 PhD (1 NIOSH funded) graduated from the IH program. Industrial Hygiene faculty and trainees published 35 papers. Five IH trainees and 4 faculty and staff members presented at the American Industrial Hygiene Conference and Exhibition. Robert Malcolm's poster was awarded the best in session in the graduate student poster session at the AIHCE.

F. Future Plans

Recruitment within the College of Engineering has been greatly enhanced since IH faculty Steve Lacey has taken on the teaching of Occupational Safety and Ergonomics for the Industrial Engineering program. One of our new trainees (S. Bigger) as well as several other IH students were recruited from Industrial Engineering.

We continue to incorporate as much field experience as practical into the IH program. We also continue to expand our base of support that we are able to use to supplement the NIOSH stipends. At the present time, no changes to the curriculum are planned.

Table 1. Contributing Faculty to the Industrial Hygiene Program			
Faculty	Position	Research Area	Contribution to IH Program, % (Teaching, Research, Other)
Peter A. Scheff, Ph.D., **CIH (#3197)**, QEP	Professor and Director of Industrial Hygiene	Characterization and modeling of ambient and workplace air quality; bio-aerosol characterization; environmental modeling and exposure assessment.	**Time commitment - 60%** - Teaches, EOHS405 (Environmental Calculations) and EOHS431 (Air Quality Management); research advisor; short courses; Director of Air Pollution Training Institute program at UIC.
Lorraine M. Conroy, Sc.D., **CIH (#5500)**	Associate Professor	Design of ventilation systems; TB control criteria; determination of workplace exposure to toxic chemicals; industrial welding.	**Time commitment - 50%** - Director of ERC; Teaches EOHS421 (Fund. of IH); Co-Teaches EOHS523 (Eng. Control/Ventilation); research advisor; short courses)
Nurtan A. Esmen, Ph.D.,	Professor	Environmental and Occupational epidemiology and exposure assessment.	**Time commitment - 20%** Senior research mentor and research advisor; Teaches EOHS557 (Design and analysis of experiments).
Rosemary Sokas, M.D., MOH	Professor and Director, EOHS	Applied, translational occupational safety and health organizational work targeting small businesses and vulnerable populations	**Time commitment – 10%** Teaches EOHS400 Introduction to Environmental Health Sciences; Field research; Director of the academic program.
Salvatore Cali, MPH **CIH (#7423)**	Senior Research Specialist	Indoor and Industrial air quality, bio-aerosols, lead and asbestos.	**Time commitment - 25%** - Deputy Director of Industrial Hygiene; teaches EOHS428 (IH Laboratory); contributes to short courses and outreach activities.
John E. Franke, Ph.D., PE, **CIH (#1464)**	Research Assistant Professor	Workplace characterization and estimation of personal exposure; TB confinement; emission factors.	**Time commitment - 45%** - Teaches EOHS570, Haz. Mat. Management and Co-Teaches EOHS523 (IH Engineering Control/Ventilation); Field research; short courses.
Steve Lacey, Ph.D.	Research Assistant Professor	Estimation of personal exposure; emission factors.	**Time commitment - 100%** - Jet Engine Manufacturing Project; Research advisor; teaches IE461 (Safety Engineering) and teaches emergency response for EOHS408 (Biological, Chemical, Explosives, and Nuclear Weapons as Public Health Threats)
John Standard, M.S., MPH, **CIH (#2164)**, CSP	Lecturer, Adjunct	Hazard evaluation and safety control	**Time commitment - 10%** - Teaches EOHS482 (Occupational Safety Science).
Michael Selway, M.S., **CIH (#2695)**	Lecturer, Adjunct	Noise evaluation and control; field studies.	**Time commitment - 20%** - Teaches EOHS424 (Environmental Acoustics) and EOHS529 (IH Lab. II).
Daniel O. Hryhorczuk, M.D., MPH	Professor	Occupational and environmental epidemiology and toxicology.	**Time commitment - 10%** - Teaches, IEOHS554 (Occup. & Environ. Epi.); Research advisor; Short courses.
An Li, Ph.D.	Associate Professor	Environmental Chemistry	**Time commitment - 10%** - Research advisor; Teaches EOHS440 (Chemistry for Environmental Professionals)
Dan Tessier, Ph.D.	Assistant Professor	Environmental and Occupational Toxicology	**Time commitment -10%** - Research advisor; Teaches EOHS455 (Environmental and Occupational Toxicology)
Serap Erdal, Ph.D.	Assistant Professor	Exposure assessment, risk analysis	**Time commitment - 25%** - Research advisor; Teaches EOHS438 (Air Quality Lab); EOHS556 (Risk Assessment)
Linda Forst, MD, MPH	Associate Professor	Worker health; epidemiology of workplace disease and safety.	**Time commitment - 10%** - Research advisor.; teaches EOHS551(Occupational and Environmental Diseases)

III. Program Progress Report: Core Academic Programs

A. Program Title: Occupational Health Nursing

B. Program Director: Shannon Lizer, DNSc, APN

C. Program Description

1. Introduction

The University of Illinois (UIC) Occupational Health Nursing (OHN) program began in 1978 when NIOSH funded UIC as an Educational Resource Center (ERC). During the past 28 years, progressive changes in the program's curriculum, leadership and research availability have enhanced and expanded learning opportunities for the OHN students. The UIC OHN program emphasizes the need for nursing leadership and management across systems and policy arenas both nationally and internationally. Based on this, students learn highly flexible and consolidated advanced practice OHN roles, traditional and innovative models for promoting and improving worker health and safety, and leadership for creating efficient and effective occupational health services within a variety of business systems. The program also emphasizes that OHN students and faculty develop OHN competencies by providing a dynamic mix of evidenced-based, interdisciplinary learning programs with innovative long-distance education technologies.

2. Program Objectives

The OHN Program has identified seven objectives to advance OHN education, research, service and practice. They are to:

a) Strengthen enrollment in the OHN programs by recruiting qualified and diverse nursing students in the MS and PhD programs.
b) Prepare OHN students for dynamic leadership roles in personal and occupational health systems within business/industry.
c) Promote accessibility of OHN curriculum across the ERC region.
d) Initiate the advancement of interdisciplinary collaboration among College investigators with Occupation Health related research with core ERC and urban and rural UIC faculty.
e) Enhance international options for UIC OHC research and services. Identify a partner for international studies to increase OHN international experiences and collaboration.
f) Reinforce the utilization of leading edge communication/information technologies for OHN program/product development, marketing, and delivery, including continuing education for OHNs at distant locales.
g) Develop faculty practice options in OHN.

These objectives support the OHN mission statement and aide in the continuing success and development of the UIC OHN program.

3. Responsible Conduct of Science Training

In an effort to support the research endeavors of College of Nursing investigators, advance their own interest in research, and ensure that research at the University of Illinois is carried out in accord with the highest ethical standards, all students are required to receive formal training in human research subjects protection, the protection of health information, and if applicable, training in the humane use of animals in research and teaching. This formal training is organized through the Office for the Protection of Research Subjects, which also provides administrative support for the review and approval of research protocols involving humans, animals, and recombinant DNA or infectious agents. This training in research integrity, ethical behavior, and responsible conduct is also underscored in the classroom.

4. Faculty Participation

The Public Health, Mental Health, and Administrative Nursing (PMA) faculty in the College of Nursing (CON) are dedicated to the promotion of excellence for the OHN program. In addition to the OHN faculty, many PMA faculty members outside the OHN program have research interests that include occupational health topics. These faculty members support and encourage the progression of the OHN program. The OHN and PMA faculty includes Dr. Shannon Lizer, Dr. Arlene Miller, Dr. Beverly McElmurry, Ms. Kathryn Johnson, Ms. Rebecca Mischak, Ms. Anne Reed, and Mr. Charles Yingling. This team is actively involved in research, professional associations, presentations and continuing education offerings at international, national and local levels, occupational health consultations, and peer-reviewed publications. The OHN faculty team assures that occupational health content is articulated at all levels of nursing education at UIC – undergraduate, masters, and PhD.

Shannon Lizer, DNSc, APN, is the OHN Program Director. In this role, Dr. Lizer oversees the administration of the OHN Program in the areas of academic course work, clinical experiences, research training, interdisciplinary activities, continuing education and outreach efforts, and financial management of the training grant. Dr. Lizer is furthering her dissertation research in studying the relationship between older farmers' health status and work related injury. At the master's degree level, Dr. Lizer teaches the introductory course in occupational health nursing, NUPH 400, and in the nurse practitioner courses, including NUPH 524 and 525. She also is a partner in the interdisciplinary rural course to UIC medical students in Rockford. This provides a unique opportunity for collaboration among health care providers in various specialty areas. She is a dedicated Nurse Practitioner (NP) providing primary care to Veteran Association (VA) patients. As a practicing clinician and faculty member, Dr. Lizer has many opportunities to support the OHN Program marketing and recruitment efforts, and n mentors interested OHNs, graduate nursing students, and medical students.

Dr. Arlene Miller, PhD, RN, has a doctorate in Counseling Psychology and a master's degree in Public Health Nursing. She has been a Family Nurse Practitioner for over 20 years. She is Principal Investigator on a federally funded longitudinal study of women from the former Soviet Union, "Post-Migration Health and Behavior Change in Midlife Women." She teaches an interdisciplinary doctoral-level cross-cultural research method course, and has examined relationships among acculturation and health in immigrant women and their husbands. She recently obtained funding for a preliminary study of acculturation, social ties, and health literacy among female immigrant home care workers from the former Soviet Union and the Philippines. She is the advisor for Jorgia Connor, a doctoral student in the OHN program, and is supervising her research work regarding nurse migration. Ms. Connor works as a research assistant on both of Dr. Miller's projects. Dr. Miller is the PMA Department Head, at the UIC College of Nursing.

Dr. Beverly McElmurry, EdD, RN, FAAN has contributed to the OHN program by developing an international initiative for the program. She is the Professor and Associate Dean for the Global Health Leadership at UIC. She also serves as Director of the UIC College of Nursing WHO Collaborating Center for International Development of Primary Health Care (PHC). As a result of her service to the nursing profession locally and internationally and her mentoring of international students who have become nursing leaders in their countries, Dr. McElmurry has developed ties to a strong network of international nurse researchers dedicated to promoting leadership for nursing primary health care.

Ms. Kathryn Johnson, APRN-BC works as the Deputy Director for the UIC OHN Program and as a Nurse Practitioner (NP) at the UIC University Health Service (UHS) center. She graduated from UIC in 5/2005 after successfully completing the OHNP/FNP curriculum. Her research project focused on the benefits of occupational exercise programs for employed women. As Deputy Director of the OHN Program Director Deputy she is responsible for budget management, practicum placement, interdisciplinary activity coordination, program marketing, student recruitment, web site management, and outreach effort facilitation. She also assists the Program Director with the teaching and coordination of the Introduction

to Occupational Health Nursing courses (NUPH 400) and serves as faculty preceptor to OHN students during their clinical rotations.

Ms. Rebecca Mischak, APRN-BC is an Occupational Health Nurse Practitioner and Manager at UIC UHS clinic. She is a master's prepared OHNP with over 17 years experience in the field occupational health nursing. Additionally, she is a certified FNP and COHN-S. Ms. Mischak contributions to the UIC OHN program are extensive. She acts as a preceptor for undergraduate and graduate nursing students and offers her widespread occupational health knowledge when collaborating on OHN program syllabi review and updates.

Ms. Anne Reed, APRN-BC is a Family Nurse Practitioner (FNP) at Alexian Nutrition and Disease Prevention Center. She is a master's prepared, experienced OHNP, certified FNP (FNPC), and Certified Occupational Health Nurse Specialist (COHN-S). Ms. Reed graduated from the UIC OHN program in 5/2000. She contributes significantly to the current UIC OHN program by acting as the faculty preceptor for OHNP students during their occupational clinical health rotations. Other responsibilities include OHNP clinical site development, coordinating and evaluating OHNP students' clinical performance, updating FNP curriculum to include OHNP content, and serving as a liaison between the OHNP and FNP programs.

Mr. Charles Yingling, APRN-BC works as a clinical instructor at the UIC CON. He graduated from the OHN program in 5/2005 after successful completion of the OHNP/FNP curriculum. As UIC faculty he contributes five percent of his time to OHN programs serving as clinical preceptor for OHNP students during their occupational health rotations. Additionally, he acts as a mentor for current OHN students and uses his extensive occupational health knowledge to serve as a chairperson for OHN student's master projects.

5. Curricula

The goal of the OHN program is to prepare nurses for leadership and practitioner roles in an occupational health practice. During the program, each OHN student applies community and public health nursing principles to the specialty area of occupational health. The student participates in academic coursework, clinical fieldwork, field trips, occupational health clinic observations, and weekly interdisciplinary seminars with other trainees.

Masters degree program of study: The OHN master's candidate completes research methods coursework and conducts research under the guidance of OHN and PMA nursing faculty. Within the masters program there are two OHN concentrations – OHN Leadership/Management and OH Nurse Practitioner (OHNP). The OHN Leadership/Management track is for individuals who desire advanced education in the area of Occupational Health administration. Courses are focused on advancing leadership and management skills. One additional course is added for those individuals that would like to sit for the Certified Nurse Specialist in Occupational Health national examination. In the 2005-2006 academic year, three students were seeking degrees in the OHN Leadership/Management track; Deborah Masters, Cynthia Fearn, and Eileen Cloonan.

Individuals who desire to be Occupational Health Nurse Practitioners obtain this degree in two different ways depending on their background. Those trainees that have a bachelor degree in nursing enter directly into the graduate program. This curriculum is composed of the traditional Family Nurse Practitioner (FNP) courses, plus five additional occupational health courses. Five trainees were accepted into the OHN program for the OHN/FNP track during the 2005-2006 academic year; three will begin the program in the fall of 2006; Lilana Rubio, Sheon MacNeil, and Silvia Lara.

Individuals that have a bachelor degree in fields other than nursing obtain their Master's in Nursing degree by entering the Graduate Entry Program (GEP). The first 18 months of the GEP program prepares the trainee to take the national nursing exam (N-CLEX) and become Registered Nurses (RNs). After passing the exam, the trainee is qualified to begin the traditional OHN/FNP curriculum. In the 2005-2006 academic year, there were two students in the OHN GEP; Amy Bowling and David Persuad. One new trainee was accepted to the GEP program, Enyinnaya Adighibe. Ms. Bowling will begin the FNP/OHN track in the fall of 2006. Mr. Persuad is scheduled to start the FNP/OHN track in the fall of 2007. Mr. Adighibe will begin the GEP program in January 2007.

Program Curriculum – CON Core Courses: All CON students take five common core (nursing science, policy and professional issues) courses, eight OHN/Public health nursing course departmental core courses, and four core interdisciplinary occupational health courses. In addition, there are two or three advanced management courses required for trainees on the Management/Leadership or CNS track and seven advanced nursing courses for those on the OHNP track. Details are provided in Appendix A.

Doctoral degree program of study: The goal of the OHN doctoral (PhD) research training at UIC is to prepare independent OHN researchers whose work will contribute to the knowledge base in occupational health and whose qualifications will enable them to assume leadership positions within occupational health. In the 2005-2006 academic year there were three PhD trainees (2 with NIOSH funding) in the OHN program, Hyeonkyeong Lee, Jorgia Connor and Sarah Katula. Ms. Lee graduated from the OHN doctoral program in May 2006. She was an international student whose research explored the musculoskeletal risk factors for flight attendants. Ms. Connor entered the program in 2004. Her area of research studies the effects of recent immigration to the United States for Philippine female nurses. Ms. Katula also entered the doctoral program in 2004; her research focuses on the impact of domestic violence on workers while in the workplace.

Most students entering the OHN doctoral program have completed the equivalent of the MS-level OHN course work. Those who have not enter the program and complete the MS level OHN course work concurrent with the doctoral program classes (BSN-PhD track). The doctoral program requires a minimum of 96 semester hours for graduation, which includes a maximum of 33 hours of credit from the student's master program, 13 hours of theory, research methods, and statistics, 14 hours of advanced coursework, and 31 hours of independent research (refer to table PhD Core Courses). Requirements for the PhD OHN are shown in Appendix A.

D. Program Activities and Accomplishments

Objectives: The UIC OHN program has had much success in meeting its abovementioned objectives during the 2005-2006 academic year. In particular, there was much growth in the area of student recruitment and technological communication initiatives. At the start of the 2006 academic year, the OHN program continues to make great progress in meeting its goals. Below are the objectives identified for our program with a summary of the progress made during the 2005 budget period.

a) Student Recruitment:

The UIC OHN program welcomed four new trainees to the program during the 2005-2006 academic year, Silvia Lara, Sheon MacNeil and Liliana Rubio and Enyinaya Adighibe. Ms. Lara, Ms. MacNeil and Ms. Rubio will begin the OHN/FNP track in the fall of 2006. Each of these trainees completed the traditional UIC undergraduate nursing program. They also have backgrounds in public health, which makes an ideal match for occupational health. Enyinaya Adighibe will start the GEP program in the spring of 2007. He also has a background in public health and received an undergraduate degree from the UIC School of Public Health.

Amy Bowling, who was accepted into the GEP program in 2004, successfully completed the RN portion of the GEP program in May 2005. She will start the OHN/FNP track in the fall of 2006.

Collaboration between the UIC Employee Health Services (EHS) served as a reliable opportunity for recruitment into the OHN program. Strong relations between UIC OHN faculty and the UIC Office of Academic Program (OAP) staff has also aided in the recruitment of OHN students.

b) Prepare OHN students for dynamic leadership roles in personal and occupational health systems within business/industry:

The OHN trainees had many clinical opportunities in the area of occupational health. Trainee Malik Walls spent a semester at UIC employee health services working on data base management of varying occupational health databases. Trainee Airn English did her clinical rotations at (I will contact Airn and Ann for this info). She also had an opportunity to tour the Chicago Tribune and participate and a walk through safety survey. She presented her research on Hepatitis C in March 2006 as part of the UIC Research Day.

c) Promote accessibility of the OHN program across the ERC region:

The CON is a leader in distance learning that supports and enables the ability for many OHN management and OHNP courses to be offered online or by videoconference. In the 2006/2007 academic year, EOHS 551 Occupational and Environmental Diseases, a required course in the UIC OHN curriculum, was offered by videoconference

d) Initiate the advancement of interdisciplinary collaboration among College investigators with Occupational Health related research with core ERC and urban and rural UIC faculty:

As Director of the OHN Program, Dr. Shannon Lizer demonstrates commitment to interdisciplinary collaboration as a partner in the National Center of Rural Health Professions (NCRHP) and as faculty for graduate nursing and UIC College of Medicine students in Rockford.

Opportunities for collaborative research and interdisciplinary seminars were available to UIC OHN faculty and staff throughout the 2006/2007 academic year. Director Shannon Lizer attended the Annual Occupational Health Conference in May 2006. This conference covered a vast selection of occupational health topics and was attended by the fields leading experts. Kathryn Johnson, UIC OHN deputy director, and trainee Airn English participated in the UIC Research Day at Rockford in spring 2006. They presented their work to nursing and medical faculty and students.

As part of her research assistant (RA) position, current trainee Amy Bowling works with the ERC faculty at the School of Public Health. She is a local administrator for the GeoLibrary, which is an electronic, global library in the public domain. Materials included in the library are environmental and occupational health and safety training materials including courses, lectures, and practice tools. This position has given Ms. Bowling the opportunity to collaborate with students and faculty of the ERC.

Interdisciplinary seminars on occupational health topics are presented weekly at the CON. These seminars are attended by Occupational Health medical, industrial hygiene, nursing, hazardous materials and safety students and faculty. UIC CON trainees are required to attend seminars as part of the NUPH 400 Introduction to Occupational Health Nursing course.

e) Enhance international options for UIC OHC research and services.

Identify a partner for international studies to increase OHN international experiences and collaboration: Creating international options for UIC OHN students continues to be an important mission for the OHN program. Hyeonkyeong Lee graduated from the OHN doctoral program in 5/2006. She has returned to

her native country of Korea. Prior to her departure, discussion between her and Dr. Lizer took place regarding an international UIC sponsored occupational health clinic. This clinic would serve as a potential site for UIC OHN recruitment. It would also be an international clinical option for interested OHN students. In addition to this opportunity for international growth, Dr. Beverly McElmurray continues to be an integral resource for international student referrals and research opportunities.

f) Reinforce the utilization of leading edge communication/information technologies for OHN program/product development, marketing, and delivery, including continuing education for OHNs at distant locales:

Dr. Shannon Lizer is an active member on the ERC committee which supports distance learning ideas and concepts. She has worked with fellow committee members supporting the use of internet-based classrooms through CENTRA technology. Centra enables the UIC OHN and ERC faculty to use the internet to offer interactive computer classes and degree programs. Features include interactive whiteboards, yes/no feedback, hand-raising, text and full-duplex chat, multi-point video conferencing, multimedia content support, advanced application sharing, breakout rooms, and online surveys. Future plans for the OHN and ERC include using CENTRA for classroom lectures and ERC seminars.

g) Develop faculty practice options in OHN:

The UIC Nursing Institute in Chicago, directed by Dr. Judith Storjfell, offers a multitude of opportunities to develop an occupational health nursing practice site. Dr. Shannon Lizer, Ms. Kathryn Johnson and Dr. Judith Storjfell had several meetings during 2005-2006 academic year to discuss potential options. Two opportunities for consideration include farmer health and health services for the racing industry's backstretch workers.

E. Program Products

Publications: A crucial goal of the UIC CON PhD doctoral program is to assist trainees to produce occupational health research to be published. Two OHN doctoral trainees, Hyeonkyeong Lee and Sarah Katula had research published in OHN journals during the 2005/2006 academic year.

Ms. Lee's research explored the musculoskeletal risk factors for flight attendants. She had two publications in 2006 pertaining to her work. The first article was: A focus group as a final step in preparation for a survey to examine risk factors associated with work-related musculoskeletal disorders in female flight attendants, published in American Association of Occupational Health Nurses (AAOHN) Journal, in April 2006 (Volume 54 no. 4). Her second published article was: A Self-reported Cabin Environment and Work-related Musculoskeletal Disorders (WMSDs) among Female Flight Attendants on Long-haul International Flights. This was published in the Korean Journal of Aerospace and Environmental Medicine (Volume 16, no 1).

Ms. Katula's research focused on the prevalence of domestic violence in workplace settings. The first part of her research, entitled Domestic Violence in the Workplace Part One, was published in the American Association of Occupational Health (AAOHN) journal in May of 2006 (Volume 54, no. 5).

Presentations: The UIC OHN faculty routinely present lectures on occupational health topics. During the 2006 academic year, deputy director Kathryn Johnson conducted lectures to UIC and RUSH undergraduate RN students. These lectures served to educate new RNs regarding the role and significance of occupational health nursing. It was also a great opportunity for Ms. Johnson to recruit interested students to the UIC OHN graduate program.

Ms. Johnson also presented a lecture to UIC midwifery students. The lecture focused on the health risks specific to obstetric clients in the workforce. Topics covered included workplace health and safety legislation, worksite hazards for women, reproductive health as it pertains to occupational health, the role of the women's health practitioner as it pertains to working women, and the different health care needs for women in traditional versus non traditional work roles.

Becky Mischak, UIC CON faculty, presented a lecture at RUSH University in the spring of 2006. The lecture was to RUSH RN students and discussed the role of the OHN and OHNP.

UIC Sponsored Programs: In October 2005 the UIC OHN program co-sponsored an occupational nursing state conference with the Illinois Association Occupational Health Nursing (IAOHN). The theme of the conference, entitled Cruising on Good Health, was health promotion. Topics included current advanced practice legislation issues and current procedures for workplace drug screenings. Approximately 90 occupational health nurses attended and continuing education credits were provided to attendees. Deputy Director Kathryn Johnson managed a UIC OHN booth, providing participants with information on occupational health nursing and the UIC OHN program.

F. Future Plans

The UIC OHN Program is dedicated to the promotion of occupational health and safety for all workers through education, research, and service. This has been the ongoing mission of the program since it began over 25 years ago. Previously defined in this report are the objectives that have been identified. Meeting these objectives will ensure that the UIC OHN program continues to produce high level researchers, providers and faculty. They will serve as guide for planning over the next budget period. Discussed below are the plans for meeting many of our programs objectives over the next fiscal year.

Selected Objectives:

1. Strengthen enrollment in the OHN programs by recruiting qualified and diverse nursing students in the MS and PhD programs:

The OHN program marketing plan for the next budget period focuses on recruitment of undergraduate and graduate nursing students, as well as RNs in Occupational Health settings. The updated plan includes: (a) scheduling faculty and student presentations at national and local meetings and to nursing undergraduates; (b) distribution of OHN program brochures and notices with continuing education brochures; (c) provision of OHN faculty representation at UIC and departmental graduate student information sessions; (d) offering introductory OHN course to CON undergraduate seniors; and (e) placement of program staff at booths at state and local continuing education programs.

2. Promote accessibility of OHN curriculum across the ERC region.

The UIC OHN program is dedicated to providing accessibility to its trainees. This philosophy will be maintained over the next budget period. EOHS 421, an OHN required course, will be available by CENTRA, an interactive internet classroom. This will enable distance learning for regional trainees. Poly communication course will remain available to OHN students.

3. Enhance international options for UIC OHN research and services. Identify a partner for international studies to increase OHN international experiences and collaboration

Discussions between Shannon Lizer, Beverly McElmurray and Hyeonkyeong Lee have been initiated to explore opportunities for an international UIC OHN clinic site in Korea. Dr. McElmurray experience with international research and studies will assist in the development of this program.

III. Program Progress Report: Core Academic Programs

A. Program Title: Occupational Medicine, University of Illinois at Chicago

B. Program Director: Susan N. Buchanan, MD, MPH

C. Program Description

1. Overview

Residents in Occupational Medicine at UIC enter the program after spending their PGY-1 year completing an internship at any ACGME-accredited residency program. The Occupational Medicine program consists of a twelve-month academic phase (PGY2) and a twelve-month practicum phase (PGY3). During both phases, residents are required to attend a two hour conference on Wednesday mornings, a noon conference two to three times monthly that is organized by the NIOSH Education and Research Center at the University of Illinois School of Public Health, and at least one half day per week of Occupational Medicine out-patient clinic. In addition, they are incorporated into special projects like health hazard evaluations related to the workplace or general environment, exposure assessments, and development of surveillance programs. Site visits to industries are organized once a month.

The Academic Phase provides the educational foundation for the Practicum phase and for the future practice of occupational medicine. Courses in epidemiology and biostatistics provide the knowledge and skills that enable the residents to carry out their research projects and to critically evaluate the occupational medicine literature. Courses in management, behavioral sciences, industrial hygiene, risk assessment and occupational safety science provide the residents knowledge and skills to evaluate occupational health programs and to eventually become effective participants and, ultimately, directors of such programs. Courses in occupational diseases and toxicology enhance the ability of the residents to address clinical occupational medicine problems. A capstone project is required as well, to complete the MPH degree. Our residents must complete a research project in their Practicum Year, and this constitutes their capstone. Residents attend one half-day each of an Occupational Medicine clinic each week and one half-day in the University Health Services (Employee Health) clinic. Their fieldwork requirement (200 hours) is completed in their Practicum year as part of their workplace rotations.

The Practicum Phase entails completion of: 1) four industrial rotations (20 weeks); 2) the research project (8 weeks are dedicated to work on this); 3) twelve weeks on the OM Consultation Service; 4) 12 weeks of electives; 5) minimum of ½-day per week of outpatient OM clinic for the entire year; 6) presentation of their research/capstone project at the end of the year. Residents take on an increasingly responsible role in investigating and correcting occupational health problems in individual patients as well as groups of workers. In addition to the requirements, listed above, residents prepare and give lectures, supervise junior residents and medical students on the OM Consultation Service and in Clinic, participate in special projects, attend depositions on cases related to workers compensation, and attend industrial site visits.

2. Training Objectives and Goals

Training objectives and goals continue to be decided jointly by the University of Illinois at Chicago (UIC) Occupational Medicine Program and Stroger Hospital (SHCC) combined Program in Occupational Medicine and Internal Medicine. The main objective is to provide comprehensive training to physicians in Occupational and Environmental Medicine leading to board certification in Preventive Medicine (OM concentration).

Goals for this reporting period:

a) To continue to update the Core Curriculum for this Program. As the job market and work environments evolve and change, so do the required skills and knowledge base for OM

physicians. The curriculum must be reviewed continuously and changed to provide appropriate training for our residents.

b) To organize the program to be competency based, as required by the Office of Graduate Medical Education. All residency programs in Occupational Medicine are required to fulfill a set of general residency and specific occupational medicine competencies. The programs core curriculum is being designed to teach to and fulfill these competencies.

c) To continue to upgrade the Resident and Faculty evaluation process. Various evaluative methods are employed to obtain feedback on the residents in their various practicum experiences. Residents also are required to give anonymous feedback about the program.

d) Continue to improve the quality of resident research by better faculty supervision and increased didactics on methodology.

e) Continue to encourage and increase the resident presentations for outreach purposes and at professional meetings.

(Additional curricular educational goals and objectives as codified by the Residency review Committee of the American College of Graduate Medical Education are included in Appendix A.)

3. Responsible Conduct of Science Training

All trainees are required to complete the UIC Human Subjects Protection Education program. This can be done by attending the in classroom session called "Investigator 101 Training", or by completing an on-line module the "Collaborative IRB Training Initiative." Additionally, if the resident's research project is to be conducted at Stroger Hospital, he/she completes an equivalent training program there, as well. The residents and faculty of the Occupational Medicine program are 100% compliant with these requirements.

Throughout the year, in the resident's regularly scheduled Wednesday AM lecture series, various ethical and methodologic issues related to research are discussed.

4. Faculty participation

The Occupational Medicine program continues to have a strong committed faculty. All faculty actively engage in teaching, research and research mentorship of trainees, clinical supervision and curricular development. The core faculty includes:

Susan Buchanan, MD, MPH. Program Director, UIC Occupational Medicine Residency
Lucille Buckley, MPH. Industrial Hygienist
Robert Cohen, MD. Pulmonologist. Medical Director of Stroger Black Lung Clinic Program
Samuel Dorevitch, MD, MPH. Research Asst. Professor, UIC SPH. OM Curriculum, lead physician.
Katherine Duvall, MD, MS. Supervisor OM Clinic, co-director, Health in the Arts Program.
Emeka Ezike, MD, MPH. OM Clinic supervisor.
Linda Forst, MD, MPH. Associate Professor, UIC SPH.
David Hinkamp, MD, MPH. Supervisor OM Clinic, co-director, Health in the Arts Program.
Daniel Hryhorczuk, MD, MPH. Professor, UIC SPH, Director, Great Lakes Centers for Occupational and Environmental Safety and Health.
Anne Krantz, MD, MPH. Section Chair, Toxicology. Stroger Hospital. Core OM faculty.
David Marder, MD, MPH. Director, University Health Services, UIC. Core OM faculty.
Peter Orris, MD, MPH. Associate Program Director, Stroger OM residency. Director of UIC Occupational Health Services Institute. Core OM faculty.
Rachel Rubin, MD, MPH. Program Director and Division Chair, OM at Stroger Hospital.
Rosemary Sokas, MD, MOH. Professor and Director of Environmental and Occupational Health Sciences at UIC SPH.
Jacquelline Wuellner, RN, MPH. Nurse Manager, Stroger OM Clinics.

5. Curriculum

(See Appendix A for a full description.)

D. Program Activities and Accomplishments

Over the last year, the program has added rotations, didactic lectures and demonstrations to enhance the clinical skills now in demand for OM practice. These include rotations with managed care OM practices that focus on urgent care, screening and surveillance of workers as well as new rotations with American Airlines and International Truck. A splint lab and slit lamp demonstrations and training were provided over the last year. More lecture topics on the management and administration of OM practice were given. DOT and FAA examination requirements were also presented and expreience in conducting these exams were obtained in some of our newer practicum rotations.

A joint SHCC and UIC OM programs Faculty and Curriculum Committee meets regularly. We are discussing the program requirements and comptencies and are documenting which experiences and academic courses fulfill which competencies. Revisions to the curriculum in the residents' academic and/or practicum years are being proposed to better address the competencies. We have reworked our Wednesday AM resident conference series to include a “Core Content Review” where a resident is responsible for reviewing a chapter of Rosenstock and Cullen’s textbook in Occupatuional and Environmental Health. Also, our case conferences have been redisigned to be more evidence-based And clinically relevant. UIC preceptor evaluation forms have been re-written to reflect the program competencies.

1. Trainee Honors, Awards

Our chief resident for the 2005-2006 academic year was the recipient of ACOEM’s Occupational Physician Scholarship Fund award. This same resident received the UIC School of Public Health Bruton Scholarship.

2. Faculty Honors, Awards, Appointments

Dr. Buchanan was appointed to the Governor’s Taskforce on Latino Workers’ Safety. Dr. Rubin has been appointed to NIOSH’s "Commercial Truck Driver Health and Safety- Preventing Injury and Illness" RFA review panel, R01 grant. She also sits on the ACGIH TLV committee for chemical substances. She is also the current chair of the Occupational Health and Safety Section of the APHA. Dr. Orris is a gubernatorially appointed member of the State of Illinois’ Board of Health, sat on the Governor’s Taskforce of Latino Worker’s Safety and has recently served on a task force of the Chicago Department of Public Health concerning care for the chronically ill. In addition he a member of the Board of the Illinois Safety Council, the Safer Pest Control Project, and chairs the Public Health Committee of the Chicago Medical Society. Dr. Krantz sits on the Governor’s Occupational Asthma Taskforce of the Illinois Asthma Partnership.

3. Trainee Research Projects

John Halpin – The epidemiology of burn injuries at O’Hare Urgent Care Clinic
Tabasum Amir – Characterizing Multiple Chemical Sensitivity patients at UIC Occupational Medicine Clinic
Francis Song – Nasopharyngeal Cancer and Occupation in Chengdu, China

4. New Faculty Positions

Dr. Susan Buchanan assumed directorship of the Occupational Medicine Residency. She is an attending physician in Family Medicine at UIC and recently completed the Occupational Medicine residency as well as a fellowship in Occupational Health Services Research.

5. New Courses

No new courses were offered in this reporting period. A research course is under preparation by Dr. Forst.

6. Trainee Recruitment/Diversity Efforts

Our selections and promotions committee is committed to recruiting women and minorities. The demographics of our current residents are as follows:

Gender:	2 Women:	4 Men:
Ethnicity:	4 Asians	1 Latino

The UIC Occupational Medicine program is committed to a diverse program.

E. Program Products

1. Publications and Presentations *(also see Appendix D)*

The Occupational Medicine program engages in a variety of presentations on various OM topics, throughout the year. Drs. Buchanan and Forst provide lectures to an undergraduate ergonomics course in the College of Engineering. Dr. Buchanan teaches an Occ Med mini-course to medical students rotating through UIC Family Medicine. Chief resident John Halpin presented UIC Internal Medicine Grand Rounds on Avian Flu.

2. CE courses

Dr. Orris is the Director of CME for the Corporate Medical Directors Club of Chicago. CME talks are given monthly to a group of academic and corporate medical directors. The Wednesday AM OM resident lecture series is available for CME credit, and outside OM physicians regularly attend. Dr. Orris, in his role as advisor to Health Care Without Harm, The Health Schools Campaign and the UNDP/Global Environmental Facility Healthcare Waste Project, regularly gives talks on medical waste. The residents participate in his seminars when logistically feasible.

3. Courses

Dr. Forst taught two courses in the Environmental and Occupational Health Sciences Division of the UIC School of Public Health.

F. Future Plans

1. There is a commitment to continue, on an on-going basis, to refine the curriculum to meet the needs of our trainees and of the practicing OM physician. Drs. Rubin, Buchanan and Dorevitch meet semi-monthly to discuss curricular issues.
2. Improve and expand the evaluative methods used to assess the residents' progress.
3. Conduct a patient survey to help asses the quality of care we give our patients in the OM teaching clinics.
4. Increase opportunities for outreach and research with vulnerable populations. There are several on- going projects with immigrant workers that are trainees can be part of.
5. Improve the quality of research training and product in our trainees.
6. Increase the numbers and variety of outreach efforts the trainees organize and participate in.
7. Increase trainee presentations at regional and national meetings.

III. Program Progress Report: Core Academic Programs-

A. Program Title: Occupational Medicine, Stroger Hospital of Cook County

B. Program Director: Rachel Rubin, MD, MPH

C. Program Description

1. Overview

Almost all of the residents in the SHCC OM Program are enrolled in the combined Internal Medicine/Occupational Medicine Program. This combined residency track is a four-year program where the resident's PGY1 year is spent doing an Internal Medicine internship. This is identical to the internship in the categorical Internal Medicine residency, with the exception that they spend one month on the Occupational Medicine consultation service, which also is credited as an Internal Medicine subspecialty elective. This intern year constitutes the resident's clinical year requirement for Occupational Medicine residency. The residents are certified by the Program Director of Internal Medicine as having met all the requirements of an Internal Medicine internship (PGY1) year.

The second year of the combined program is the academic year of the Occupational Medicine residency as described below. During breaks in the academic schedule, the residents do some inpatient Internal Medicine and Occupational Medicine rotations. The PGY3 year again is solely devoted to Internal Medicine rotations. However, the residents continue attending an Occupational Medicine clinic one half-day per week.

The PGY4 year is the Occupational Medicine practicum year and is described below. Occasionally, the combined program resident after successfully completing his or her Internal Medicine internship elects not to continue in the combined track. In this instance, he/she does two more years of residency, only in Occupational Medicine: the PGY2 academic year and PGY3 practicum year.

The Occupational Medicine program consists of a twelve-month academic phase (PGY2) and a twelve-month practicum phase (PGY4). During both phases, residents are required to attend a two hour conference on Wednesday mornings, a noon conference two to three times monthly that is organized by the NIOSH Education and Research Center at the University of Illinois School of Public Health, and at least one half day per week of Occupational Medicine out-patient clinic. In addition, they are incorporated into special projects like health hazard evaluations related to the workplace or general environment, exposure assessments, and development of surveillance programs. Site visits to industries are organized once a month.

The Academic Phase provides the educational foundation for the Practicum phase and for the future practice of occupational medicine. Courses in epidemiology and biostatistics provide the knowledge and skills that enable the residents to carry out their research projects and to critically evaluate the occupational medicine literature. Courses in management, behavioral sciences, industrial hygiene, risk assessment and occupational safety science provide the residents knowledge and skills to evaluate occupational health programs and to eventually become effective participants and, ultimately, directors of such programs. Courses in occupational diseases and toxicology enhance the ability of the residents to address clinical occupational medicine problems. A capstone project is required as well, to complete the MPH degree. Our residents must complete a research project in their Practicum Year, and this constitutes their capstone. Residents attend one half-day each of an Occupational Medicine clinic and a General Medicine clinic each week. Their fieldwork requirement (200 hours) is completed in their Practicum year as part of their workplace rotations.

The Practicum Phase entails completion of: 1) four industrial rotations (20 weeks); 2) the research project (8 weeks are dedicated to work on this); 3) twelve weeks on the OM Consultation Service; 4) 12 weeks of electives; 5) minimum of ½-day per week of outpatient OM clinic for the entire year; 6) presentation of their research/capstone project at the end of the year. Residents take on an increasingly responsible role in investigating and correcting occupational health problems in individual patients as well as groups of workers. In addition to the requirements, listed above, residents prepare and give lectures, supervise junior residents and medical students on the OM Consultation Service and in Clinic, participate in special projects, attend depositions on cases related to workers compensation, and attend industrial site visits.

In summary, the combined Internal Medicine/Occupational Medicine program at Cook County Hospital is a four-year residency program where the Occupational Medicine training occurs essentially in the resident's PGY2 and PGY4 years. The PGY2 year is the academic year and the PGY4 year is the practicum year. In the first and third years there are a few educational and clinical activities that overlap or relate to Occupational Medicine. However, for purposes of review of the program the academic and practicum phases are essentially completed in the second and fourth year of the four-year residency.

2. Training Objectives and Goals

Training objectives and goals continue to be decided jointly by the University of Illinois at Chicago (UIC) Occupational Medicine Program and Stroger Hospital (SHCC) combined Program in Occupational Medicine and Internal Medicine. The main objective is to provide comprehensive training to physicians in Occupational and Environmental Medicine leading to board certification in Preventive Medicine (OM concentration).

Goals for this reporting period:

a. To continue to update the Core Curriculum for this Program. As the job market and work environments evolve and change, so do the required skills and knowledge base for OM physicians. The curriculum must be reviewed continuously and changed to provide appropriate training for our residents.
b. To organize the program to be competency based, as required by the Office of Graduate Medical Education. All residency programs in Occupational Medicine are required to fulfill a set of general residency and specific occupational medicine competencies. The programs core curriculum is being designed to teach to and fulfill these competencies.
c. To continue to upgrade the Resident and Faculty evaluation process. Various evaluative methods are employed to obtain feedback on the residents in their various practicum experiences. Rsidents also are required to give anonymous feedback about the program.
d. Continue to improve the quality of resident research by better faculty supervision and increased didactics on methodology.
e. Continue to encourage and increase the resident presentations for outreach purposes and at professional meetings.

(Additional curricular educational goals and objectives as codified by the Residency review Committee of the American College of Graduate Medical Education are included in Appendix A.)

3. Responsible Conduct of Science Training

All trainees are required to complete the UIC Human Subjects Protection Education program. This can be done by attending the in classroom session called "Investigator 101 Training", or by completing an on-line module the "Collaborative IRB Training Initiative." Additionally, if the resident's research project is to be conducted at Stroger Hospital, he/she completes an equivalent training program there, as well. The residents and faculty of the Occupational Medicine program are 100% compliant with these requirements.

Throughout the year, in the resident's regularly scheduled Wednesday AM lecture series, various ethical and methodologic issues related to research are discussed.

4. Faculty participation

The Occupational Medicine program continues to have a strong committed faculty. All faculty actively engage in teaching, research and research mentorship of trainees, clinical supervision and curricular development. The core faculty includes:

Susan Buchanan, MD, MPH. Program Director, UIC Occupational Medicine Residency
Lucille Buckley, MPH. Industrial Hygienist
Jeffrey Coe, MD, PhD. Preceptor. OM private practice
Robert Cohen, MD. Pulmonologist. Medical Director of Stroger Black Lung Clinic Program
Samuel Dorevitch, MD, MPH. Research Asst. Professor, UIC SPH. OM Curriculum, lead physician.
Katherine Duvall, MD, MS. Supervisor OM Clinic, co-director, Health in the Arts Program.
Emeka Ezike, MD, MPH. OM Clinic supervisor.
Linda Forst, MD, MPH. Associate Professor, UIC SPH.
David Hinkamp, MD, MPH. Supervisor OM Clinic, co-director, Health in the Arts Program.
Daniel Hryhorczuk, MD, MPH. Professor, UIC SPH, Director, Great Lakes Centers for Occupational and Environmental Safety and Health.
Patricia Kelleher, MD, MPH. Director, Employee Health Services, Stroger Hospital.
Anne Krantz, MD, MPH. Section Chair, Toxicology. Stroger Hospital. Core OM faculty.
David Marder, MD, MPH. Director, University Health Services, UIC. Core OM faculty.
Linda Rae Murray, MD, MPH. Chair, ERC Advisory Board.
Peter Orris, MD, MPH. Associate Program Director, Stroger OM residency. Director of UIC Occupational Health Services Institute. Core OM faculty.
Rachel Rubin, MD, MPH. Program Director and Division Chair, OM at Stroger Hospital.
Rosemary Sokas, MD, MOH. Professor and Director of Environmental and Occupational Health Sciences at UIC SPH.
Jacquelline Wuellner, RN, MPH. Nurse Manager, Stroger OM Clinics.

5. Curriculum

(See Appendix A for a full description and a competency grid.)

C. Program Activities and Accomplishments

1. Progress towards goals and objectives:

Over the last year, the program has added rotations, didactic lectures and demonstrations to enhance the clinical skills now in demand for OM practice. These include rotations with managed care OM practices that focus on urgent care, screening and surveillance of workers as well as new rotations with American Airlines and International Truck. A splint lab and slit lamp demonstrations and training were provided over the last year. More lecture topics on the management and administration of OM practice were given. DOT and FAA examination requirements were also presented and expreience in conducting these exams were obtained in some of our newer practicum rotations.

A joint SHCC and UIC OM programs Faculty and Curriculum Committee meets regularly. We are discussing the program requirements and comptencies and are documenting which experiences and academic courses fulfill which competencies. Revisions to the curriculum in the residents' academic and/or practicum years are being proposed to better address the competencies. We have reworked our Wednesday AM resident conference series to include a "Core Content Review" where a resident is responsible for reviewing a chapter of Rosenstock and Cullen's textbook in Occupatuional and

Environmental Health. Also, our case conferences have been redisigned to be more evidence-based And clinically relevant.

2. Trainee Honors, Awards

Fatema Photowala, a fourth year OM resident was awarded a “Best Poster of a Clinical Vignette” for the Stroger Hospital Department of Medicine Research Day.

3. Faculty Honors, Awards, Appointments

Dr. Rubin has been appointed to NIOSH’s "Commercial Truck Driver Health and Safety- Preventing Injury and Illness" RFA review panel, R01 grant. She also sits on the ACGIH TLV committee for chemical substances. She is also the current chair of the Occupational Health and Safety Section of the APHA. Dr. Orris is a gubernatorially appointed member of the State of Illinois’ Board of Health, sat on the Governor’s Taskforce of Latino Worker’s Safety and has recently served on a task force of the Chicago Department of Public Health concerning care for the chronically ill. In addition he a member of the Board of the Illinois Safety Council, the Safer Pest Control Project, and chairs the Public Health Committee of the Chicago Medical Society. Dr. Krantz sits on the Governor’s Occupational Asthma Taskforce of the Illinois Asthma Partnership.

4. Trainee Research Projects

Dr. Rathin Vora graduated 3/06 – research project: Relationship between Workplace Exposures and Scleroderma.
Dr. Chalonda Hill – graduated 6/06 – research project: COPD and Occupational and Environmental Exposures. Questionnaire of subjects undergoing spironmetry in Walgreens drugstores in Chicago area.
Fatima Photowala – scheduled to graduate 6/07 – research project: Coal Worker’s Pneumoconiosis

5. New Faculty Positions

Dr. ChukwuEmeka Ezike has joined us as a part time faculty member, supervising residents in the Wed. OM clinic session. Dr. Ezike is one of our most distinguished OM Program graduates (’03). He has worked in private sector OM practice and also works as a general internist with Stroger Hospital’s Division of General Medicine.

6. New Courses

No new courses were offered in this reporting period. A research course is under preparation by Dr. Forst.

7. Trainee Recruitment/Diversity Efforts

Our selections and promotions committee is committed to recruiting women and minorities. The demographics of our current residents are as follows:

<u>4 Women</u>:	<u>2 Men:</u>
All Asian	1 African, Perm. Res.
2 US citizens, 2 Perm Res.	1 Asian, H1-B

We have two recent graduates: An Asian man and an African-American woman.

The Stroger Hospital OM Residency Program, in its 30 year history, has likely had the most diverse set of trainees of any OM program in the country. We are committed to continuing this.

D. Program Products

1. Publications and Presentations *(also see Appendix C)*

The Occupational Medicine program engages in a variety of presentations on various OM topics, throughout the year. Faculty and residents both give introductory, case-based lectures to medical students

rotating on the Internal Medicine service, four times a year; Dr. Rubin has given talks on Occupational Lung Diseases to two Family Practice programs in the community; Dr. Krantz gives lectures on Reproductive Toxicology to the graduate program in Reproductive Counseling at Northwestern University.

2. CE courses

Dr. Orris is the Director of CME for the Corporate Medical Directors Club of Chicago. CME talks are given monthly to a group of academic and corporate medical directors. The Wednesday AM OM resident lecture series is available for CME credit, and outside OM physicians regularly attend. Dr. Orris, in his role as advisor to Health Care Without Harm, The Health Schools Campaign and the UNDP/Global Environmental Facility Healthcare Waste Project, regularly gives talks on medical waste. The residents participate in his seminars when logistically feasible.

3. Courses

Dr. Orris co-directs the Occupational and Environmental Health course for MD and MPH students at the Northwestern University Feinberg School of Medicine.

E. Future Plans

1. There is a commitment to continue, on an on-going basis, to refine the curriculum to meet the needs of our trainees and of the practicing OM physician. Drs. Rubin, Buchanan and Dorevitch meet semi-monthly to discuss curricular issues.
2. Improve and expand the evaluative methods used to assess the residents' progress.
3. Conduct a patient survey to help asses the quality of care we give our patients in the OM teaching clinics.
4. Increase opportunities for outreach and research with vulnerable populations. There are several on- going projects with immigrant workers that are trainees can be part of.
5. Improve the quality of research training and product in our trainees.
6. Increase the numbers and variety of outreach efforts the trainees organize and participate in.
7. Increase trainee presentations at regional and national meetings.

III. Program Progress Report: Allied OS&H Academic Programs

A. Program Title: Hazardous Substances Academic Training

B. Program Director: Peter A. Scheff, PhD, CIH

C. Program Description

1. Goals and Objectives

The primary academic objective of the University of Illinois Hazardous Substances Academic Training (HSAT) program is to train professional research industrial hygienists, with specialized knowledge in the management of hazardous substances, at the Master's Degree level. The two major goals of the academic training program are: (1) to develop industrial hygiene practitioners with specialized training in hazardous waste management, with as much practical experience as possible within the limits of an academic program; and (2) to provide a cadre of trainees, who have aptitude for research, with research training in occupational and environmental health.

The thrust of the HSAT training is to give students both an overall appreciation of the whole process of disease detection and risk evaluation leading to hazard control, and a competence in using the methods specific to the field. The overall emphasis of the training program is to give our students quantitative skills to aid them in solving occupational problems. Significant changes to the curriculum were approved by NIOSH and adopted for the 2006/07 academic year.

2. Responsible Conduct of Science Training

In an effort to support the research endeavors of School of Public Health investigators, advance their own interest in research, and ensure that research at the University of Illinois is carried out in accord with the highest ethical standards, all students are required to receive formal training in human research subjects protection, the protection of health information, and if applicable, training in the humane use of animals in research and teaching. This formal training is organized through the Office for the Protection of Research Subjects, which also provides administrative support for the review and approval of research protocols involving humans, animals, and recombinant DNA or infectious agents. This training in research integrity, ethical behavior, and responsible conduct is also underscored in the classroom.

3. Faculty Participation

A complete list of faculty that participates in the HSAT program is summarized in Table 1. The following faculty are actively involved with the HSAT program.

Dr. Peter A. Scheff, Ph.D., CIH, is a Professor of Environmental and Occupational Health Sciences (EOHS) and is the Director of HSAT and IH programs.

Dr. Lorraine Conroy, Sc.D., CIH, Associate Professor in EOHS and Director of the ERC at the University of Illinois and is involved in teaching, research advising, and outreach activities.

Dr. John Franke, Ph.D., CIH, PE, is Research Assistant Professor in EOHS. His specialty is indoor air quality and process safety.

Dr. Nurtan Esmen, Ph.D., CIH, Professor in EOHS, is a senior research mentor with the Institute for Environmental Science and Policy at UIC. His specialty is research study design and retrospective exposure evaluation.

Mr. Salvatore Cali, CIH, Instructor in EOHS, is also the Senior Industrial Hygienist for Health Hazard Evaluations for the CDC-funded Center of Excellence in Environmental Health.

Dr. Steve Lacey is a full-time Research Assistant Professor. His specialties include exposure reconstruction and industrial hygiene.

Dr An Li, Ph.D., is an Associate Professor in EOHS. Her area of specialization is environmental chemistry.

Dr Serap Erdal, Ph.D. is an Associate Professor in EOHS. Her area of specialization is exposure assessment and quantitative risk assessment.
Dr Dan Tessier, Ph.D. is an Assistant Professor in EOHS. His area of specialization is environmental toxicology.

4. Curricula

The HSAT academic training program curriculum incorporates changes included in the recent competitive renewal of the grant. The modifications are based on key informant surveys, consultation with IH and HSAT faculty, and review of selected literature relevant to academic training programs in hazardous substances. These sources suggest that the most useful skills for personnel in middle and senior policy-making positions related to hazardous substances are:

- Toxicology
- Risk assessment
- Risk communication
- Health education
- Written language
- Comprehension of epidemiological studies

The top ten "required" subjects, according to a recent academic training program survey[1], are:

- Regulations
- Worker training in health and safety
- Waste management technology
- Pollution prevention
- Treatment technology
- On- and off-site emergency response
- Hazardous waste law
- Site remediation
- Risk assessment
- Disposal technology

The competencies advanced from these subjects make up a major portion of the competencies listed in a WHO survey of international competencies and curriculum for occupational health professionals.[2] The same publication discusses the internal and external factors related to the distinction and recognition of professions in the environmental and occupational health field.

The key informants and faculty interviewed for the curriculum decision-making suggested that:

- An increased knowledge of environmental chemistry is necessary to understand fate and transport issues for hazardous substances;
- An increased emphasis on toxicology is needed in order to understand exposure pathways;
- Knowledge of the risk assessment process is growing in importance because of the greater emphasis of risk assessments in the regulatory arena;
- Emergency preparedness is currently a top priority within both regulatory and public health agencies.

The revised requirements for obtaining an ABET Accredited M.S. with NIOSH Hazardous Waste Trainee Support are given in Appendix A. The HSAT curriculum includes three formal courses in workplace evaluation, EOHS 428 (Industrial Hygiene Laboratory), EOHS 438 (Air Quality Laboratory) and EOHS 529 (Industrial Hygiene Laboratory II). The hazardous waste trainees are also required to complete the

[1] Brosseau, L.M., Results of a Survey to Assess Curriculum Needs for Academic Training Programs in Hazardous Substances, Am. Ind. Hyg. Assos. J. 56: 905-910 (1995)
[2] Delclos, George L., et al, A Global Survey of Occupational Health Competencies and Curriculum, Int J Occup Environ Health 2005;11:185-198.

40-hour General Site Worker course and achieve certification. The Institute of Labor and Industrial Relations at the University of Illinois (Urbana) has multiple presentations of this offering, which is structured to meet the requirements of OSHA's Hazardous Waste Operations and Emergency Response Standard (1910.120). In order to maximize hands-on experience trainees are required, HSAT trainees are also requited to take part in an extended plant tests or an equivalent field test. In response to the advice of key contacts, confined space issues and respiratory protection are covered in the Hazardous Materials Management course. In addition, training in laboratory safety has become an integral part of the Industrial Hygiene field lab (EOHS 529). Students in this course, ordinarily taken in the summer at the end of the first academic year, receive train-the-trainer instruction and develop materials and lesson plans for a laboratory safety short course. The laboratory safety course is subsequently presented by the students in the fall of their second year to the first-year IH students as one of the units of the first industrial hygiene laboratory course (EOHS 428).

Within each course, the curriculum is a general mixture of skills in hazard assessment, regulatory interpretation, environmental sampling techniques, sampling results interpretation, control techniques, calculations, modeling, and critical review of literature. The curriculum is structured for completion in two years.

D. Program Activities and Accomplishments

Nineteen students have graduated from the HSAT program at UIC since its start in 1995, and five (Catalin, Dula, Nevarez, Horvatin, Patel) are currently enrolled. All HSAT graduates to date are currently working in the occupational or environmental safety and health field or enrolled in an advanced (PhD or DrPH) academic program. These 24 former and current students have produced 38 papers, posters, or presentations for professional environmental and occupational health publications and conferences as first authors and 38 more as co-authors.

E. Program Products

The location of the HSAT program in the EOHS Division has provided support for the program in several ways, including:

- Providing supplementary Research Assistantships to students in the HSAT track. All current HSAT students are working as Research Assistants on one of the funded projects housed in the EOHS Division. Three current HSAT students (Dula, Horvatin and Patel) are working for the project ”Exposure Reconstruction for a Brain Cancer Epidemiological Study in Seven Connecticut Jet Engine Manufacturing Facilities” and Bogdan Catalin, is working on the project: “Fundamental Study of Welding Fume Inhalation”;
- Providing field research opportunities for the Industrial Hygiene and Hazardous Substances Academic Training students;
- Providing salary support for Adjunct and Part-time Faculty for required courses including Industrial Hygiene Laboratory 2, Environmental Acoustics, Occupational Safety Science, Hazardous Materials Management, and Engineering Controls.
- Providing data and projects for theses and capstones requirements.

By leveraging funds from other research grants, we have consistently been able to maintain 2 to 3 HSAT trainees in the program. Note that because this is a two-year MS program, new students are not always recruited every year. Productivity of two of the most recent HSAT graduates is summarized below.

Laurel Berman entered the HSAT program in 2000 and finished the MS program in December, 2002. Her MS research topic was “Analysis of Fish Uptake and Bioaccumulation of Polychlorinated Biphenyls from Western Lake Erie Sediments” and she received support as a Research Assistant from the Joyce

Foundation and the U.S. Environmental Protection Agency Air Pollution Training Institute grant. Her work at UIC as resulted in the publication and presentation at National conferences (Berman, L. and S. Erdal, Assessment of Highly-Censored Environmental Data. Poster; Annual Meeting of the American Industrial Hygiene Association, Atlanta, GA. May 12, 2004); (Berman, L. and S. Erdal, Assessment of Highly-Censored Environmental Data. Presented at the American Industrial Hygiene Association Local Section, Chicago, February 2004); (Berman, L. The Exposure of Artist Welders to Metal Fume, Part I and II. Presented at the Tri-State Sculptors Conference, Winston-Salem, NC, October, 2004); (Laurel Berman, Daniel Hryhorczuk and Serap Erdal. Multi-Media Emissions Inventory for Polychlorinated Biphenyls in The Great Lakes Basin. American Industrial Hygiene Association Chicago Section student paper competition, March 6, 2002.); (Berman, L. (IHT) and S. Erdal (IHF). Analysis of Fish Uptake and Bioaccumulation of Polychlorinated Biphenyls from Contaminated Lake Erie Sediments and the Associated Health Risks. Presented at the Annual Meeting of the International Association of Great Lakes Research, Winnepeg, Canada. June 2-5, 2002.); and (Laurel Berman (IHT) and Serap Erdal (IHF). Multi-Media Emissions Inventory for Polychlorinated Biphenyls in the Great Lakes Basin. National Meeting of the Air & Waste Management Assoc., Baltimore, June 23-27, 2002). Dr. Berman obtained a PhD degree from the Environmental and Occupational Health Sciences at UIC in December, 2005, and is currently working for the Oak Ridge Institute for Science and Education (ORISE) as a Research Fellow on the Agency for Toxic Substances and Disease Registry (ATSDR) Brownfields Redevelopment Project.

Justin Ford entered the HSAT program in 2002 and obtained a MS degree in December, 2005. His research topic was “Recent Sedimentation Patterns of the Laurentian Great Lakes as Determined by Alpha Spectroscopy” and is partially supported by a grant from the U.S. Environmental Protection Agency. His work has been published in Environmental Science and Technology (Wenlu Song, Justin C. Ford, An Li, William J. Mills, David R, Buckley, and Karl J. Rockne. Polybrominated Diphenyl Ethers in the Sediment of the Great Lakes. 1 - Lake Superior. Environ. Sci. Technol. 38(12), 3286-3293, 2004 and Wenlu Song, Justin C. Ford, An Li, Neil C. Sturchio, David R, Buckley, Karl J. Rockne. Polybrominated Diphenyl Ethers in the Sediment of the Great Lakes. 2 - Lakes Huron and Michigan. Environ. Sci. Technol.) and presented at national workshops (Wenlu Song, Justin Ford, Dave R. Buckley, Karl Rockne, William J. Mills, and An Li. Temporal and Spatial Distribution of PBDEs and PCBs in the Sediments of the Great Lakes. 26th Midwest Environmental Chemistry Workshop. Iowa City, Iowa. Oct. 11-12, 2003 and Wenlu Song, Justin Ford, Neil Sturchio, Dave R. Buckley, Karl Rockne, William J. Mills, and An Li. Temporal and Spatial Distribution of PBDEs and PCBs in the Sediments of the Great Lakes. 27th Midwest Environmental Chemistry Workshop. Madison, WI. Oct. 15-17, 2004 and Wenlu Song, An Li, Bill Mills, Karl Rockne, David Gunty, and Justin Ford. Recent Sedimentary Deposition of PBDEs/PCBs in the Great Lakes. International Association of Great Lakes Research. 2003 IAGLR/ILEC Conference. Abstract ID: 1039628805. Chicago, IL. Jun. 22-26, 2003). Justin is currently a Ph.D. student in EOHS.

F. Future Plans

Recruitment within the College of Engineering has been greatly enhanced since IH faculty Steve Lacey has taken on the teaching of Occupational Safety and Ergonomics for the Industrial Engineering program. One of our new HSAT trainees (Shanna Horvatin) as well as several other IH students were recruited from Industrial Engineering.

We continue to incorporate as much field experience as practical into the HSAT program. We also continue to expand our base of support that we are able to use to supplement the NIOSH stipends. At the present time, no additional changes to the curriculum are planned.

Table 1. Contributing Faculty to the Hazardous Substances Academic Training Program			
Faculty	Position	Research Area	Contribution to IH Program, % (Teaching, Research, Other)
Peter A. Scheff, Ph.D., **CIH (#3197)**, QEP	Professor and Director of Industrial Hygiene	Characterization and modeling of ambient and workplace air quality; bio-aerosol characterization; environmental modeling and exposure assessment.	**Time commitment - 60%** - Teaches, EOHS405 (Environmental Calculations) and EOHS431 (Air Quality Management); research advisor; short courses; Director of Air Pollution Training Institute program at UIC.
Lorraine M. Conroy, Sc.D., **CIH (#5500)**	Associate Professor	Design of ventilation systems; TB control criteria; determination of workplace exposure to toxic chemicals; industrial welding.	**Time commitment - 50%** - Director of ERC; Teaches EOHS421 (Fund. of IH); Co-Teaches EOHS523 (Eng. Control/Ventilation); research advisor; short courses)
Nurtan A. Esmen, Ph.D.,	Professor	Environmental and Occupational epidemiology and exposure assessment.	**Time commitment - 20%** Senior research mentor and research advisor; Teaches EOHS557 (Design and analysis of experiments).
Rosemary Sokas, M.D., MOH	Professor and Director, EOHS	Applied, translational occupational safety and health organizational work targeting small businesses and vulnerable populations	**Time commitment – 10%** Teaches EOHS400 Introduction to Environmental Health Sciences; Field research; Director of the academic program.
Salvatore Cali, MPH **CIH (#7423)**	Senior Research Specialist	Indoor and Industrial air quality, bio-aerosols, lead and asbestos.	**Time commitment - 25%** - Deputy Director of Industrial Hygiene; teaches EOHS428 (IH Laboratory); contributes to short courses and outreach activities.
John E. Franke, Ph.D., PE, **CIH (#1464)**	Research Assistant Professor	Workplace characterization and estimation of personal exposure; TB confinement; emission factors.	**Time commitment - 45%** - Teaches EOHS570, Haz. Mat. Management and Co-Teaches EOHS523 (IH Engineering Control/Ventilation); Field research; short courses.
Steve Lacey, Ph.D.	Research Assistant Professor	Estimation of personal exposure; emission factors.	**Time commitment - 100%** - Jet Engine Manufacturing Project; Research advisor; teaches IE461 (Safety Engineering) and teaches emergency response for EOHS408 (Biological, Chemical, Explosives, and Nuclear Weapons as Public Health Threats)
John Standard, M.S., MPH, **CIH (#2164)**, CSP	Lecturer, Adjunct	Hazard evaluation and safety control	**Time commitment - 10%** - Teaches EOHS482 (Occupational Safety Science).
Michael Selway, M.S., **CIH (#2695)**	Lecturer, Adjunct	Noise evaluation and control; field studies.	**Time commitment - 20%** - Teaches EOHS424 (Environmental Acoustics) and EOHS529 (IH Lab. II).
Daniel O. Hryhorczuk, M.D., MPH	Professor	Occupational and environmental epidemiology and toxicology.	**Time commitment - 10%** - Teaches, IEOHS554 (Occup. & Environ. Epi.); Research advisor; Short courses.
An Li, Ph.D.	Associate Professor	Environmental Chemistry	**Time commitment - 10%** - Research advisor; Teaches EOHS440 (Chemistry for Environmental Professionals)
Dan Tessier, Ph.D.	Assistant Professor	Environmental and Occupational Toxicology	**Time commitment -10%** - Research advisor; Teaches EOHS455 (Environmental and Occupational Toxicology)
Serap Erdal, Ph.D.	Assistant Professor	Exposure assessment, risk analysis	**Time commitment - 25%** - Research advisor; Teaches EOHS438 (Air Quality Lab); EOHS556 (Risk Assessment)
Linda Forst, MD, MPH	Associate Professor	Worker health; epidemiology of workplace disease and safety.	**Time commitment - 10%** - Research advisor.; teaches EOHS551(Occupational and Environmental Diseases)

III. Program Progress Report: Allied OS&H Academic Programs

A. Program Title: Agricultural Safety and Health Academic Training

B. Program Director: Robert Aherin, PhD

C. Program Description

1. Goals and Objectives

The goal of the agricultural safety and health academic training program is to provide graduate and undergraduate students who are seeking careers in agricultural and rural-related professions including health professions with a basic foundation in agricultural safety and health. The main program objectives are to 1) provide students with a strong base of understanding of the occupational safety and health hazards and issues facing production agriculture; and 2) familiarize students with the primary injury control methodologies of behavioral persuasion, engineering design, and regulation or enforcement and their related strengths and weaknesses of effecting injury and occupational illness rates among agricultural populations.

2. Faculty Participation

The following table displays core and supporting faculty with their specific areas of expertise

Name	Core	Supporting	Areas of Competence
Robert Aherin, Ph.D	X		Agricultural injuries, safety behaviors, confined space entry, injury/illnesses intervention, systems analysis
Robert Petrea, PhD	X		Agricultural injuries, safety behaviors, safety leadership development
Anne Krantz, MD, MPH		X	Occupational medicine, agricultural chemical toxicology
Linda Forst, MD, MPH		X	Emergency medicine, agricultural diseases & illnesses

3. Curricula

A copy of the minor course curricula is included in the Appendix and list the three core agricultural safety and health courses and the electives in the program. Graduate students a generally required to take all three core courses. To obtain graduate credit for these courses graduate students are required to complete a more rigorous project for each course than what is required of the undergraduates participating in the course.

D. Program Activities and Accomplishments

1. Progress Toward Goals and Objectives

a) There was funding to allow support for partial stipends for two graduate students and three undergraduate trainees. The two graduate trainees and two of the three undergraduate trainees held traineeships during the previous year. Thus, there was only one opening for an undergraduate trainee during this program year. The new trainee selected was in the Agricultural and Biological Engineering Technical Systems Management program. His goal is to be a co-manager and operator of their large family farm operation.

b) One MS trainee graduated in May 2006 with a degree in Human and Community Development. She took a position with Kansas State University as the youth program coordinator for Lawrence county Kansas. This is the second largest populated county in Kansas. A portion of her duties involve developing and implementing agricultural and rural youth safety programs. The second MS student will graduate in the Fall of 2006 in the Human and Community Development. This student had originally been in a PhD program but dropped out of the program early this year and decided to instead graduate with a second M.S. degree. Her first M.S. degree was in animal science. This student has been a trainee for two years and will not be under contract as a trainee during the fall semester. She wants to focus on completing her thesis and looking for a job. One undergraduate student trainee graduated with a BS in Technical Systems Management in May of 2006. He is Hispanic and applied for and was accepted into the University of Illinois Chicago MS Industrial Hygiene program. He was also offered an ERC NIOSH graduate traineeship in that program which he entered this fall. His current interest is a career focused on occupational health and safety issues of migrant agricultural workers. During this past year our program supported his participation in the 30 hour OSHA certification program and the OSHA compliance Hispanic training certificate program. A number of employers who had Hispanic workers tried to persuade him to come work for them in the Occupational Safety and Health area but he decided to take the opportunity to enter the MS Industrial Hygiene program. He became familiar with the program through his agricultural safety and health training and his interaction with faculty and staff of the UIC Great Lakes Center. Two undergraduate students are continuing in 2006 to 2007 as agricultural safety and health trainees. After learning of our approved budget for the 2006 to 2007 year we had openings for two new partial graduate student traineeships and one undergraduate traineeship. We received six applications for the two graduate student traineeships and 8 applications for two new undergraduate traineeships that were available. One of the graduate students selected for a traineeship is a second year veterinary medicine student. His career goal is to have and/or work in a practice focused on serving agricultural animals. He realizes the influence veterinarians can have on promoting occupational health among agricultural producers and would like to devote a portion of his career to this effort. The other graduate student is an MS student majoring in Natural Resources and Environmental Sciences. She grew up on a farm and has a strong interest in a career that would have a significant focus on agricultural safety and health. A significant aspect of this interest stems from losing her father in a farm accident. The new undergraduate trainee is in the Animal Science BS program. She grew up on a farm and has a strong interest in devoting a significant portion of her career to agricultural safety and health issues particularly associated with the livestock industry. She has interest in being one of the first students to complete the minor in agricultural safety and health. The other two undergraduate students are in their second and third years as a trainee respectively. The one who is in his third year is a senior in Technical Systems Management. The other trainee is also in this program and is a sophomore. These two students are brothers and will be managing a fairly large farming operation when they graduate. Their farm employs several employees. They both have the desire not only to use what is learned through the traineeship program to better manage injury/illness risk on their farm but also to be advocates for safety in the agricultural industry. These new trainees will start their traineeships in the fall 2006 semester.

c) Trainees had the opportunity to collaborate with other Great Lakes Center ERC trainees at a program that was held at the University of Illinois Great Lakes Center in they attended in February this year. Trainees also participated in the weekly seminars hosted by the Great Lakes Center through our computer based communications system as their schedules permitted. Two of the trainees attended and participated in a regional

agricultural safety and health seminar for professionals that was sponsored by the NIOSH Agricultural Center at the University of Iowa.

d) All three-core agricultural safety courses were offered. The three core courses included Agricultural Injuries, Agricultural Illnesses and Diseases, and Analysis and Control of Agricultural Injuries and Illnesses. All three of the core courses are 3 credits and may be taken for graduate credit. Graduate students are required to develop and complete a more rigorous project than what is required of undergraduate students. One student completed an internship this summer with University of Illinois Champaign/Urbana campus occupational safety and health office. Four students completed an independent study course on an agricultural safety and health research topic. There were a total of 20 students who completed the courses. Three of the 20 students were graduate students. Students participating in the courses were from a variety of disciplines including agricultural engineering, agricultural technical systems management, horticulture, agricultural education, animal science, agricultural consumer economics and plant sciences. A variety of guest lecturers who had specific areas of expertise have been used in the core agricultural safety and health courses.

e) In addition to the agricultural safety courses the trainees took courses on our approved listing of elective courses for the program. The courses taken during the program year included epidemiology, safety engineering, foundations of health behavior, and basic toxicology. During the coming year it is anticipated that some of our trainees will participate in one or more online occupational health courses offered by the Great Lakes Center.

f) The application to offer a minor in agricultural safety and health was approved by our department and college during the program year. It is now being reviewed at the campus level. In is anticipated that the program will be approved during this fall 2006 semester. The three core courses were also approved as regular courses as opposed as experimental courses which is how they have been listed. By having the courses listed as regular courses they will receive enhanced exposure throughout the university. This should help enhance course enrollments. .

g) The program advisory committee did not meet during this program year but will meet in late 2006 or early 2007 to review the program and its progress.

h) The NIOSH support has allowed for Dr. Aherin and Dr. Petrea to be provided with teaching appointments so that they can teach the program courses. The support has provided students who have a strong interest in agricultural safety and health a significant academic focus in this area. The funds are preparing professionals who are entering either the agricultural or rural health professions with a more technical and scientific basis in agricultural injury and illness causation and prevention. This should lead to more effective programs and policies in agricultural safety and health.

2. Faculty Honors, Awards & Appointments

Dr. Aherin was awarded the College of Agriculture, Consumer and Environmental Sciences Senior Faculty Award for Excellence in Extension. Dr. Aherin, who is a tenured professor, was approved to change the 30 percent teaching portion of his appointment to a permanent appointment from a temporary appointment. His teaching appointment was listed as temporary when this program was initiated because his prior appointment was in the areas of extension (outreach) and research. This provides an enhanced commitment to this academic program by the university. There are no current changes proposed for the coming year in program leadership or faculty from the initial proposal.

3. Trainee Recruitment Including Diversity Efforts

As previously stated under the activities section there was only one opening for an undergraduate trainee this year because four trainees from last year continued in the program this year. This traineeship was

promoted throughout the University to selected departments who had programs that could lead to careers in some type of agricultural or rural health area. These included all the college of Agriculture, Consumer and Environmental Sciences (ACES), college of Medicine, college of Nursing, the department of Community Health and the College of Veterinary Medicine. Minority students had equal access to the information about the program. Additionally, the Hispanic student who graduated this year in the program discussed the program with other Hispanic students whom he thought might have interest. Two of the five trainees were females and they held the graduate traineeships.

E. Program Products

The following are citations of publications and presentations involving program faculty and trainees:
Morehouse, E.E, D.B. Reed & R.A. Aherin. Injury experiences of farm women over 50. Paper No. 23-06 National Institute for Farm Safety annual conference, Sheboygan, Wisconsin, June 2006.

Aherin, R.A. (2005). Cooperative extension service research to practice history and capabilities in agricultural safety and health. Invited presentation. 2005 Midwest Forum on Agricultural Safety and Health. University of Iowa, Iowa City,IA.

Aherin, R.A. & G.E. Erisman. Agricultural Injury Causation. Presented at the 2006 National Institute for Farm Safety short course. June, 2006.

Professional presentations presented by Dr. Robert Petrea during program year:

University of Illinois at Urbana-Champaign, College of Medicine, RMED program – 20 participants. Continuation of yearly presentation to R1 RMED students.

Continued placement of two ATV safety presentations in FCAE preferred PowerPoint format, *ATV-Riding Legally* and *ATV – Statistics and Characteristics*, using edits of reviewers and placement on the Illinois FFA/Illinois Association of Vocational Agriculture Teachers website.

Presentations to administrators and personnel at Black Beauty Coal Company, Knight Hawk Coal Company and Independent Gravel Production on rural agricultural transportation issues and on risk awareness and personal behavioral factors in occupational settings.

Distributive Justice and Disparities in Rural America: Implications for Health Policy, UIUC Rural Health Policy Seminar ACE 592: *Overview of Agricultural Safety and Health*

Backstretch Workers Health Disparities, Arlington Chicago Racetrack, Explain and conduct survey on injuries related to working with horses at the track.

Health and Injury Issues Related to Aged Farmers: Presentation at NORA 2 public record meeting in Seattle, WA.

Behavioral Motivations and Underlying Influences: Southwestern Holmes Safety Association (coal mine and aggregate producers).

Behavioral Motivations, How They Influence Everyday Decisions: Missouri Farm Bureau and Missouri Department of Natural Resources

*Injury Experiences in Agriculture: Personal Recollection*s: Presentation to SIU-Carbondale Freshman Medical Students

F. Future Plans

1. Offer the agricultural illness and disease course for the 2006 fall semester
2. Offer the agricultural injury and the analysis and control courses for the spring 2007semester.
3. Each graduate student will complete at least one agricultural safety and health related study and submit at least one article for publication in a referred journal.
4. Minor receive final university approval and promoted among students.
5. Offer in the spring and/or summer a university graduate credit short course in agricultural safety and health for working professionals.
6. Provide opportunities for trainees to participate in collaborative activities with other ERC trainees.
7. Provide opportunities for trainees to attend regional and national conferences and workshops that relate to agricultural safety and/or health or occupational safety and health.
8. Provide internship opportunities for trainees and other students.
9. Meet with program advisory committee.

III. Program Progress Report: Continuing Education Programs

A. Program Title: Occupational Safety and Health

B. Program Director: Leslie Nickels, MEd is the full time academic professional and Program Director of CE, Deputy Director of the ERC and Executive Director of the Great Lakes Centers. Joseph Zanoni, MILR, is full time academic professional and Associate Director for CE. School of Public Health administrative staff who actualize the CE program are Marilyn Bingham, MS, Natesa Sutton, Jackee Wuellner and Barbara Harper Smith. Katie Quealy was hired as Program Coordinator on May 1, 2006 to complement program operation. CE components include occupational medicine, occupational health nursing, industrial hygiene, and safety as well as targeted programs in Agricultural Safety and Health and Hazardous Substances.

C. Program Description

1. Goals and Objectives include:

a) Define and address the needs of the occupational and environmental health and safety community in Illinois, Wisconsin, and Indiana by offering short courses and coordinating activities.
b) Continue to develop partnerships with local occupational and environmental health and safety professional associations, government agencies, and non-governmental organizations (advocacy groups, labor organizations and trade associations) to conduct needs assessments and training programs.
c) Develop training programs using the best learning context including, conferences, workshops, seminars, laboratories, small group activities, one-on-one mentoring, self-study, and field trips.
d) Identify the most effective training methods and tools for delivering training including case studies, small group activities, presentations, demonstrations, videos, web-based, CDROM, video conferencing and problem solving scenarios.
e) Identify underserved and minority populations and develop continuing education initiatives to meet the needs.
f) Develop teaching and training knowledge and skills in students in the academic program areas.
g) Create interdisciplinary opportunities for faculty, staff, students, and professionals through course implementation.
h) Increase resources (financial and faculty) for program development and implementation.
i) Evaluate the continuing education program for student satisfaction, instructor and material quality, implementation outcome and program effectiveness in meeting its goals.

Continuing Education (CE) is one of the four programs of the Illinois Education and Research Center. The Illinois ERC is one of five Centers within the Great Lakes Centers for Occupational and Environmental Safety and Health (GLC), a multi-institutional and multidisciplinary center that provides professional education, research and services in occupational safety and health to Illinois and portions of Indiana and Wisconsin. CE is administratively based at the University of Illinois, School of Public Health in the Division of Occupational and Environmental Health Sciences and has component programs in Agricultural Safety and Health and Hazardous Substances. CE's mission is to provide continuing education to occupational and environmental health and safety professionals and workers to improve their knowledge, leadership and technical skills, and awareness of key issues in occupational safety and health.

In the current reporting period, Ms. Bingham became a Program Manager in a newly created position. Additionally, Ms. Virginia Warren continued her appointment as a 51% Program Coordinator. Ms. Sutton's time has been reduced. Staff development includes Mr. Zanoni participating in academic course work in curriculum studies. Ms. Nickels completed her preliminary written examination in curriculum studies.

2. Faculty participation in CE is described in program areas below:

a) Occupational Medicine

The goal of the occupational medicine continuing education activities is to reach out to various groups of physicians including occupational medicine physicians and primary care physicians. In this reporting period Susan Buchanan, MD, MPH became program director for occupational medicine of UIC program. Dr. Buchanan has participated in continuing education and outreach. Additionally, Dr. Dorevitch and Dr. Orris continue to provide leadership in offering continuing medical education. Dr. Rubin, program director of the Stroger Hospital occupational medicine program advises on CE programs.

b) Occupational Health Nursing

The OHN Program has completed the successful leadership transition by recruiting Dr. Shannon Lizer, DNSc, FNP, MS, RN as the OHN Program Director. Kathryn Johnson, MS, RN is the coordinator of the OHN Program. Additionally, Jacqueline Wuellner, RN, MPH, Occupational Health Nurse with the Stroger Department of Environmental and Occupational Health Nursing, has an appoint to coordinate nursing CE with Marilyn Bingham. Becky Mishack from the Occupational Health Services Institute acts as liaison to two local AAOHN chapters and facilitates sponsorship of continuing education.

c) Industrial Hygiene

The industrial hygiene faculty have a strong and long commitment to CE. Lorraine Conroy, ScD, CIH provides important leadership on CE activities and has a role at least half of the CE courses. Stephen Lacey, PhD is active in both IH and Safety continuing education. Dr. Lacey redesigned the industrial hygiene review course which will we anticipate offering in 2006-2007. Additionally, Dr. Lacey and Ms. Nickels represent the Illinois ERC on the AIHA Chicago Chapter program planning committee. Peter Scheff, PhD is the principal instructor for the Air Pollution Training Institute.

d) Safety

Faculty for safety programming is primarily supported by advisory committee members and safety professionals through our partnerships with ASSE, AIHA, OSHA On-site consultation program, and OSHA. Dr. Lacey teaches safety through UIC College of Engineering and will work with CE to plan safety courses for the 2006-2007 program year.

D. Program Activities and Accomplishments

1. Progress toward Goals

We meet our first two goals to define and address the needs of the occupational and environmental health and safety community in Illinois, Wisconsin, and Indiana by offering short courses and coordinating activities and partnering with local occupational and environmental health and safety professional associations, government agencies, and non-governmental organizations by our continuing work with occupational physician organizations to provide programming in occupational medicine and globalization, partnering with national occupational nursing faculty to present programs to local participants, presenting the research by industrial hygiene program doctoral students on welding to local professionals and presenting the collaborative national research of UIC and UCLA faculty on the occupational safety hazards of day laborers to local community based participatory research partners.

We develop training programs using the best learning context and identified the most effective training methods and tools for delivering training by creating conferences and workshops to meet the needs of our partners such as the UFCW National Conference for Health Care Workers held in Chicago, to facilitate the work of professionals providing environmental training by arranging for field trips to specific urban brownfield sites for review and analysis of course participants and to provide the development of distance based learning in the area of the GeoLibrary and the radon continuing education program.

We identified underserved and minority populations, developed continuing education initiatives and developed interdisciplinary teaching and training knowledge and skills in students in the academic program areas through the NIOSH Pilot Project of Leslie Nickels. In the project we partnered with four worker's centers in Chicago and involved IH trainees Nadine Remington and Julia Lippert in the qualitative research to understand the worker organizing activities of the centers and how this action relates to occupational safety and health. As a complement to this work we invited Drs. Nik Theodore and Abel Valenzuela to present their work on the National Day Laborers Survey to our community based participatory research partners, UIC program faculty and students. We also invited Dr. Jane Lipscomb, PhD, RN, Professor of Occupational Health at the University of Maryland School of Nursing, to present an interdisciplinary seminar to faculty and students on community based participatory research in occupational health.

We increase resources (financial and faculty) for program development and implementation through negotiating a contract with the Illinois Emergency Management Agency for our radon continuing education program which funded a collaboration with the Chicago Department of Public Health (CDPH) to provide an IH trainee to support the CDPH radon measurement program. We continue to evaluate the continuing education program for student satisfaction, instructor and material quality, implementation outcome and program effectiveness in meeting its goals. One example is a telephone conference this Spring with radon field instructors to evaluate the field component of the hybrid courses in measurement and mitigation. One field instructor created a letter for course students which provided ground rules and expectations for their interactions with home owners during the field visits. We decided to implement this letter as policy for all field experiences to enhance the course experience for participants, instructors and home owners.

E. Program Products

1. Occupational Medicine

This year we continued to offer three courses with Category I CME and completed CME application renewal for the Occupational Medicine Series. Occupational medicine UIC-SPH faculty have an exceptionally strong commitment to CE. In its third year, the Medical Directors Club encourages the participation of occupational medicine providers in the community to present case studies from their practices and to learn from the university-based research and teaching faculty. Examples of the programs topics include: Occupational Asthma, Occupational Medicine in OSHA and NIOSH, Corporate Occupational Health Services in an Era of Globalization and Pros and Cons of Drug Testing Utilizing New Media: Hair and Saliva. In March, 2006 we participated in the Central States Occupational Medical Association meeting. Faculty will teach in short course and we will staff and exhibit.

2. Occupational Health Nursing

During the current reporting period, the continuing education program provided administrative support to for the AAOHN chapter in Peoria. In cooperation with the American Lung Association Greater Metropolitan Chicago Chapter offered scholarships to NIOSH trainees to participate in the NIOSH approved Spirometry Course in the fall, 2005. Based on the success of this course the ALA of Metro Chicago has contracted with the Illinois ERC to fund this course in March, 2006. In the Spring, 2006 OHN began the course planning process for a case management course on work-related injuries to be

offered in Chicago and to satellite sites in Rockford, Quad-Cities, Peoria, and Champaign. On April 21, 2006 the CE program supported the conference titled: Nursing Unions in Illinois: Formula for the Future organized by the UIUC Chicago Labor Education Program. Dr. Helena Worthen provided a context on nurse organizing and Ms. Suzanne Gordon described her research with nurses in writing her recent book titled: "Nursing Against the Odds." She described the occupational stress of nurses and engaged the participants in discussing and planning future events to address stress and other work related issues of nurses.

3. Industrial Hygiene

Industrial hygiene program planning is conducted in conjunction with faculty and local section of the AIHA. Course highlights for this reporting period include Occupational Health Tour of Historic Pullman. In April, 2006 the Illinois ERC will provided program support for the International Ventilation Conference in Chicago and for AIHCE. Additionally this spring continuing education began the planning process to host a seminar on the history of the settlement house movement on occupational safety and health and its relationship to present day health and safety issues. A series of meetings were held with collaborators including Hull-House Museum, the College of Nursing, Women and Gender Studies, the Chicago Labor Education program, the Newberry Library and the Heartland Foundation. In June, 2006 IH offered a two day Healthy Homes course in Chicago and began plans for holding this course in the summer and fall in Chicago and Oak Brook. CE continues to support the work of the Air Pollution Training Institute lead by Dr. Peter Scheff, IH faculty. Two courses: Emission Capture and Gas Handling System Inspection and Principles and Practice of Air Pollution Control were offered during this period.

4. Safety

Reputation and strength of the safety program is measured by the great response to the regional OSHA/ASSE conference where talented and experienced safety professionals present on a wide variety of topics. The success of this collaboration is evidenced by the on-going positive relations between the planning partners who completed the fifth annual conference in September 2005 and are moving into the sixth annual conference. There continues to be strong interest in our hybrid on line and field experience radon measurement and mitigation courses. The new continuing education course: A Critical Thinking Approach to Radon Mitigation was debuted at the Illinois Radon Education Day sponsored by Illinois State University Environmental Health Program for 50 participants.

5. Other

In other continuing education activities our program has been active in collaboration with professionals at EPA Region 5 to present the Midwest Summit on Sustainable Redevelopment of Brownfields in Davenport, Illinois and the Green Makeover Conference in Milwaukee, WI. Both events presented interactive learning activities for professionals including field trips to environmental sites and planning charettes in which participants created development plans incorporating environmental principles into the design.

F. Future Plans

Continuing Education program plans for the next budget period include creating a map of occupational health continuing education providers and potential collaborators in our region. Through this process we hope to better identify programs that are meeting regional continuing education needs and to focus on the synergy of developing enhanced partnerships to provide continuing education in a range of program formats.

In the area of occupational medicine we are working to migrate the successful Envirorisk course which teaches basic occupational health investigation skills from the CDC to the UIC internet environment. We plan to provide enhanced communication and marketing related to our bi-weekly occupational medicine seminars through our web site. We will also explore the possibility of presenting occupational health

skills for primary practitioners through the Illinois Health Education Consortium and their distanced-based provider network. Also under consideration is a program directed to pandemic flu preparation for small businesses which may include direction of Dr. John Halpin, MD, MPH, Illinois Public Health Fellow and Ms. Joan Burton of Injury Prevention Foundation of Ontario, Canada.

In the area of occupational health nursing we will continue our successful partnership with the American Lung Associate of Metropolitan Chicago to provide the NIOSH approved Spirometry course and to develop two other occupational health nursing offerings. Additionally, we plan to further our recent efforts with two local AAOHN chapters to support their continuing education programs.

In the area of industrial hygiene we plan to continue our successful collaboration with the Chicago Chapter of AIHA though developing a student chapter at UIC and working with Dr. Steve Lacey to develop a program on diisocyinates to be held during March, 2007. The Healthy Homes initiative will continue with faculty skill development and exploring a cooperative program with the Cook County Department of Public Health.

In the area of safety, Leslie Nickels will work with Ms. Diane Turek, Area Director, OSHA Chicago North Office to explore expanded partnerships. Related to the health in the arts program, a theater safety and health program is planned for high school theater technical directors in cooperation with the Occupational Health Service Institute, Illinois EPA, Illinois Waste Management Research Center and the Art Institute of Chicago.

In the area of other programming, we plan to continue our successful collaboration with Truman College Business and Industry Services, Northern Illinois University National Safety Education Program, OSHA Calumet City Area office and Illinois On-site consultation program to continue our series of OSHA 10 hour general and construction industry classes in Spanish.

III. Program Progress Report: Continuing Education Programs

A. Program Title: Hazardous Substances Training

B. Program Director: Leslie Nickels is the Program Director. The HST Project was begun on July 1, 1993. Symantha Aydt is the Project Coordinator for the HST Project and the Program Coordinator for the NIEHS Worker Health and Safety Cooperative Agreement – University of Illinois Hazardous Material Training Program at the University of Illinois-Urbana/Champaign. The Hazardous Substance Training program is part of the Continuing Educational and Outreach Program located at the Great Lakes Center at the University of Illinois-Chicago School of Public Health. However, the majority of the courses are offered through the Institute of Labor and Industrial Relations at the University of Illinois at Urbana Champaign. This program also houses the NIEHS Worker Health & Safety Cooperative Agreement – University of Illinois Hazardous Material Training Program as well.

Ms. Nickels has over 20 years of experience in health and safety and is the Program Director for Continuing Education at the Occupational and Environmental and Occupational Health and Safety Education and Research Center at the University of Illinois-Chicago. Ms. Nickels began working with the NIEHS Worker Health & Safety Cooperative Agreement – University of Illinois Hazardous Material Training Program in 1990 and became Project Director of the NIOSH HST Project in 1999. Ms. Nickels is a member of the ERC Executive Committee and a member of the School of Public Health faculty. The implementation of the CE/O program plan, in coordination with each program area, is directed by Ms. Nickels.

Symantha Aydt is the Project Coordinator for HST as well as the Program Coordinator for the NIEHS Worker Health & Safety Cooperative Agreement – University of Illinois Hazardous Material Training Program. She has experience in emergency response, environmental clean-up and training. She is responsible for marketing, course administration, program materials, and acts as liaison with course instructors and participants. She is a board member of the Macon County Community Environmental Council as well as the Eastern Illinois Safety Network. She is also on the two LEPC Audit and Hazard Analysis Committees for two local counties.

C. Program Description

HST program develops and conducts continuing education programs for public sector employers and employees. The goal of the program is to provide training to occupational health and safety professionals to improve their knowledge, technical skills, and awareness of key issues related to hazardous substances. This includes remediation, transportation, emergency releases, and the control, reduction and safe handling of hazardous substances. Proposed courses reflect the technical needs of occupational safety professionals. Training is targeted to state, county, municipal employees as well as other governmental jurisdictions with the exception of federal employees.

The program objectives include continuing to develop excellent instructional materials and training programs that will enable public sector professionals in the field of hazardous substance response and its remediation to better carry out their job related responsibilities. We will also attempt to maintain our success in seeking participation from the region and from an increased number of government agencies. We will continue to look for methods of enhancing our training methods and materials for students as well as sending instructors to classes/conferences to help maintain/enhance their skills and knowledge.

D. Program Activities and Accomplishments

In addition to courses listed in Table 12a and b faculty have participated in local, state and national efforts around hazardous substances including: Raymond Kay participated on National Review of State Plans, Bill Lester participated on National Review of State Plans, and David Tomlinson and Sean O'Kane responded to Katrina.

Specific goals for 2005-2006 included:

a. Work with local health, fire and police departments to develop programs for planning and responding to hazardous materials incidents. We will specifically focus on the needs of local health departments and their role in hazardous substance response and emergency planning committees (LEPCs)

In the fall of 2005, our program supported training with a local police department to "specialize" their training. The program has had several discussions with local police departments, however, there has not been follow-thru on the programs from the police departments. We will continue outreach to this audience. We were also asked to work with a LEPC, to assist several volunteer firefighters obtain their "firefighter" II certification. While we could present an awareness class, it would not count towards their certification process with the State Fire Marshall. We are currently investigating sources to help them obtained the required training.

In order to develop the table top for our refresher course, we utilized several experts in the field to develop the scenarios. The scenarios were pilot tested with HST professionals for their ideas prior to using the materials in a class.

Our outreach efforts to local and state agencies continue to be extensive and frequent. We distribute our training schedule to local health departments. We conduct outreach to county emergency managers to check if they have staff members or other county officials needing training that we could provide. We contact police departments. Our trainees come from all levels of government within the state. We have trained some of the local airport maintenance staff to meet their required training and have trained an individual from a solid waste department of a local county who no previous Hazwoper training. Additionally, we have also had discussions with this program about the cost involved in training prisoners who may handle waste on a work release program. These discussions are in the feasibility/cost stage.

Finally, we have worked for several years with the largest water plant in the world. Prior to our training, they have had limited 40 hour hazardous waste worker training only when provided to them by the local unions. The facility relies on city of Chicago Emergency Response teams for emergencies. But the facility's ability to respond and quickly handle a leak or spill may lower what is potentially a major risk to the city through our training. We plan to continue the excellent relationship that we have had with this facility.

b. Reduce cost of training for public sector employers by developing

We have developed alternative course delivery schedules and offer a partial scholarship policy – in order to assist a greater portion of the target population. We have adopted a policy of offering partial scholarships to lower the over cost of the programs and to assist more students in receiving grant money.

Few of our students pay full tuition. We attempt to give them provide partial scholarships to support as many public sector employees as possible. However, we provide full scholarships based on need. The need for scholarship support far exceeds the funding. Additionally, once a student is trained they continue to need scholarship support for refresher training as well. Also we have noticed that some of our state employees are being denied funding for their training (mainly, refresher). We have explored ways to our

reduce costs for example we investigated the possibility of purchasing our NIOSH Pocket Guides through NIOSH at a reduced rate. The Pocket Guides are a significant expense for the 40 hour hazardous waste worker course; however, this option has not been realized.

E. Program Products

Over the past year, we have spent time updating courses with new materials as well as increasing the value of the power points presentations that are utilized to guide all our programs. There is a continual process of making these programs better with pictures of incidents, various containers used to hold hazardous materials and visual explanations. We provided our participants in refresher courses with Update sheets ("Update 2005") that were developed to summarize important updates in regulation, technology and products. For the past year, we had talked a company that owns PEAC (software to look up chemical information) to provide disks of their program for clients to try out. We have also recently offered a local emergency manager the use of the PEAC program to determine its worth for estimating an evacuation area immediately following a spill. His county houses several major chemical facilities as well as having some major railroad and trucking traffic. We also showed our clients some other products which were available free Online such as DuPont™ SafeSPEC™ and WISER. In our programs, we required that students utilize the programs while working through exercises or scenarios of our table top performance based refresher classes. This helps to familiarize them with the programs. For our refresher classes this past year, we developed a performance based refresher class which contained basic refresher information and then led into two table top scenarios. The complexities of the exercises involved stream remediation to air borne chemical hazards. The need for this development of different course materials was response to students wanting something different than the same book same information every year. Response to the performance based refresher table top course was positive and interaction among students was excellent.

Sample anecdotes from course participants include:

Sam Hale III, IEPA--- "We used the NIOSH pocket guides to look up and assess a fungicide that was being used while employees were working. The complaints were validated. More training/education is required."

IEPA, Bureau of land –Voluntary Cleanup (agency identified no name) – "We reviewed many technical reports. Since 8 hour training began, I have utilized the NIOSH pocket guide frequently to learn more about the chemicals of concern that are being addressed in the reports."

"We have had to remediate several small spills in our building. The refresher "chain of command and decontamination lectures" have been very helpful for our in-house incidents."

F. Future Plans

Specific goals for 2006-2007 include:

1. Work with local health and police departments to develop programs for planning and responding to hazardous materials incidents. We will specifically focus on the needs of local health departments and their role in hazardous substance response and emergency planning committees (LEPCs). Chicago faculty will continue to help locate new officials at local level and state health departments based on the location of classes being offered. There also appears to be a need for the hazardous substance training at waste facilities, water plants and aviation locations that are run by local government. We continue to seek out on local, county, and state officials to provide training needed within our state.

2. Continue to reduce cost of training for public sector employers by developing alternative course delivery schedules as required and by offering partial scholarship policy – in order to assist a greater portion of the population, we have adopted a policy of offering partial scholarships to lower the cost of the programs and to assist more students in receiving grant money. Course participants who attend the 40 hour program are often still need assistance in attending refresher courses. Thus we often continually are committed to help maintain training competencies at agencies, institutions or facilities once established. Recently some previously supported participants due to budget restrictions are loosing their agency support and requesting scholarships. We will continue to support them when possible.
3. Develop the course materials and provide a supervisor course for those who will be managing staff at a site and preparing for response to a hazardous substance event. This course provides an additional 8 hours of training under OSHA 29 CFR 1910.120. This goal comes in response to several requests for the course this year.
4. Develop a summary of changes pertaining regulations and rulings as well as new technology being developed and products which relate to students. This is developed yearly and handed out to students primarily in refresher courses.
5. Develop information from FEMA's National Incident Management System (NIMS) IS-700 course information into our normal 40 hour programs to comply with the NIMS. It is important that all individuals at any type of incident be able to respond in a standardized national method to be able communicate with other response personnel. Update all course materials to comply with NIMS. Heighten awareness of the IC module as implemented by homeland security measures at the state and local levels. Provide specific indoctrination how class individuals should utilize the IC system and how their role supports the national response plan.
6. Attempt to establish partnerships with community colleges to deliver training and provide resources to their courses as well as their staff.
7. Assist local employees with providing specialized training by their employees within their facilities as well as assistance in interpretation of regulation requirements on an as needed basis
8. Continue to focus training efforts on a systemized approach to addressing hazardous substance incidents in our courses. These programs have been identified as highly important and relevant to public sector agencies in Illinois.
    a) Develop container recognition exercise for students for classes utilizing model trains.
    b) Develop scenarios to test participants on response to hazardous material incidents include issues such as accountability, staging areas, site control of employees, varied hazardous materials, incompatibles, contamination issues (land, air, water), and evacuation. Walk through the details of a response.
    c) Heighten awareness of local emergency response plans and how class participants can utilize their local plan as well as identifying the potential role of participants within respective plans.
    d) Heighten awareness of major emergency plan mandates and identify site specific related issues, i.e. plan development, implementation, drills and periodic assessment.

We continue to work to increase the number of types of classes, students attending and locations for classes. Scheduling for classes can be dynamic to meet particular client needs. Classes may be specialized to meet particular agency needs (Lab Safety, DOT Regulations, Hazard Recognition, etc.) There have been requests for varying class times. We are willing to accommodate any request as required within reason and avoiding excessive costs associated with these request.

In 2006-2007, we plan to offer specialized courses to our audience of public sector workers ranging from 0.5-5 days as follows. We plan to offer 3-40 hour General Site Worker (GSW) courses, 3-40 hour Technician level courses, 7-8 hour GSW refresher courses, 3 Emergency Response Refreshers (Technician). This totals 16 courses that we plan on offering through out the year as open enrollment courses. These classes will be heavily marketed and space offered to public sector employees on a partial scholarship basis.

The HST project will continue to work with the NIEHS program to offer 40 hour initial and 8 hour refresher courses and scholarships to public sector employers and employees. This has been identified as the greatest need for public sector employers. In 2006-2007, we will continue to place a special emphasis on local health departments and similar public sector departments to identify staff to include in these courses.

We will continue to modify the delivery methods as required by departments or agencies. Modifications may include: an online lecture potion of course, telnet lecture, and development of table top scenarios. Hands-on portions of classes require participation by all attendees.

III. Program Progress Report: Continuing Education Programs:-

A. Program Title: Agricultural Safety and Health Training

B. Program Director: Leslie Nickels is the Program Director; however, program leadership is the combined effort on the part of Robert Aherin, PhD, Robert Petrea, PhD, and Leslie Nickels, MEd. The working partnership has existed since 1991 and resulted in the establishment of a state wide network on agricultural safety and health in Illinois (INASH); establishment of training and research partnerships between academia, business, and workers (through advocacy groups); increased interdisciplinary teaching and research in industrial hygiene, occupational medicine, safety, and occupational health nursing; and leadership on bringing the public health occupational and environmental health community together with the agricultural community.

C. Program Description

The goals of the Agricultural Safety and Health Continuing Education Program Area (ASH) are to:

1. establish training and research partnerships between academia, business, and workers (through advocacy groups)
2. increase interdisciplinary teaching and research in industrial hygiene, occupational medicine, safety and occupational health nursing; and
3. provide leadership on bringing public health occupational and environmental health community together with the agricultural community.

Additionally, we conduct on-going needs assessments.

Needs Assessment
Continuing education training continues basic program planning based on assessed needs using state and regional information. Needs assessment sources include in addition to national statistics: 1) strategic planning and priority setting within the Illinois Network for Agricultural Safety and Health (INASH); 2) UI Extension Vital Statistics analysis; 3) Marshfield Clinic Survey; 4) UIC-GLC Primary Care Practitioner and Ophthalmologist Survey and 5) Survey of secondary agriculture education programs in Illinois, 6) key informant survey, and 7) cooperating with the Illinois AgrAbility Unlimited program in a survey of members of both the Illinois Occupational Therapist Association and the Illinois Physical Therapist Association.

D. Program Activities and Accomplishments

1. Program Plan

The program plan focuses on meeting program goals and sets program objectives based information gained in the needs assessment. The targeted audience for agricultural safety and health training will continue to be public health and health care professionals as well as direct contact with safety and health professionals within occupational settings. In addition, we have had some success with the cooperative extension staff and farm bureau staff in some areas. Our experience with the agricultural community is that there is no single model for successful programs. Strategies for coalition building and program implementation have resulted from a variety of organizations collaborating effectively, including INASH, Agricultural Extension Offices, Marshfield Clinic, Community Health Partnership of Illinois, Migrant Health Promotion (Michigan), Illinois Department of Public Health, Illinois Rural Health Care Association, Carle Foundation Hospital and Carle Clinic, Southern Illinois University, Illinois State University, Western Illinois Area Health Education Center, and ASH-NET.

2. Partnerships

ASH will continue to be involved in the Illinois Network for Agricultural Safety and Health. INASH offers an annual meeting for approximately 20 people.

Dr. Petrea collaborated in an evaluation capacity with the Illinois AgrAbility Unlimited project that serves disabled farmers and their families in developing a survey instrument distributed to all members of the Illinois Occupational Therapist Association and the Illinois Physical Therapist Association (N = 812). This survey seeks to identify OP/PT exposure to farmers and their families due to injury or disease and their preferences related to the content and delivery of any perceived training needs. The survey methodology protocol recently required sending a reminder postcard to non-responders with a replacement instrument to be mailed to non-responders following a three-week interval. To date ~250 responses have been received. Based upon analysis of survey responses, ASH will continue to work with AgrAbility as needed to provide training content and program delivery to this segment of health care professionals.

ASH will continue act as a resource to provide medical education at the University of Illinois at Rockford, UIUC, UIC and Southern Illinois University with principal participation by Dr. Petrea and Dr. Shannon Lizer. These presentations are optional seminars for students with attendance between 20–30 participants.

Dr. Petrea will continue to participate with the NIOSH funded Great Plains Agricultural Center for Health and Safety in Iowa as a curriculum adviser on their *Building Capacity of Health Professionals in Agricultural Occupational Health* and in planning course offerings in Illinois. As a adjunct to this specific project, Dr. Petrea will continue working with the Western Illinois Area Health Education Center to offer agricultural safety and health programs to participating hospitals. Presentations on an overview of Illinois agricultural safety and health concerns and on agricultural respiratory issues are planned for fall, 2006 and a presentation on Agricultural Mental Health is being planned for spring 2007.

ASH will continue to work with the National Farm Medicine Center (NFMC) program on agricultural safety and health issues to develop and present agricultural and occupational web casts, scheduling of presentations, delayed from 2005, by Dr. Linda Forst, UI-C, *Noise-Induced Hearing Loss*, and Dr. Shannon Lizer, UIC-Rockford, *Aging and the Aged Farmer*, has taken place. The program will be available at no charge. Target attendance for these programs is 50 people per program over a two year period.

Dr. Petrea He will continue the working relationship with the National Institute for Farm Safety as Interim Secretary and Chair of the Professional Improvement Committee. He also will continue the working relationship with the North American Agromedicine Consortium (NAAC) as an active member.

Partner organizations include:

Illinois Network for Agricultural Safety and Health
National Farm Medicine Center
North American Agromedicine Consortium
National Institute for Farm Safety
University of Illinois at Urbana-Champaign, College of Medicine, RMED program
Southern Illinois University, College of Medicine
UIUC Information and Computing Technology
Illinois Facilitating Coordination of Agricultural Education
University of Iowa, School of Public Health.
Livestock and Poultry Environmental Stewardship Program (Midwest Plan Service)
Black Beauty Coal Company

Knight Hawk Coal Company
Independent Illinois Aggregate Producers
Illinois Association of Aggregate Producers
Great Lakes Center for Agricultural Safety and Health (Ohio State University), Fellows Program
Great Plains Center for Agricultural Health (NIOSH Ag. Research Center, University of Iowa)
State Public Policy Group, and Agriwellness, Inc (both in Iowa)
Carle's Center for Rural Health and Farm Safety

3. Increase interdisciplinary teaching

A classroom and on-line version of the Confined Space for Agriculture course is offered. The target audience for the course is cooperative extension personnel, health and safety professionals, and small business owners. The class room course was successfully offered to 260 participants. The target audience has access and is familiar with the use of computers and the internet**.** The objective of this program is for participants to be able to define a confined space, recognize hazards and describe control strategies. Post cards will be mailed to the initial list of participants from the classroom course, cooperative extension specialists nationally, and health and safety professionals in Illinois, Wisconsin, Indiana, and Michigan. For those with no or limited Internet access the program will be created in a CDROM version as well.

4. Outreach and consultations with communities

ASH will continue the associations developed by Dr. Petrea with southern Illinois based strip-coal mine companies and the Illinois Association of Aggregate Producers. Opportunities for presentations on both general agricultural as well as occupational specific safety and health concerns to company personnel, especially maintenance and equipment operators, of aggregate producers in western and north-western will continue. These presentations augment the required OSHA training and retraining and touch on topics not commonly included due to time constraints. Target audiences, based upon past experience will be in the 100-125 range.

ASH will continue to pursue the establishment of a Secondary Advisory Committee (ASH SAC) with secondary agriculture teachers and pertinent state agency and organizational personnel. In the meantime Dr. Petrea's interaction with Dave Wilson, Media Specialist, UIUC Information and Computing Technology and the five individual FCAE Field Directors seems at present to be the most fruitful mechanism for interaction with the FFA secondary instructors. Construction of a power point presentation on Agricultural Respiratory Issues in the preferred format is progressing. Based up recent use of the two ATV safety-related power points previously developed during National Ag Safety and Health week, the target audience is 30 secondary agriculture departments.

E. Program Products

Courses offered:

Southwestern Illinois Holmes Safety Assn. – 40 trainees
Missouri Farm Bureau and NRCS District – 60 trainees
Illinois Secondary Agriculture/FFA Instructors – 60 trainees
UIUC College of Medicine – R-MED – 20 trainees
Southern Illinois University Medical Students – 20 trainees
UIUC Rural Health Policy Seminar ACE 592 – 25 trainees
Black Beauty Coal Company, Knight Hawk Coal Company and Independent Gravel Producers – 25 trainees

F. Future Plans

During the next budget period the ASH program will continue to identify and address health and safety training needs in agriculture through its partnerships, interdisciplinary activities, and outreach to the agricultural community. Drs. Petrea and Aherin and Ms. Nickels will continue taking the lead in facilitating a North American conference and proceedings document on the Aging Farm Community. The established Ad Hoc Advisory Committee, 13 individuals from nine institutions including two from Canada, will continue to advise Dr. Petrea, who is serving as PI of the project. A two and one-half day agenda is in place with 16 speakers from 13 institutions, including three from Canada, presenting on a wide range of issues as they apply to aging farmers. A proceedings document will be produced and made available on the WWW as well as a limited number of hard copies. The project has a $99,000.00 budget with a target audience of 80 invited participants. Fund raising for the project continues.

IV. Report on Specific Improvements in OS&H Resulting from ERC Programs

There is limited national or regional data and therefore it is difficult to assess intermediate and long-term outcomes from programs such as ours. However, we graduate trainees who continue to be employed in occupational safety and health. Many employers have hired several trainees from our programs indicated that the program is provided the appropriate training needed to address OSH in US workplaces.

We have a number of examples where our program has had an impact on OSH. As described earlier in this report, the results of an outreach project of the ERC related to lead-safe work practices were incorporated into state-wide legislation. Other projects have resulted in a "culture change" in workplaces where we have partnered. One example is a research project to measure the effectiveness of bloodborne pathogen training of home care workers in reducing their risk of blood exposures. Researchers at UIC partnered with a large homecare agency in Chicago. The agency did have a joint labor-management safety committee prior to the intervention, but following the intervention, the committee is taking a much larger role in designing health and safety training for other topics.

As described in the Pilot Projects section of this report, a pilot project to study "Immunologic Risk Factors for Laboratory Animal Allergen" was initially funded in July, 2001 and received further funding in 2003. Since that time, the project has developed from a relatively small project involving a single investigator to a series of projects involving several other departments and investigators. Two veterinarians at UIC have become interested in allergen and irritant levels in the animal research facility studied in the original project. Investigations have been conducted in which mouse and rabbit allergen concentrations, as well as total dust and airborne endotoxin have been measured. One of these projects was the basis of a research study by a veterinary medicine trainee, and another was the basis for a masters degree thesis by an industrial hygiene trainee. An intervention study that employed a relatively low-cost engineering control of allergen level exposure to workers at the facility has also been performed. In addition, a PhD student in immunology and another masters degree student participated in a study of in vitro responses of lymphocytes of workers in the same facility. Furthermore, in 2004, an occupational medicine resident participated in the laboratory animal allergy surveillance of workers at the facility and two other UIC departments. Since the launch of the original project, 193 research subjects have participated. Data from the research has been presented at regional and national meetings. Data analysis is ongoing, and it is anticipated that manuscripts will be submitted for publication by researchers in a variety of disciplines, including epidemiology/biostatistics, environmental and occupational health sciences, immunology/microbiology, and veterinary medicine. The intervention study showed that a relatively low cost change in cage design could reduce allergen concentrations in the mouse rooms by approximately 80%.

V. Appendices

Appendix A. Program curricula, course requirements, and sample curricula by academic program

Table 1. Requirements for obtaining an ABET Accredited M.S.* with NIOSH IH Trainee Support, U. of Illinois at Chicago (2005-2006)

1. Academic - Required Courses	Semester Credit
Course # and Name	
EOHS405 Environmental Calculations	2
EOHS421 Fundamentals of Industrial Hygiene	2
EOHS428 Industrial Hygiene Laboratory I	2
EOHS529 Industrial Hygiene Laboratory II (Field Studies)	2
EOHS523 Industrial Hygiene: Engineering Control/Ventilation	4
EPID400 Principles of Epidemiology	3
BSTT400 Biostatistics I	3
BSTT401 Biostatistics II	4
EOHS584 Radiation Protection	3
EOHS431 Air Quality Management I	3
EOHS438 Air Quality Laboratory	2
EOHS424 Environmental Acoustics	2
EOHS482 Occupational Safety Science	2
EOHS570 Hazardous Materials Management	3
either EOHS455 Environ and Occup. Toxicology	3
and EOHS554 Occupational and Environ Epidemiology	2
or EOHS551 Occupational and Environmental Diseases	4
Research:	
IPHS598 Research in Public Health Sciences	16

Required + Research = 41 + 16 = 57 semester Credits

2. Trainees must attend interdisciplinary seminar

3. Trainees must attend Occupational Medicine Clinic (on a rotating basis this usually works out to once/3 weeks)

4. Trainees must participate in at least one extended field test

*Prerequisites for entering the IH program are a full year of general chemistry, at least one semester of organic chemistry, mathematics through differential and integral calculus, and a course in human physiology.

Table 2. ABET Accredited MPH Curriculum in Industrial Hygiene[a], U. of Illinois at Chicago (2005-2006)

Required Course # and Name	Semester Credit
EOHS405 Environmental Calculations	2
EOHS400 Principles of Environmental Health Sciences	3
IPHS401 Behavioral Sciences in Public Health	2
EPID400 Principles of Epidemiology	3
BSST400 Biostatistics I	3
HPA400 Principles of Management in Public Health	3
CHSC400 Public Health Concepts and Practice	3
EOHS421 Fundamentals of Industrial Hygiene	2
EOHS428 Industrial Hygiene Laboratory I	2
EOHS431 Air Quality Management I	3
EOHS438 Air Quality Laboratory	2
EOHS570 Hazardous Materials Management	3
EOHS584 Radiation Protection	3
IPHS650 Field Experience in Public Health[b]	3-5
EOHS529 Industrial Hygiene Lab II (Field Studies)	2
EOHS523 Industrial Hygiene: Engineering Control	4
EOHS424 Environmental Acoustics	2
EOHS482 Occupational Safety Science	2
either EOHS455 Environ and Occup Toxicology	3
and EOHS554 Occupational and Environ Epidemiology	2
or EOHS551 Occupational and Environmental Diseases	4
Electives:	
Course # and Name	Credit
EPID401 Quantitative Methods in Epidemiology I	3
BSTT401 Biostatistics II	4
EOHS440 Chemistry for Environmental Professionals	3

Required + Electives = 51-53 + 3-5 = 56 Semester Credits

[a] Prerequisites for entering the IH program are a full year of general chemistry, at least one semester of organic chemistry, mathematics through differential and integral calculus, and a course in human physiology.

[b] May be waived because of appropriate prior work experience.

Occupational Health Nursing

CON Core Courses	Semester Hours	Comments
BSTT 400 Biostatistics	3	SPH; interdisciplinary course
NUSC 526 Inquiry I	2	Lizer and other CON Faculty
NUSC 527 Inquiry II	2	Lizer and other CON Faculty
NUSC 528 Health, Environment and Systems	2	CON Faculty; course offered online
NUSC 529 Issues of Advanced Practice Nursing	1	CON Faculty; course offered online;

OHN/Public Health Nursing Core Courses	Semester Hours	Comments
NUPH 400 Introduction to OHN	2	Faculty: Lizer, Johnson, Reed, Mischak
NUPH 505 Nursing Systems Operation Management	3	CON Faculty
NUPH 509* Population-Focused Assessment	3	CON Faculty; students conduct population-focused assessment in community and integrated healthcare systems; 45 hr clinical practicum
NUPH 511Planning and Evaluation for Advanced Nursing Practice	3	CON Faculty; students continue their assigned industries to explore strategic program planning applications; emphasizes interdisciplinary perspective and addresses integrated quality improvement systems; 45 hr clinical practicum
NUPH 529 Practicum in OHN	1-5	CON and adjunct faculty; OHNP takes 4 additional semester to total 200 clinical hours
EPID 400 Epidemiology	3	Public health science-interdisciplinary course
NUSC 597 or NUSC 598	5 minimum 3 minimum	OHNs have the option to take 597 or 598. Students select specific faculty research mentors who assist them in further development and refinement of their research proposal and in the selection of additional thesis or project committee members. OHN faculty serve on all OHN MS committees.
*NUPH 502 Strategic Management in Healthcare	3	CON faculty; students on the management/leadership track may opt to take this course in place of NUPH 509; students taking the CNS exam make up the lost clinical hours in NUPH 520

School of Public Health Courses	Semester Hours	Comments
EOHS 421	2	PH Faculty
EOHS 551 Occupational and Environmental Diseases	4	PH Faculty; goal to be a polycom network course in Sept. 2006
EOHS 558 Occupational Toxicology	3	PH Faculty
EOHS 482 Occupational Safety Science	2	PH Faculty

Advanced Management Courses	Semester Hours	Comments
NUPH 517 Budget and Finance of Health and Nursing Services	3	Financial and related accounting for non-business majors
NUPH 520 Internship in Advanced Nursing	1-3	Intensive field study for advanced nursing practice; students take 150-450 clinical hours per week depending on concentration-may be repeated for those requiring additional clinical hours (a minimum 150 to graduate, 500 for CNS certification)

OHNP Courses	Semester Hours	Comments
NUPH 500 Health Promotion and Primary Care	4	CON faculty; 60 clinical semester hours are done in OHN setting
NUPH 524 Primary Care and Acute and Chronic Disorders I	5	CON faculty; trainees learn to assess, diagnose and manage stable chronic and acute episodic illnesses encountered in occupational health care settings
NUPH 525 Primary Care and Acute and Chronic Disorders II	5	CON faculty; second of a two course sequence, prepares trainee to assess, diagnose, and manage stable chronic and chronic episodic illnesses encountered in occupational health care settings
NUSC 532 Comprehensive Health Assessment for Advanced Practice	3	Prepares OHNP to distinguish between normal and abnormal findings and to progress to differential diagnoses.
NUSC 531 Pharmaceutical Intervention	3	CON; advanced principles of pharmacotherapeutics; includes legal issues, client adherence, and medication selection factors
NUSC 535 Biological Basis of Disease	4	CON faculty; concepts of pathological processes are examined with application to organ systems
NUPH 528/529 OHN Practicum	4	225 applied clinical hours in occupational health settings*

PhD Core Courses			
Theory Courses	**Research Courses**	**Interdisciplinary Courses**	**Advanced Courses**
NUSC 505 Philosophy of Science for Health Research	SOC 401 Multivariate Statistics	EOHS 421 Industrial Hygiene	NUSC 585 Research Seminars
NUSC 506 Theory & Theory Development for Nursing Research	SOC 402 Advanced Multivariate Statistics	EOHS 482 Occupational Safety Science	NUSC 517 Advanced Research Practicum
NUPH 560 Models/Frameworks/Health Service Delivery/Health Behavior	NUSC 515 Measurement in Health Research	EOHS 455 Principles of Toxicology	NUSC 599 PhD Thesis Research
NUPH 562 Research in Health Services Delivery/Health Behavior	NUSC 511 Advanced Research Design	EOHS 551 Occupational & Environmental Diseases	
NUSC 590 Leadership in Scientific Careers	EPID 401 Quantitative Methods of Epidemiology		

Occupational Medicine: University of Illinois at Chicago and Stroger Hospital of Cook County

A. Residents in Occupational Medicine are expected to enter the Program with basic clinical skills acquired through one or more years of basic clinical training in an ACGME-approved program. In the instance of the SHCC program, all applicants are accepted into the joint Internal Medicine/Occupational Medicine residency, and complete a medicine internship (PG1 year of the joint program) prior to starting the Occupational Medicine part of the curriculum. These skills will be further refined in the elective rotations in selective subspecialties such as pulmonary medicine, dermatology, neurology, and rheumatology, as well as other duties and rotations during the PG 2 & 4 years.

The UIC program requires completion of the PG 1 year prior to entering the program. The UIC program is a 2 year occupational medicine residency with the academic phase in PG 2 and the practicum phase in PG 3.

B. Academic Phase: The academic phase consists of a course of study leading to the MPH Degree at the University of Illinois at Chicago, School of Public Health in the Professional Enhancement Program:

SPH Core Requirements (19 semester hours)

EPID 400 Principles of Epidemiology (3 sh)
BSTT 400 Biostatistics I (3 sh)
HPA 400 Principles of Management in Public Health (3 sh)
CHSC 400 Public Health Concepts and Practice (3 sh)
EOHS 400 Principles of Environmental Health Sciences (3 sh)
CHSC 401 Behavioral Sciences in Public Health (3 sh)
IPHS 698 MPH Capstone Experience (1 sh)

Environmental and Occupational Health Sciences Division Core
All students are required to take a minimum of 12 sh in EOHS courses in three general areas of environmental and occupational health: Exposure Assessment and Measurement; Health Assessment; and Intervention Strategies. The Occupational Medicine residents are required to take the following courses that will meet the Division Core requirements:

EOHS 421 Fundamentals of Industrial Hygiene (2 sh)
EOHS 455 Environmental and Occupational Toxicology (3 sh)
EOHS 551 Occupational Diseases (4 sh)
EOHS 554 Occupational and Environmental Epidemiology (2 sh)
EOHS 482 Occupational Safety Science (2 sh)

Electives –(3 sh) (usual choices):
EOHS 556 Risk Assessment in Environmental and Occupational Health (3 sh)
EOHS 594 Global Environmental and Occupational Health (3 sh)
Subtotal (16 sh)

Capstone Requirement (IPHS 698). (1 sh)
For occupational medicine residents, the required capstone experience is a poster presentation of their research project that is completed in their final year of residency.

Field Practicum (IPHS 650). (3 sh)
Students are required to complete the practicum after completion of all, or nearly all, of their coursework. Students may register for IPHS 650 for 3-5 sh with 1 sh credit awarded for each 64 hr of contact time.

(Course work is completed as a PG2 and the fieldwork and capstone requirements are completed during their practicum year.)

Program Total: 39 sh

The required courses are designed to ensure that each resident develops the knowledge base necessary for the practice of Occupational Medicine. In almost all instances residents enroll in the Environmental and Occupational Sciences track (EOHS). The curriculum will meet the requirements of the School of Public Health as well as the requirements of the Residency Review Committee in Preventive Medicine of the Accreditation Council for Graduate Medical Education (ACGME).

C. Conferences

The following conferences are offered to residents:
1. ** Occupational Health and Safety Seminar (3 hours monthly)
2. * Occupational Medicine Clinical Case Conference (1 hour/mo)
3. Occupational Medicine Attending Lecture (3 hours/week)
4. Occupational Medicine Attending Ward Rounds (as needed)
5. Pulmonary Function Testing Lecture/B-reading (2 hours monthly)
6. *Research Conference (1 hour monthly)
7. *Occupational Medicine/Toxicology Conference (1 hour monthly)
8. *Journal Review Conference (1 hour monthly)
9. Evaluation of GXT Studies (1 hour biweekly)
10. *Faculty Lecture Series (2 hour monthly)
11. Occupational Medicine Grand Rounds (3 times per annum)
12. Toxicology service conferences (4 hours/week)
13. Work Process Lecture (1 hour monthly)
14. *Core Curriculum Review (1 hour monthly)
15. *Corporate and International OEH (1 hour monthly)

*= Mandatory Wednesday morning conference for all residents, currently every Wed. 7:30-9:30 am; all other conferences required during 4 consult service months;
**= required Wednesday noon multidisciplinary conference, UIC ERC

Wednesday Monthly Conference Schedule

	Week 1	Week 2	Week 3	Week 4
7:30 – 8:30 AM	Corporate and Internationall Occupational and Environmental Health	Journal Club	Grand Rounds, faculty lecturer, or Guest	Occupational Medicine/ Toxicology
8:30 – 9:30 AM	Case Presentation Core Content (30 min each)	Grand Rounds, faculty lecturer, or Guest	Resident Research Core Content	Process Lecture (45 min) Outside rotation report (15 min)

The Wednesday AM conferences are jointly planned and attended by the faculty and residents of both the SHCC Occupational Medicine Residency and the University of Illinois Occupational Medicine Residency. All faculty of the UIC program are voluntary attendings in the Division of Occupational medicine at SHCC. All SHCC OM faculty have appointments at the UIC School of Public Health, which houses their OM residency.
Overall goals of the weekly conferences are: To provide a bridge between the theory and practice of occupational and environmental health in the workplace and the general environment and To give the resident a forum for critiqued presentations of research protocols and academic lectures.

Objectives of Wednesday AM Conferences:

- To enhance the residents' understanding of the role of the occupational and environmental health practitioner in clinical assessment, qualitative risk assessment and decision making in occupational and environmental health.
- To introduce the resident to the state-of-the-art on salient topics on occupational and environmental health.
- To provide the resident with a forum for critiqued, formal academic presentations.
- To provide the residents with an outside forum for presenting and receiving criticism of their own research protocols.
- To apply theoretical knowledge in the realm of occupational and environmental epidemiology and qualitative risk assessment.
- To enhance the resident's understanding of the partnerships required to address, practically, occupational and environmental health problems.

Conference Type I: Journal Club

This is a state-of-the-art review of special topics in occupational and environmental medicine. Two to five articles reviewing a specific topic are passed out several days prior to each session. The articles are critiqued both for their content and study design. There is a primary presenter of each article. Each resident is responsible most sessions for reviewing at least one article and providing a short presentation followed by discussion.

Resident/Learner Objectives of Journal Club

- To gain facility in critical appraisal of the occupational and environmental health literature.
- To be introduced to state-of-the-art information on various topics in occupational and environmental health.
- To enhance understanding of current controversies in the literature in the field of occupational and environmental medicine.

Conference Type II: Corporate and International Occupational and Environmental Health

This session entails a presentation of a special topic within corporate international occupational and environmental health presented by Dr. Daniel Hyrhorczuk, a core faculty member. The intent is to develop aspects of occupational health that enhance and further the residents' understanding beyond what they have covered in their School of Public Health course work and their industrial practicum experiences.

Resident/Learner Objectives for Corp. and Int'l OEM

- To enhance knowledge and understanding of occupational and environmental health/medicine as it is practiced in large corporate settings.
- To acquire skills and knowledge in developing workplace surveillance programs for occupational hazards.

- To gain understanding in the major ethical issues and dilemmas facing a corporate medical director.

Conference Type III: Occupational Medicine/Toxicology Combined Conference

In conjunction with the Toxikon Consortium, which is the clinical toxicology group at Cook County Hospital/UIC/Rush and the local Poison Control Center, a monthly conference is presented with the intend of addressing the acute and chronic components of specific toxicologic exposures.

Resident/Learner Objectives for Occ/Tox Combined Conference

- To exchange views on occupational toxicology between the occupational and environmental residents and faculty and the Toxicology service.
- To enhance the residents' understanding of both acute and chronic effects of various toxic exposures in the environment and workplace.
- To further the knowledge of residents regarding acute poisoning, and unusual environmental contaminants, and other exposures not frequently seen in the Occupational Medicine clinics.

Conference Type IV: Industrial Hygiene/Process Lectures

The industrial hygienist at Stroger Hospital prepares a one-hour presentation describing a specific industrial process. These talks are generally introductory to the once monthly field trips to settings that use that process. Participation in the field site visits are mandatory for the residents on the consultation service and are highly recommended for residents that are currently on their epidemiology rotations, as well as anyone else that can free their schedule to participate. Each resident will participate in a minimum of 3-4 of these site visits per year.

Resident/Learner Objectives for IH Process Lectures

- To gain exposure to a variety of work processes via lecture and a follow up site visit to an industry that uses those work processes
- To gain knowledge about industrial hygiene practices in a variety of settings

Conference Type V: Case Conferences

Resident physicians from both the Stroger Hospital Occupational Medicine and the University of Illinois Chicago programs present cases from the Occupational Medicine clinics. Their presentations include a brief discussion of the medical literature that informs clinical decision making of each case. The larger group then has a discussion of the best way to care for that patient. Clinical case conferences occur usually two to three hours a month for two to three separate one-hour sessions.

Resident/Learner Objectives for Case Conferences

- To discuss difficult clinical, ethical, and legal issues related to the care of specific patients.
- To gain experience in case presentations and presentation skills in general.
- To be exposed to the breath of the clinical problems encountered in the Occupational Medicine practices at Cook County Hospital and the University of Illinois

Conference Type VI: Research Presentations

This is an opportunity for residents to present their research protocols for wide critique. Each resident will make two presentations during the year. One presentation will consist of presenting the background in the area of interest including a literature review and their research protocol and study design. A second presentation is given when the project is completed, and their results are reviewed and critiqued.

Resident/Learner Objectives for Research Presentations

- To have opportunities to receive wide critique and feedback on research protocols from the faculty and other residents
- To gain experience in preparing and giving presentations regarding research

D. Longitudinal Clinical Experience

The clinical occupational medicine experience will occur primarily in the occupational medicine clinics of Stroger Hospital, and secondarily the OM clinic at UIC. The residents will be responsible for evaluating and managing workers with suspected occupational diseases and injuries, for taking occupational histories, for disability determinations, for clinical toxicology evaluations and treatment, and a myriad of other areas of occupational and environmental health.

In addition, residents will evaluate children in the Occupational Medicine Clinic referred to the Children's Environmental Health Unit.

Residents spend 1-3 half-days per week in the outpatient clinics at UIC and/or Cook County Hospital, depending on their other responsibilities that month. When they are OM Consult Service, they spend 3 half-days; on industrial and elective rotations, they spend one half-day; on research months they spend two half-days in clinic. During the outpatient clinical experience, they take medical histories, conduct physical examinations, present each case to an attending physician, develop an evaluation and treatment plan, dictate a report, obtain exposure information from work places, research the scientific literature regarding the pertinent exposure and disease, and refine the report based on testing results and information gathered. Their reports are reviewed by the clinic attending physician. Residents have graduated responsibilities over the course of time in the Program.

Resident/Learner Objectives

- To develop (initially) and refine (over time) skills in taking an exposure history develop and refine case presentation skills
- To develop patient communication skills regarding risk and disease education
- To develop professional behavior with regards to physician-patient and physician-staff relations
- To gain facility in searching and reviewing the medical literature related to specific patient exposures/diseases/environmental hazards/injuries
- To gain facility in formulating an opinion regarding causation of disease/ pathology by an environmental/occupational exposure(s)
- To become familiar with a wide range of disease entities related to occupational and environmental exposures.
- To become familiar with the medicolegal issues and how they apply to each case.
- To become familiar with the ethical issues of OEM and how they apply in specific cases.
- To gain proficiency at dictation and preparation of medical reports for the purpose of communication of the resident's opinion regarding causation with language required for workers compensation and other legal systems.

Graduated Responsibilities in Occupational Medicine Clinic

In the first year (PG 2), residents learn to take an occupational and environmental history with careful supervision of the style and content of history taking; physical examination is initially observed, as well. Dictations are edited by attending physicians. The assessment and plan as well as the literature review are discussed on each case.

During this year the resident refines the skills learned during the PG 2 year and begins to function independently in the clinic with respect to history taking, evaluation and final assessment and opinion of the work relatedness of the patient's problems as well as the appropriate work up and treatment approaches (though this continues to be reviewed for every case throughout the residency). Also, the resident also functions in a mentoring/supervisory capacity for medical students and more junior residents.

E. Research Project Requirement

All residents will be responsible for at least one epidemiological research project during the training period, as well as to assist in other projects. This activity will expose residents to practical epidemiology and biostatistics, such as the development of questionnaires, review pertinent epidemiological literature and developing a research protocol. The residents will design a study, collect data, analyze data, and prepare a final report. The goal is to produce a publishable quality paper.

Research Program Plan
The faculty of the Occupational Medicine Program recognizes the importance of research in training of occupational medicine residents and the role of clinical, laboratory and epidemiologic research in the field of occupational and environmental health: Consequently, the residency program provides two months of protected research time during their residency. Additional time is spent on projects during their other practicum months.

The research goals of the Occupational Medicine program include:

1. Conduct clinical and epidemiological research on occupational and environmental health problems for the benefit of residents of the State of Illinois and Cook County.
2. Refine the research skills and experience of the faculty.
3. Develop the research skills of the occupational medicine resident.
4. Develop interdisciplinary research projects.
5. Promote the application of laboratory research to occupational health problems.

All Occupational Medicine residents are required to engage in occupational medicine research. Training of all residents consists of courses at the University of Illinois School of Public Health in Biostatistics, Epidemiology, Industrial Hygiene, Environmental Health, and Occupational Diseases. In addition, each four weeks a journal review conference, a current project research design seminar, and a state-of-the-art review conference are held. These are given on Wednesday mornings for all residents.

Residents are encouraged to begin planning for research activities during the academic year of the Program while they are fulfilling requirements for the MPH Degree. Many opportunities for research exist in both clinical Occupational Medicine and Epidemiology. Towards the enc of the academic year, they are able to devote one month to their research endeavor. During the practicum phase, residents are expected to devote a minimum of two months to an epidemiology project. Ideally, the resident should participate in all phases from planning through reporting on a project. Since a project is sometimes difficult to complete in the allotted months, residents may be granted extensions of up to 12 months after completing all of their occupational Medicine rotations in order to finalize and receive approval for research/epidemiology project reports.

An advisor who is usually an attending physician in the Division of Occupational Medicine closely supervises each resident's research project. The resident is expected to meet with the advisor on a regular basis in order to define the research questions and to develop a research protocol. Once a draft proposal is created, the resident is expected to present the contemplated project at a research conference to obtain

review and comment from his/her peers as well as other faculty of the Occupational Medicine program. Upon completion of the research project the resident is expected to present the findings at a research conference. Final approval of the completed research project by the Selections and Promotions Committee is required to successfully complete the residency.

F. Practicum Phase

All residents are required to complete twelve months of supervised practicum rotations. This is accomplished in their PG4 year and constitutes the Practicum Year.

- 2 months on OM Consultation Service (4 OM clinics)
- 2 months of research (2 OM clinics)
- 8 months of workplace-based rotations and other electives
- (1 month vacation)

(Each month = one 4-week rotation)

1. Stroger Hospital Division of Occupational Medicine Consult Service

The Objectives of this rotation include:

a) To develop a high level of knowledge and skill in the following areas of clinical Occupational Medicine:
   a. Occupational history.
   b. Differential diagnosis of occupational diseases.
   c. The literature of occupational medicine and ability to carry out extensive literature searches.
   d. Clinical evaluation of common occupational diseases.
   e. Summarizing and reporting findings and evaluations to the patient, referring physician, and attorney, as appropriate.
   f. Patient education.
   g. Communication with employers regarding work related illnesses and obtaining company exposure and health information.

b) Ethical and medical/legal aspects from the perspective of the treating specialist.

c) Teaching Occupational Health to primary care physicians.

d) Organizing a consultation service in a tertiary care hospital.

e) Clinical Toxicology including the management of acute poisoning.

All residents are required to complete eight weeks on the Occupational Medicine consult service during the field practicum phase. This includes an average of 4-8 in-patient and Trauma Unit consultations per week on patients at Stroger Hospital, 3 to 5 phone consultations per week, as well as four Occupational Medicine Clinic sessions per week (three at Stroger and one at UIC). A site visit is also arranged to a workplace. Residents also give presentations and work on special projects during these months.

The Occupational Medicine clinics consist of a Thursday A.M. Occupational Medicine Clinic at the University of Illinois, as well as Tuesday A.M. and Wednesday P.M. clinics at Stroger Hospital. A new addition is a Fri. AM clinic restriction to Black Lung patient evaluations.

The University of Illinois Occupational Medicine clinic includes approximately 100-150 new patients per year. The patients often present with complex occupational medicine and environmental medicine problems. But also, common occupational diseases such as occupational asthma, cumulative trauma disorders, and occupational dermatoses are seen. The UIC Occupational Medicine clinic facilities are located within the University of Illinois Out-patient Center.

The SHCC Occupational Medicine clinic facilities are provided in the Specialty Care Center of the hospital. The Division of Occupational Medicine at Cook County Hospital provides the staffing of these clinics. Over 1600 patients with a wide variety of occupational medicine problems, including occupational asthma, pneumoconioses, lead toxicity and cumulative trauma are seen per year. The Pediatric Environmental Health Unit sends children to be evaluated in the Wed. pm clinic, as necessary. We evaluate patients with Coal Workers Pneumoconiosis (Black Lung), funded by federal grant monies, on Tuesday AM and Friday AM, as well.

Each OM resident, during their consult service months will evaluate approximately 10 new patients and 20 follow-up patients per month. They are responsible for all literature searching and other investigative work in order to complete the patient evaluations, and to dictate a written report – all under the supervision of the attending physicians who reviewed the cases in the clinics.

In addition, all OM residents on the consult service rotation are required to participate in all conferences, as well as prepare one to two of these presentations.

The OM resident on service is given the responsibility for organizing the service with respect to the fair allocation of consults among themselves and the students and rotators from Internal Medicine and Family Practice. They are expected to help supervise and teach the students and non-Occupational Medicine rotators.

The staffing of the Division of Occupational Medicine includes six salaried Occupational Medicine physicians; five of which are board certified in Occupational Medicine and one is board certified in Pulmonary Medicine/Critical Care, as well as six voluntary attending physicians. In addition, there is a nurse administrator responsible for carrying out the day-to-day administrative aspects of the Occupational Medicine Clinic; and an administrative assistant responsible for managing the office as well as assisting in the management of the Occupational Medicine Residency Program; 2 clerical staff; an industrial hygienist/laboratory technician; and an exercise physiologist.

2. Industrial Field Placements

Residents choose four or five of the following rotations. Rotations are four weeks long and residents continue attending Wednesday AM conferences, one half-day OM clinic per week and their GMC clinic.

United Airlines
American Airlines
UIC University Health Services Rotation
International Truck
Advocate Occupational Health
St. James Occupational and Environmental Health Centers

Collectively, these rotations include the following activities:

a) Evaluations of employees returning to work after extended medical leaves.
b) Pre-employment examinations.
c) Participation in routine medical surveillance of workers exposed to potentially hazardous conditions.
d) Evaluations of workers with acute and chronic work-related illness.
e) Observation of company activities relating to insurance underwriting, labor relations, worker's compensation, safety, industrial hygiene, and equal employment opportunity.

f) Interaction with occupational health personnel, workers, human resources and industrial relations personnel, line supervisors, work representatives, and the medical community.
g) Site visits to various work areas to obtain first hand knowledge of the industrial processes to which employees are exposed.
h) Experience in the provision of life-style modification programs, health conservation and promotion.

A resident project is recommended for each of these rotations where development of an in-depth analysis of a specific health hazard or occupational health problem is completed. In consultation with the supervising plant physician, the resident reviews literature, performs an evaluation of the work site, and makes recommendations for engineering and administrative controls, personal protective devices to be used, and health surveillance necessary to control the hazard or problem. The resident prepares a report of his findings, for presentation to the supervising physician.

3. Elective Rotations

The residents choose 3 to 4 additional clinical rotations relevant to their Occupational Medicine training and career objectives. If not completed as part of their IM rotations these rotations may include Dermatology, Radiology, Neurology, out-patient Orthopedics, Toxicology, Physical Medicine and Rehabilitation and Pain Service. These are generally arranged with the appropriate clinical services at Stroger Hospital or UIC Hospital on an as-needed basis. In addition residents can choose elective rotations with government agencies, workers compensation attorneys and OM physicians in private practice.

Electives:
Physical Medicine and Rehab (UIC)
Workers Compensation-medicolegal
Toxicology
UIC O'Hare Clinic
Pain Service – Stroger
Fast Track ER – Stroger
Clinical Preventive Medicine - Stroger
Jeffrey Coe, MD – OM doc in private practice
Omega Occ Health – OM group private practice
NIOSH, Cincinnati
ATSDR, Chicago office
OSHA, Washington, DC

Industrial Medicine Rotation at United Airlines

The purpose of this rotation is to provide an introduction of Occupational Medicine residents to the delivery of occupational medicine, the administration of the medical department, and exposure to the industrial setting and safety programs at United Airlines. The objective of this rotation is to give the resident exposure to:

- the role and responsibilities of a corporate medical director;
- health hazards of the airline industry;
- regulations designed to protect the health of airline industry employees;
- labor management issues around occupational safety and health in this industry;
- databases used to track employees vis-a-vis occupational and non-occupational health issues.

The resident will:

- Carry out at least one specific health and safety project related to the airline industry;
- Be involved in the process of developing policies and procedures to promote employee health and safety;
- Prepare or intensively review at least one company protocol for management of workplace hazards; this may include screening and surveillance protocols
- Spend time with occupational health providers to gain an understanding of workplace health and safety practices at the work site;
- Spend time with the physician responsible for responding to emergencies that are specific to the airline industry;
- Spend time with hygiene and safety personnel to learn about the industrial hygiene evaluation techniques used in assessing workplace hazards in the airline industry.
- Spend time with providers who manage the lifestyle and risk factor intervention programs provided by the company.
- Spend time with employee relations personnel and union officials to address issues related to occupational health and safety.

Industrial Medicine Rotation at American Airlines

The goal of this Occupational Medicine –Industrial Medicine Rotation is to provide a balanced comprehensive training program in Occupational Medicine by combining American Airlines resources and the Bureau Affiliate's clinical resources for supervised clinical training experiences in providing quality patient care at the Program Site(s). The overall goal of this rotation is to provide the OM resident with experiences related to the delivery of occupational health services in the airline industry. During the rotation, the resident will:

- Discuss FAA exams—maneuvers and criteria used for pilot certification, observe at least 3 exams, and review the software used for medical reports.
- Conduct chart reviews of lost-time cases and render an opinion about the salient issues that need to be addressed, discussing this with the Medical Director
- Assist nurses in Terminal 3 and G.E.M. on case management, drug testing, and triaging on at least 3 days of the rotation.
- Receive an orientation to the EAP program and participate in at least one group meeting during the rotation.
- Receive an orientation to and conduct pre-placement examinations
- Prepare or intensively review at least one company protocol for screening or surveillance of employees.
- Become oriented to health promotion activities.
- Interact with hygiene and safety personnel to learn about the industrial hygiene techniques used in assessing workplace hazards in the airline industry.
- Receive an orientation to employee relations or labor-management interactions around workplace health and safety.
- Prepare and present one in-service activity for Medical Department personnel.
- Review and discuss the protocol for responding to emergencies specific to the airline industry (e.g., use of AED, managing passenger illness during flight)
- Participate in activities outside of the medical department that increase the resident's understanding of the medical issues within the company.
- Maintain a log of daily activities during the rotation.
- Present a summary of activities to the OM Residency.

UIC University Health Service (UHS) Rotation

The overall goal of the four-week rotation is to provide the resident with mentored experience in all aspects of a university/hospital-based employee health service. Specific objectives are:

- To learn the policies and procedures associated with a university/hospital employee health service.
- To understand the issues of disability evaluation, fitness for duty and workers compensation in this setting.
- To become familiar with clinical assessment and management of walk-in patients for work-related and non-work-related illnesses and injuries.
- To understand issues related to return to work, including appropriate restrictions and coordination with the employee/patient's primary care physician, supervisor, and employee relations.
- To become familiar with hospital prevention programs, including control of TB, hepatitis, needlestick injuries, and asbestos exposure
- To increase clinical knowledge and skills related to evaluation and treatment of musculoskeletal disorders (back injuries, carpal tunnel syndrome, etc).
- To learn the procedure for investigation and preventive interventions for infectious disease exposures and outbreaks.
- To become familiar with issues related to hospital health and safety—especially infection control and hazard identification and control
- To assist in the investigation of chemical exposures and building related illnesses.
- To become familiar with databases used in occupational health practices.
- To become familiar with the use of "for-cause" urine drug testing.

A schedule of activities will be set up at the beginning of the rotation to ensure that all of the objectives are met. These will include:

- Evaluating employees for return to work, fitness for duty
- Conducting medical surveillance for specific exposures, including asbestos, TB, and others
- Reviewing UHS protocols on specific issues, as they arise. Beginning 1/2001, the existing protocols will be systematically reviewed and revised. Residents engaged in the longitudinal rotation will have an orientation to a protocol, and then will conduct the appropriate literature review and discussion with other institutions that provide the same service. They will ultimately re-write the protocol under the supervision of Dr. Marder. Each resident will complete at least two protocols per year.
- Filling out appropriate forms around return-to-work
- Attending infection control meetings (2nd Monday of the month, 11:30-1 PM)
- Attending TB sub-committee meetings (1st Monday of the month, 1-3:30 PM)
- Reviewing needlestick injury data
- Investigating acutely hazardous conditions with the UIC Environmental Health and Safety Office (there will be a meeting planned for introduction to the issues addressed by the "Safety" Office; the resident will then make a plan to go out on walk-through inspections, as they arise)
- Reviewing the databases used in UHS and UIC Hospital for tracking employees
- Attending workers compensation case management meetings (2nd Weds of the month, 11-1).
- Meeting with case managers of the Employee Assistance Program at UIC.
- Developing a protocol to either manage an acute exposure, or to manage a particular type of injury.

Industrial Medicine Rotation at International Truck and Engine Corporation

International Truck and Engine Corporation is a major US company that produces medium and heavy duty trucks. A company physician that is board certified in Occupational/Preventive Medicine will serve as preceptor for the rotating resident. Responsibilities of the Medical Department include evaluating employees in an on-site clinic for work-related injuries and illnesses, reviewing cases as related to medical and workers compensation issues, reviewing benefits/health care issues, attending corporate meetings that relate to health of employees, and touring the plant to review health and safety programs. The rotation mainly takes place at the Melrose Park facility. One day per week, the resident will travel with Dr. Ehni to Lake Zurich, IL where s/he will be involved in file reviews of workers compensation case claims.

The overall goal of the IT portion of this rotation is to provide the OM resident with experiences related to the delivery of occupational health services in manufacturing. During the rotation, the resident will:

- Receive an orientation to and conduct pre-placement examinations.
- Conduct physical examinations of injured employees and discuss these cases with the preceptor.
- Learn and perform comprehensive examinations of the extremities for evaluation by the preceptor.
- Conduct chart reviews of lost-time cases and render an opinion about the salient issues that need to be addressed, discussing this with the preceptor.
- Attend corporate meetings that address policy issues such as smoking cessation and cardiovascular risk assessment.
- Receive an orientation to the EAP program.
- Prepare or intensively review at least one company protocol for screening or surveillance of employees.
- Interact with hygiene and safety personnel to learn about the industrial hygiene techniques used in assessing workplace hazards in this industry.
- Receive an orientation to employee relations or labor-management interactions around workplace health and safety.
- Prepare and present one in-service activity for Medical Department personnel.
- Maintain a log of daily activities during the rotation.
- Present a summary of activities to the OM Residency.

The overall goal of the Zurich portion of the rotation is to provide experience for residents in advising insurance company approval of claims for clinical testing and procedures. The resident will:

- Review claims files for medical tests, treatments, and procedures
- Review existing protocols and guidelines to inform his/her opinion on whether a procedure should be approved
- Discuss these cases with the preceptor

Advocate Occupational Health rotation

The objective of this rotation is to achieve the educational objectives of the Stroger Hospital Occupational Medicine residency, the residents duties may include, but not necessarily be limited to the following:

- Under supervision, the resident will perform various medical evaluations and manage the health status of individuals who work in diverse work settings. These include, post-job offer examinations, return-to-work medical evaluations, fitness for duty exams, periodic surveillance, special work assignment exams (e.g., respirator certification for confined space, plant vehicle drivers licenses, etc.), occupational injury and illness evaluations with special emphasis on prevention, early diagnosis, treatment and rehabilitation with a primary goal to return employees to work with appropriate restrictions and assign them to appropriately modified or light duty

jobs. The resident will periodically follow and evaluate these restrictions to progressively return injured employees to their regular jobs.

- The resident will communicate the work restrictions to management for job placement. The resident will play an active role in the overall case management of occupational injuries and illnesses.
- Under supervision, the resident will perform a plant walk-through to identify, evaluate and control various occupational health and safety hazards including ergonomic, heat stress, noise, ocular foreign bodies, and other physical and chemical hazards. The resident will actively participate with other health and safety professionals in performing workplace assessments including ergonomic evaluations, health hazard evaluations and assessment of job requirements for employee job placement.
- Under supervision, the resident will participate in active medical case management, which will be integrated with management of the physical, chemical and organizational work environment. The resident will play an active role in managing employee health protection programs in collaboration with health and safety and human resources professionals.
- Under supervision, the resident will participate actively in Wellness Programs to promote employee health and overall fitness. The resident will counsel and educate workers and supervisors regarding work or environmental hazards and life style health risks.
- The resident will complete research and descriptive projects, using the available clinical and/or environmental data in each of the five module areas, i.e., (1) workplace; (2) population occupational medicine; (3) hazards and; (5) corporate management required by the UIC/Cook County Residency program.
- Under supervision, the resident will participate in and develop skills managing and supervising medical staff, and administering, developing, implementing, and evaluating comprehensive programs for workers compensation.
- Under supervision, the resident will participate in and develop skills administering programs for occupational health. Examples of such programs or administrative functions would include state, and federal regulatory requirements-compliance, OSHA record keeping, medical surveillance, hearing conservation, respiratory protection, emergency response, blood born pathogen, medical waste management, medical confidentiality, Americans with Disability Act (ADA), Family Medical Leave Act (FMLA), hazard communication standard and state Workers Compensation Law. It is anticipated that the resident will assume progressive technical, administrative and clinical responsibilities, to develop mature judgment and resourcefulness. The resident will become familiar with various local, state and federal governmental regulations in an industrial occupational health setting. The resident will plan at least one medical surveillance or monitoring program.

St. James Occupational Hospital and Health Centers Rotation

St. James Hospital and Health Centers has a robust Occupational and Environmental Health Program. It is directed by an Occupational Medicine board certified physician and its scope includes providing employee health services to the hospital's workers, and operating out patient clinics for the evaluation of injured workers, preplacement exams and periodic evaluations for workers at client companies. The rotating resident will precept at the hospital clinics and off-site locations operated by St. James.

The objective of this rotation is the introduction of occupational medicine residents to the delivery of occupational services to small and medium-sized businesses. Specific activities include:

- Risk management
- Health hazard identification and workplace site evaluations
- Development of guidelines for preplacement and periodic medical surveillance

- Direct patient care responsibilities in the management of acute injuries and other acute occupational health problems
- Consultation of workers' compensation
- Supervision of medical services provided to employees by primary care providers
- Reporting, monitoring and analysis of injury and disease rates in client companies
- Participation in the medical evaluation of disability/impairment determinations and rehabilitation programs of injured workers under the direction of appropriate specialists
- Marketing of occupational health services
- Provision of employee health services to health care workers of St. James Hospital and Health Centers

Physical Medicine and Rehabilitation (Elective)

The overall goal of this experience is to gain expertise in the diagnosis of musculoskeletal injuries and illnesses. Specific objectives are:

- To gain experience in conducting a complete musculoskeletal physical examination
- To develop an understanding of non-surgical management of musculoskeletal disease/injury
- To develop an understanding of indications for surgical intervention
- To understand indications for and assess quality of EMG/NCVs
- To understand the role of the Exercise Physiologist in diagnosis and management of musculoskeletal system

Description of Activities:
Residents may spend 2-4 weeks on this elective rotation. They participate in all aspects of patient care in the outpatient clinic of Dr. Terry Nicola, which is staffed during the following hours: Monday 8-5, Tuesday 12-8, Thursday 8-5.

Fridays are spent at the University Hospital conducting and analyzing results of Electromyography/Nerve Conduction Velocity. (Wednesdays are spent in Residency activities—conferences and outpatient Occupational Medicine Clinic).

In the outpatient clinic, residents do the initial evaluation or the follow-up evaluation of patients and then present and discuss the cases with Dr. Nicola. A management plan is decided upon; the resident then dictates the report of the visit.

Workers' Compensation Rotation

Kenneth Lewis is an attorney and member of the SHCC Residency Advisory Board. His Downtown Chicago practice is dedicated to plaintiff work within the Workers' Compensation System. Residents may spend one month with Mr. Lewis, although most of them pair this month-long experience with time spent in the private office of Dr. Jeffrey Coe, an Occupational Medicine physician located in Downtown Chicago.

The overall goal of this rotation is to give the resident experience with the workers compensation system in Illinois from a legal standpoint. Specific aims are:

- To become familiar with the Workers' Compensation laws of Illinois
- To become familiar with the attorney's role in workers compensation claims
- To become familiar with the role and inner workings of the State Industrial Commission
- To become familiar with the processes entailed in the WC system, from filing a claim to receiving a judgment from Industrial Commission arbitration
- To enhance skills in conducting medical literature reviews relevant to pending cases

The resident will:

- Read about and discuss Workers' Compensation law with Mr. Lewis
- Review forms and documents required for filing and "litigating" workers' compensation claims
- Visit the State of Illinois Industrial Commission
- Sit in on case arbitration at the Industrial Commission
- Sit in on depositions, as they arise
- Review specific cases that are in progress
- Conduct medical literature reviews relevant to specific, pending cases
- Meet with other attorneys in the firm to discuss progress and medical-legal theories on cases under review
- Meet with Mr. Lewis at least three times weekly to discuss his cases and to have questions answered regarding the Workers' Compensation system in Illinois

Toxicology Elective Rotation

The Toxikon Consortium is a multi-institutional clinical toxicology service that provides expert toxicology consultation to the John H. Stroger, Jr. Hospital of Cook County (formally Cook County Hospital), the University of Illinois, Rush Presbyterian-St. Luke's Medical Center and the Illinois Poison Control Center, all in Chicago. The clinical toxicology service and its toxicology fellowship program are housed in the Division of Occupational and Environmental Medicine at Stroger Hospital. Four-week elective rotations are available for Occupational Medicine residents. They participate in all educational activities and respond to phone consultations requests and to in-house consultations (Stroger Hospital, and at UIC).

The overall goal of this experience is to give the Occupational Medicine physician a sound clinical background in the diagnosis and management of the Poisoned or intoxicated patient. Specific objectives are:

- Gain competency in the differential diagnosis of the poisoned patient.
- Gain competency in implementing general toxicology management to the patient with an overdose.
- Learn the more common poisonings encountered by the general internist.
- Respond to and manage basic poison control center telephone calls.
- Learn to manage unstable poisoned patients in the intensive care setting.
- Gain clinical knowledge and skills in the diagnosis and treatment of acute and chronic poisonings.
- Gain knowledge of the basic science of toxicology including pharmacokinetics.
- Gain knowledge of environmental and occupational toxicology.
- Gain knowledge of the application of epidemiology, biostatics, and preventive medicine to toxicology.
- Acquire skills & knowledge of the application of laboratory techniques in toxicology.

UIC Medical Center at O'Hare Airport (Elective)

UIC Medical Center at O'Hare Airport, now completing its sixth year, is located in Terminal 2, inside security, at the Airport. It is open 7AM-10PM Monday through Friday and 9AM to 5 PM on Saturday, Sunday, and holidays. It is staffed by one physician and 1-3 technicians. Most of the physicians are board certified or board eligible in Emergency Medicine; some are internists, and two have Occupational Medicine training. Somewhere between 15 and 30 patients are seen in a day. Three-fourths of the patients have work-related injuries; 1/4 is the general flying public or employees at the Airport with non-occupational medical problems. DOT examinations, pre-placement physicals, periodic surveillance

exams, urine drug testing are conducted there. There is audiometry-tympanometry examination and breath alcohol testing available. Airport workers include ramp workers, flight attendants, mechanics, administrators, venders, rental car personnel, food service workers, and many other occupational groups.

The overall goal of this rotation is to provide residents with clinical and administrative experiences specific to airport workers and travelers. These include urgent care case evaluation and management, completion of paperwork for workers compensation and other insurance claims, conducting "wellness" activities as they arise (e.g., immunization programs, blood pressure screens), and attendance at meetings that entail administrative or marketing issues, as they arise.

The resident will:

- Clinically evaluate and treat acute and chronic injury and disease cases related to work.
- Clinically evaluate and treat non-occupational cases (mostly urgent care).
- Shadow technicians conducting urine drug screen to learn the practical details entailed
- Review drug screen results with the MRO certified physician
- Attend administrative and marketing meetings, as they arise
- Attend wellness/prevention screening fairs, as they arise
- Immunize travelers, as the need arises.
- Complete documentation required regarding return to work
- Complete documentation for workers compensation

Clinical Preventive Medicine - Elective Rotation

The Section of Preventive Medicine at Stroger Hospital of Cook County (formally Cook County Hospital) runs full-service clinical Preventive Medicine programs including smoking cessation, stress reduction, fitness, breast and cervical cancer screening, and flexible sigmoidoscopy clinics. The Section also houses a residency in Preventive Medicine that has two to three fellows per year. This will be a clinical precepting rotation with companion text and article readings assigned. The PM faculty and fellows will function as preceptors/instructors for the rotating residents.

The overall goal of this experience is to give the Occupational Medicine physician a strong background in the principles of clinical preventive medicine. Specific objectives are:

- Develop insight into how people change, based upon Prochaska and DiClemente's transtheoretical model of change.
- Develop principles for the delivery of behavior change interventions (i.e. being patient-centered, negotiating goals, providing follow-up, working with relapse).
- Provide an in-depth clinical experience in counseling and/or teaching in one of the areas of smoking cessation, dietary advice, or exercise prescription. In addition, housestaff will have clinical experience in some of the following areas; giving brief smoking cessation advice, waiting room recruitment of patients for flexible sigmoidoscopy (a public health model of recruiting), observing or performing preventive related procedural skills (flexible sigmoidoscopy, needle aspiration of breast lumps, Pap smear), participating in a stress reduction program for GMC patients.
- To understand Preventive Medicine literature with an appreciation for the grounding in epidemiology as well as clinical interventions.
- To develop critical reading skills.
- To appreciate the range of available interventions, including public health, brief provider interventions, and intensive interventions.
- To experience aspects of self-awareness and self-change for personal well-being.
- To experience the "patient perspective" for the purpose of developing empathy.
- To work with multi-disciplinary team of providers and trainers

Hazardous Substances Academic Training

1. Academic - Required Courses

Course # and Name	Semester Credit
EOHS405 Environmental Calculations	2
EOHS421 Fundamentals of Industrial Hygiene	2
EOHS428 Industrial Hygiene Laboratory I	2
EOHS529 Industrial Hygiene Laboratory II (Field Studies)	2
EOHS523 Industrial Hygiene: Engineering Control/Ventilation	4
EPID400 Principles of Epidemiology	3
BSTT400 Biostatistics I	3
BSTT401 Biostatistics II	4
EOHS584 Radiation Protection	3
EOHS431 Air Quality Management I	3
EOHS438 Air Quality Laboratory	2
EOHS424 Environmental Acoustics	2
EOHS482 Occupational Safety Science	2
EOHS570 Hazardous Materials Management	3
EOHS440 Chemistry for Environmental Professionals	3
EOHS455 Environmental and Occupational Toxicology	3
either EOHS556 Risk Assessment in Environmental & Occupational Health	3
or EOHS408 Biological, Chemical, Explosives, and Nuclear Weapons as Public Health Threats	3
Research Credit Hours: IPHS598 Research in Public Health Sciences	16
Total= Required + Research	**46 + 16 = 62**

2. HSAT trainees must attend weekly interdisciplinary seminar
3. HSAT trainees must attend Occupational Medicine Clinic (on a rotating basis this usually works out to once/3 weeks)
4. HSAT trainees must complete the 40-hour hazardous waste worker training course during the 2 years in the program
5. HSAT trainees must participate in at least one extended field test

Agricultural Safety and Health Academic

Minor in Agricultural Safety and Health
Anticipate Final Approval Fall 2006 Academic Year

The minor in Agricultural Safety and Health is designed to provide students with a strong understanding of the occupational safety and health issues facing production agriculture. The program will familiarize students with the primary injury control methodologies of behavioral persuasion, engineering design, and regulation or enforcement and their related strengths and weaknesses of effecting injury and occupational illness rates among agricultural populations. A minor in agricultural safety and health would benefit most students who intend to pursue any type of agricultural or rural health profession. There are no prerequisites for the minor.

Required Courses for Agricultural Safety and Health Minor	Hours
TSM 421 – Ag Safety – Injury Prevention	3
TSM 422 – Ag Health – Illness Prevention	3
TSM 425 – Ag Safety Interventions	3
A minimum of 3 credit hours is required from the following courses	
TSM 293 or ABE 293 – Off-Campus Internship	1-4
TSM 295 or ABE 396 – Undergraduate Research Thesis	1-4
TSM 496 or ABE 295 - Independent Study	1-4
A maximum of 6 credit hours selected from	
I E 442 - Safety Engineering	3
I E 348 - Human Factors in the Design of Complex Systems	3
IE 440 Occupational Biomechanics	3 or 4
CHLH 101 - Introduction to Public Health	3
CHLH 244 – Health Statistics	3
CHLH 274 - Introduction to Epidemiology	3
CHLH 304 - Foundations of Health Behavior	4
CHLH 469 – Environmental Health	3 or 4
CHLH 474 – Principles of Epidemiology	4
CHLH 540 – Health Behavior: Theory	4
FSHN 480 - Basic Toxicology	3
HDFS 105 – Intro to Human Development	3
HRE 415 – Diversity in the Workplace	4
HRE 585 – Program Evaluation	4
KIN 262 – Motor Develop, Growth & Form	3 or 4
KIN 454 – Growth & Physical Development	3 or 4
NUSC 206 - Personal Health and Wellness	4
PSYC 100 – Introduction to Psychology	4
PSYC 103 - Introduction to Experimental Psychology	4
PSYC 358 - Human Factors in Human-Machine Systems	4
PSYC 456 – Human Performance and Engineering Psychology	3 or 4
A minimum of 18 hours must be completed for this minor. Courses in the minor cannot be completed Credit/No Credit	

ERC Applicant Institution: University of Illinois at Chicago
Program Director: Peter A. Scheff, PhD, CIH
Discipline: Industrial Hygiene

Table 4a
Academic Training Report
Previous Budget Period: July 1, 2005 to June 30, 2006

Degree Awarded	How Does Degree Read?	# Full-Time Trainees Enrolled[1]	# Full-Time NIOSH-Supported Trainees	# Part-Time Trainees Enrolled	# Part-Time NIOSH-Supported Trainees	# Other Trainees Taking OS&H Courses[2]	# Trainees Graduated
Baccalaureate/associate degree							
N/A							
Master's degree							
	Master of Science in Environmental and Occupational Health Sciences	15	13	0	0		4
	Master of Public Health in Environmental and Occupational Health Sciences	2	1	0	0		2
	Undergraduate or graduate					74	
Doctorate degree							
	Doctor in Philosophy in Environmental and Occupational Health Sciences	4	2	3	0		3
Post-doctoral (Include formally registered Occupational Medicine residents in all years of the residency.)[3]							
NA							
Other (specify, e.g., undergraduate Certificate program trainees)							
NA							

Refer to: Supplemental Instructions, page 10.

[1] Trainee counts include all students in the approved programs.

[2] Does not include trainees counted in any of the full-time or part-time categories

[3] In this case, there may be double counting between Doctorate degree and Post-doctoral categories.

ERC Applicant Institution: University of Illinois at Chicago
Program Director: Shannon Lizer, DNSc, APN
Discipline: Occupational Health Nursing

Table 4a
Academic Training Report
Previous Budget Period: July 1, 2005 to June 30, 2006

Degree Awarded	How Does Degree Read?	# Full-Time Trainees Enrolled[1]	# Full-Time NIOSH-Supported Trainees	# Part-Time Trainees Enrolled	# Part-Time NIOSH-Supported Trainees	# Other Trainees Taking OS&H Courses[2]	# Trainees Graduated
Baccalaureate/associate degree							
Master's degree							
MS Nurse Practitione	Masters of Science in Nursing OHN	1	1	0	0	0	1
MS Administrative Tra	Masters of Science in Nursing	4	0	4	4	0	1
Doctorate degree							
Dpctorate of Nusrsing	PhD	3	2	0	0	0	1
Post-doctoral (Include formally registered Occupational Medicine residents in all years of the residency.)[3]							
Other (specify, e.g., undergraduate Certificate program trainees)							

Refer to: Supplemental Instructions, page 8.

[1] Trainee counts include all students in the approved programs.

[2] Does not include trainees counted in any of the full-time or part-time categories

[3] In this case, there may be double counting between Doctorate degree and Post-doctoral categories.

ERC Applicant Institution: University of Illinois at Chicago
Program Director: Susan Buchanan, MD, MPH
Discipline: Occupational Medicine

Table 4a
Academic Training Report
Previous Budget Period: July 1, 2005 to June 30, 2006

Degree Awarded	How Does Degree Read?	# Full-Time Trainees Enrolled[1]	# Full-Time NIOSH-Supported Trainees	# Part-Time Trainees Enrolled	# Part-Time NIOSH-Supported Trainees	# Other Trainees Taking OS&H Courses[2]	# Trainees Graduated
Baccalaureate/associate degree							
Master's degree							
		6	5				2
Doctorate degree							
Post-doctoral (Include formally registered Occupational Medicine residents in all years of the residency.)[3]							
		6	5	0			2
Other (specify, e.g., undergraduate Certificate program trainees)							

Refer to: Supplemental Instructions, page 10.

[1] Trainee counts include all students in the approved programs.

[2] Does not include trainees counted in any of the full-time or part-time categories

[3] In this case, there may be double counting between Doctorate degree and Post-doctoral categories.

ERC Applicant Institution: University of Illinois at Chicago
Program Director: Rachel Rubin, MD, MPH
Discipline: Occupational Medicine (Stroger)

Table 4a
Academic Training Report
Previous Budget Period: July 1, 2005 to June 30, 2006

Degree Awarded	How Does Degree Read?	# Full-Time Trainees Enrolled[1]	# Full-Time NIOSH-Supported Trainees	# Part-Time Trainees Enrolled	# Part-Time NIOSH-Supported Trainees	# Other Trainees Taking OS&H Courses[2]	# Trainees Graduated
Baccalaureate/associate degree							
Master's degree							
	M.P.H.	6	5	0	0	0	2
Doctorate degree							
Post-doctoral (Include formally registered Occupational Medicine residents in all years of the residency.)[3]							
Other (specify, e.g., undergraduate Certificate program trainees)							

Refer to: Supplemental Instructions, page 10.

[1] Trainee counts include all students in the approved programs.

[2] Does not include trainees counted in any of the full-time or part-time categories

[3] In this case, there may be double counting between Doctorate degree and Post-doctoral categories.

ERC Applicant Institution: University of Illinois at Chicago
Program Director: Peter A. Scheff, PhD, CIH
Discipline: Hazardous Substances Academic Training

Table 4a
Academic Training Report - HSAT
Previous Budget Period: July 1, 2005 to June 30, 2006

Degree Awarded	How Does Degree Read?	# Full-Time Trainees Enrolled[1]	# Full-Time NIOSH-Supported Trainees	# Part-Time Trainees Enrolled	# Part-Time NIOSH-Supported Trainees	# Other Trainees Taking OS&H Courses[2]	# Trainees Graduated
Baccalaureate/associate degree							
N/A							
Master's degree							
	Master of Science in Environmental and Occupational Health Sciences	3	3	0	0		1
	Master of Public Health in Environmental and Occupational Health Sciences	0	0	0	0		0
	Undergraduate or graduate					0	
Doctorate degree							
	Doctor in Philosophy in Environmental and Occupational Health Sciences	0	0	3	0		0
Post-doctoral (Include formally registered Occupational Medicine residents in all years of the residency.)[3]							
NA							
Other (specify, e.g., undergraduate Certificate program trainees)							
NA							

Refer to: Supplemental Instructions, page 10.

[1] Trainee counts include all students in the approved programs.

[2] Does not include trainees counted in any of the full-time or part-time categories

[3] In this case, there may be double counting between Doctorate degree and Post-doctoral categories.

ERC Applicant Institution: University of Illinois at Chicago
Program Director: Robert Aherin, PhD
Discipline: Agriculture Safety and Health- Academic

Table 4a
Academic Training Report
Previous Budget Period: July 1, 2005 to June 30, 2006

Degree Awarded	How Does Degree Read?	# Full-Time Trainees Enrolled[1]	# Full-Time NIOSH-Supported Trainees	# Part-Time Trainees Enrolled	# Part-Time NIOSH-Supported Trainees	# Other Trainees Taking OS&H Courses[2]	# Trainees Graduated
Baccalaureate/associate degree							
BS	Technical Systems Management		3			8	1
BS	Plant Sciences					1	
BS	Animal Sciences					2	
Master's degree							
MS	Human & Community Development		2			1	1
Doctorate degree							
Post-doctoral (Include formally registered Occupational Medicine residents in all years of the residency.)[3]							
Other (specify, e.g., undergraduate Certificate program trainees)							

Refer to: Supplemental Instructions, page 10.

[1] Trainee counts include all students in the approved programs.

[2] Does not include trainees counted in any of the full-time or part-time categories

[3] In this case, there may be double counting between Doctorate degree and Post-doctoral categories.

** Students in this program are enrolled in degree programs in various departments. Those who are trainees are taking ag safety and health program courses that allows them to devop a special emphasis area in ag safety and health. There is no specific degree in this area. Approval for an undergraduate minor is pending. During this past project year there were 5 trainees enrolled in the program they included two MS students and three undergraduate students.

ERC Applicant Institution: University of Illinois at Chicago
Program Director: Leslie Nickels, MEd

Table 12a
CE Course Offerings by Program Area
July 1, 2005 - June 30, 2006

Course/Seminar Title*	Program Area	Total Trainees	Length of Course	Total Pers Days	# Trainees by Profession					# Trainees by Employer						
					MD	NURS	HYG	SAFETY	OTHER	Private Industry	Fed Gov	State Gov	Local Gov	Foreign Country	Academic	Other
APTI 345: Emission Capture and Gas Handling System Inspection	IH	14	3	42			14				9	3				2
APTI 452: Principles and Practice of Air Pollution Control	IH	28	3	84			28			1	23	1	2		1	
APTI 452: Principles of Air Pollution Ctrl (Springfield)	IH	16	3	48			16			1	5	3				7
APTI 444: Air Pollution Enforcement	IH	28	3	84			28					28				
APTI 435: Atmospheric Sampling	IH	16	3	48			16					10	5		1	
APTI 450: Source Sampling & Pollutants	IH	9	5	45			5	4			1					8
Collaboration for a Better work Env for Brazilians in MA	IH	8	2	16		1	6		1	2					6	
The Relationship Between Pesticide Exp & Depression Among Farmers	IH	29	2	58		1	3		25	4	1		1		23	
Subtotal IH		**148**	**24**	**425**	**0**	**2**	**116**	**4**	**26**	**8**	**39**	**45**	**8**	**0**	**31**	**17**
Niosh Approved Spirometry	OHN	31	2	62	1	17			13	20	1		1		8	1
Niosh Approved Spirometry	OHN	25	2	50		16			9	14			5		5	1
Solve-Addressing Psychosocial Problems at Work	OHN	15	5	75	1	9			5	13						2
Nursing Unions In Illinois: Formula for the Future	OHN	37	1	37		22			15	2		4	1		9	21
Subtotal OHN		**108**	**10**	**224**	**2**	**64**	**0**	**0**	**42**	**49**	**1**	**4**	**7**	**0**	**22**	**25**
Occupational Medicine	OM	16	0.5	8	16					10		3			3	
Toxic Occupational Fatalities in US	OM	8	0.5	4	8							8				
FAA Pilot Medical Certification	OM	5	0.5	2.5	5							5				
Update in Air Pollution	OM	4	0.5	2	4							4				
Risk for Injury in VHA nurses	OM	6	0.5	3	6							6				
Drug Testing	OM	8	0.5	4	8							8				
Prognosis in Occupational Asthma	OM	4	0.5	2	4							4				
TLV Committee-Process of Decision Making	OM	7	0.5	3.5	7							7				
EMG for the Non-Neurologists	OM	7	0.5	3.5	7							7				
Occupational Cancer-Where we've been and Where we're going	OM	6	0.5	3	6							6				
Respirator Selection and Clearance	OM	9	0.5	4.5	9							9				
Update in Occu Exposure in Bloodborne Pathogens	OM	4	0.5	2	4							4				
Exposures Assoc with Methamphetamine Lab	OM	8	0.5	4	8							8				
Corporate Occupational Health Services in an Era of Globalization	OM	7	0.5	3.5	7							7				
Business of Occ Medicine	OM	3	0.5	1.5	3							3				
Hospital Waste Incineration Case Study	OM	5	0.5	2.5	5							5				
Occupational vs. Non-Occupational Resp Disease	OM	6	0.5	3	6							6				
Occupational Asthma	OM	3	0.5	1.5	3							3				
Work Restrictions	OM	6	0.5	3	6							6				
Office Management of Pain: New Thepeutic Modalities	OM	19	0.5	9.5	18				1	10		8				1
New Directions in the Diagnosis and Treatment of inflammatory Arthropathies	OM	16	0.5	8	16					9		5				2
Status of Legislation in Springfield of Interest to Physicians	OM	12	0.5	6	12					4		8				
Public Safety Medicine Standards and Guidelines	OM	14	0.5	7	14					7		7				
Musculoskeletal Pelvic Pain	OM	17	0.5	8.5	14				3	9		5				3
International Programs in OccMed	OM	16	0.5	8	13				3	10		3				3
Life After Corporate Medicine: Options, Opportunities & Obligations	OM	19	0.5	9.5	18				1	13		6				
Corporate Occupational Health Services in an Era of Globalization	OM	22	0.5	11	22					14		8				
Spotlight on Children's Environmental Health	OM	21	1	21	3			1	17	1	3		1		6	10
CME Methyl-Children's Environmental Health Case Study	OM	57	1	57	5	3			49	7	3				10	37
Immigrant Workers: Vulunerable workers in high risk worksites	OM	12	2.5	30	12						3					9
Occupational Medicine	OM	4	0.5	2	4						2	2				
Occupational Medicine	OM	5	0.5	2.5	5						3	2				

ERC Applicant Institution: University of Illinois at Chicago
Program Director: Leslie Nickels, MEd

Table 12a
CE Course Offerings by Program Area
July 1, 2005 - June 30, 2006

Course/Seminar Title*	Program Area	Total Trainees	Length of Course	Total Pers Days	# Trainees by Profession					# Trainees by Employer						
					MD	NURS	HYG	SAFETY	OTHER	Private Industry	Fed Gov	State Gov	Local Gov	Foreign Country	Academic	Other
Occupational Med-Toxic Fatalities	OM	7	0.5	3.5	7								5		2	
Occupational Med-Dermatitis in Hair Dressers	OM	5	0.5	2.5	5								3		2	
Occupational Medicine-Cancer Cluster Investigation	OM	5	0.5	2.5	5								4		1	
Occupational Medicine- USPSTF Guidelines	OM	5	0.5	2.5	5								4		1	
Subtotal OM		**378**	**21**	**252**	**300**	**3**	**0**	**1**	**74**	**94**	**14**	**163**	**17**	**0**	**25**	**65**
UIC- Radon Measurement	OS	51	2.5	127.5				51		37						14
UIC- Radon Measure.	OS	3	1	3				3		3						
UIC- Radon Mitigators	OS	25	4	100				25		12		3	2			8
UIC- Radon Mitigation	OS	3	1	3				3		3						
Radon Best Pract.: Murphy's Law	OS	11	0.2	2.2				11		6			5			
Radon Best Pract.: Meas.& Miti.	OS	15	0.2	3				15		11			4			
Radon Science Ce Ser.: The Basic	OS	9	0.2	1.8				9		4			5			
Radon Science: Epid. Of Radon	OS	13	0.2	2.6				13		12						1
School&Comm. Bldg.	OS	3	0.2	0.6				3		3						
Passive to Active Mitigation	OS	7	0.5	3.5				7		4			3			
Radon Best Pract. Measurement	OS	9	0.2	1.8				9		5			4			
Radon Resouces for Public Health Professionals	OS	26	1	26		1	1		24	5			4		9	8
Collaborative IRB Training Initiative	OS	4	1	4				4		4						
Occu Safety & Health for Gen Industry	OS	22	0.5	11				0	22							22
OSHA 10 Occu Hlth Course for Gen Industry	OS	14	0.5	7				0	14							14
Eval of Occu Pulmonary Diseases Module	OS	20	0.5	10	17				3							20
Org for a Safety & Healthy Workplace	OS	7	2	14			7									7
Subtotal OS		**242**	**15.7**	**321**	**17**	**1**	**8**	**153**	**63**	**109**	**0**	**3**	**27**	**0**	**9**	**94**
8 Hr General Siteworker Refresher	HST	4	1	4				4								
40 Hr Hazwoper	HST	4	5	20				4								
8 Hr General Siteworker Refresher	HST	4	1	4				4								
8 Hr General Siteworker Refresher	HST	5	1	5				5								
8 Hr General Siteworker Refresher	HST	3	1	3				3								
8 Hr General Siteworker Refresher	HST	3	1	3				3								
3 Hr Awareness	HST	25	1	25				25								
8 Hr General Siteworker Refresher	HST	5	1	5				5								
8 Hr General Siteworker Refresher	HST	3	1	3				3								
8 Hr General Siteworker Refresher	HST	4	1	4				4								
40 Hr Hazwoper	HST	3	5	15				3								
8 Hr General Siteworker Refresher	HST	2	1	2				2								
8 Hr General Siteworker Refresher	HST	2	1	2				2								
40 Hr Technician	HST	1	5	5				1								
40 Hr Hazwoper	HST	8	5	40				8								
8 Hr General Siteworker Refresher	HST	2	1	2				2								
4 Hr Awareness Class	HST	20	0.5	10				20								
8 Hr Emergency Response Refresher	HST	10	1	10				10								
8 Hr Emergency Response Refresher	HST	9	1	9				9								
8 Hr Emergency Response Refresher	HST	10	1	10				10								
8 Hr Emergency Response Refresher	HST	1	1	1				1								
40 Hr Hazwoper	HST	2	5	10				2								
Subtotal HST		**130**	**41.5**	**192**	**0**	**0**	**0**	**130**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**130**

ERC Applicant Institution: University of Illinois at Chicago
Program Director: Leslie Nickels, MEd

Table 12a
CE Course Offerings by Program Area
July 1, 2005 - June 30, 2006

Course/Seminar Title*	Program Area	Total Trainees	Length of Course	Total Pers Days	# Trainees by Profession					# Trainees by Employer						
					MD	NURS	HYG	SAFETY	OTHER	Private Industry	Fed Gov	State Gov	Local Gov	Foreign Country	Academic	Other
Personal Factors (BB)	Ag S&H	135	0.5	67.5				2	133	133			2			
Personal Factors (KH)	Ag S&H	60	0.5	30				2	58	58			2			
Personal Factors (Ind.Gravel)	Ag S&H	40	0.5	20				2	38	37		2	1			
IAAP	Ag S&H	75	0.5	37.5	1	2	2	4	66	50					15	10
UIUC Medical R-MED	Ag S&H	20	1	20	20										20	
MSHA	Ag S&H	30	1	30		1		20	9	12	5	8			5	
Overview of Hazards in Illinois Production Ag	Ag S&H	19	1	19	3				16						13	6
Attempting to Understand Ag Safety & Health Behaviors	Ag S&H	10	1	10	1	1			8				1		8	1
Confined Space Entry	Ag S&H	106	1	106				5	101	92		3			3	8
Farm Machinery Accident Emergency Response	Ag S&H	32	2	64					32							32
Agricultural Safety Behavior Interventions	Ag S&H	33	0.25	8.25		3		20	10	5	4				18	6
Grain Elevator Safety	Ag S&H	12	1	12				3	9	12						
Subtotal Ag S&H		**572**	**10.25**	**424.25**	**25**	**7**	**2**	**58**	**480**	**399**	**9**	**13**	**6**	**0**	**82**	**63**
	Other (specify- i.e. Toxicology, Occ Epi, Ergonomics, Biostatistics, etc.)															
Brownfields	HUD	12	1	12		1			11				4		5	3
Environmental Performance Contracting	HUD	19	4	76					19	6	6		7			
Environmental Performance Contracting	HUD	30	4	120					30	15	6		9			
Midwest Summit on the Sustainable Redevelopment of Brownfields	HUD	91	3	273					91	36	12	14	21		6	2
Nuts & Bolts: Brownfield Redevelopment for Local Govt	HUD	37	5	185					37	16	5		14		1	1
Nuts & Bolts: Brownfield Redevelopment for Local Govt	HUD	43	5	215					43	6	8	17	11		1	
Orientation to Environmental Assessment - April, 2005	HUD	15	4.5	67.5					15		1	1	13			
Orientation to Environmental Assessment - September 12-16, 2005	HUD	18	4.5	81					18				18			
Orientation to Environmental Assessment - September 19-23, 2005	HUD	29	4.5	130.5					29	1		6	22			
Orientation to Environmental Assessment, April 3-7, 2006	HUD	17	4.5	76.5					17		1	15	1			
Sustainable Development Panel Series - 2005	HUD	95	0.4	38					95	29	26		20		9	11
Sustainable Development Series - Environment & Social Equity 4/21/06	HUD	25	0.2	5					25	13	2		2		2	6
Sustainable Development Series-June 06	HUD	49	0.2	9.8			1		48	10	30	1	1		2	5
Art Classroom Health & Safety Workshop	Saf	26	1	26				26					26			
Daily Indignities and Occupational Hazards: Results from the Natl Day Labor Survey	Saf	36	1	36	4	1	27	1	3				1		33	2
EnviroRisk	Saf	1878		0	144				1734							1878
Essentials of Healthy Homes Practitioner	Saf	20	2	40		3		12	5	4	1		15			
Immigration Conference	Saf	65	2	130	2	11			52	2					63	
Parking Industry Health and Safety Hazards	Saf	43	1	43					43				43			
Parking Industry Health and Safety Hazards	Saf	43	1	43					43							43
Cancer Clusters		10	0.2	2	2				8	1			2		3	4
Community Based Participatory Research		10	0.2	2	1	2			7				1		5	4
Conducting an Exposure Assessment		14	0.2	2.8	4				10	2			3		6	3
Disease & Vector Management-West Nile Virus		5	0.2	1	1		1		3				2		2	1
Performing an Environmental Health Audit At Your School		9	0.2	1.8	2		3		4				5		3	1
Pullman Labor History Tour		25	0.4	10	2		9		14				2		22	1
Safer Pest Control for Children		7	0.2	1.4	1				6						6	1
Taking an Environmental History		15	0.2	3	2				13	1					6	8
The Ins and Outs of Integrated Pest Management		10	0.2	2					10						10	
West Nile Virus Update		6	0.2	1.2	2				4				2		2	2
Lead Poisoning Prevention and Removal		10	0.2	2			1		9				2		6	2
High Blood Lead Identification and Screening		8	0.2	1.6			1		7				2		5	1
Taking an Occupational History		16	0.2	3.2	4	1			11	4					7	5
IDPH Safe Chemicals in School Projects		10	0.2	2	2		1		7	1			2		2	5

ERC Applicant Institution: University of Illinois at Chicago
Program Director: Leslie Nickels, MEd

Table 12a
CE Course Offerings by Program Area
July 1, 2005 - June 30, 2006

Course/Seminar Title*	Program Area	Total Trainees	Length of Course	Total Pers Days	# Trainees by Profession					# Trainees by Employer						
					MD	NURS	HYG	SAFETY	OTHER	Private Industry	Fed Gov	State Gov	Local Gov	Foreign Country	Academic	Other
Medical Waste		8	0.2	1.6	3	1	1		3				3		2	3
Mold and Fungi		15	0.2	3	2		1		12	2			2		2	9
	Other (specify- i.e. Toxicology, Occ Epi, Ergonomics, Biostatistics, etc.)															
Subtotal Each Other Category		**2769**	**52.2**	**1647.9**	**178**	**20**	**46**	**39**	**2486**	**149**	**98**	**54**	**256**	**0**	**211**	**2001**
GRAND TOTALS (All Program Areas		**3785.25**	**588.65**	**3086.9**	**504**	**92**	**228**	**807**	**3090**	**418**	**165**	**275**	**315**	**82**	**361**	**2332**

ERC Applicant Institution: University of Illinois at Chicago
Program Director: Leslie Nickels, MEd

Table 12b
CE Course Offerings - Summary by Program Area
July 1, 2005 - June 30, 2006

				# Trainees by Profession					# Trainees by Employer						
Program Area	**Total Trainees**	**Total # of Courses**	**Total Pers Days**	**MD**	**NURS**	**HYG**	**SAFETY**	**OTHER**	**Private Industry**	**Fed Gov**	**State Gov**	**Local Gov**	**Foreign Country**	**Academic**	**Other**
Industrial Hygiene (IH)	148	8	425	0	2	116	4	26	8	39	45	8	0	31	17
Occupational Health Nursing (OHN)	108	4	224	2	64	0	0	42	49	1	4	7	0	22	25
Occupational Medicine (OM)	378	36	252	300	3	0	1	74	94	14	163	17	0	25	65
Occupational Safety (OS)	242	17	321	17	1	8	153	63	109	0	3	27	0	9	94
Hazardous Substance Training (HST)	130	22	192	0	0	0	130	0	0	0	0	0	0	0	130
Agricultural Safety and Health (Ag S&H)	572	12	424.25	25	7	2	58	480	399	9	13	6	0	82	63
Other OS&H (e.g. Toxicology, Epidemiology, Ergonomics, Biostatistics)	2769	35	1647.9	178	20	46	39	2486	149	98	54	256	0	211	2001
TOTAL	**4347**	**134**	**3486.15**	**522**	**97**	**172**	**385**	**3171**	**808**	**161**	**282**	**321**	**0**	**380**	**2395**

ERC Applicant Institution: University of Illinois at Chicago
Program Director: Peter A. Scheff, PhD, CIH
Discipline: Industrial Hygiene and HSAT

Table 13
Minority Recruitment Data[1]
Previous Budget Period: July 1, 2005 to June 30, 2006

	GROUP DATA			INDIVIDUAL DATA			
	# of Minorities Applied	# of Minorities Offered Admission	# of Minorities Entered Program	For those who entered program: Identify by sequential #	Current Status (in training, graduated, left the program, etc.)	Sources of Support	Subsequent Career Development/ Employment
EOHS Division	12	12	8			All NIOSH + either UIC or other research grants	
IH & HSAT	NA	3	3	1	In training	NIOSH and other research grant	NA
				2	In training	NIOSH and UIC	NA
				3	Left program	NIOSH and EOHS	NA

Refer to: Supplemental Instructions, page 11.

[1] First three columns are a group total; last four columns refer to individual trainees.

ERC Applicant Institution: University of Illinois at Chicago
Program Director: Shannon Lizer, DNSc, APN
Discipline: Occupational Health Nursing

Table 13
Minority Recruitment Data[1]
Previous Budget Period: July 1, 2005 to June 30, 2006

GROUP DATA			INDIVIDUAL DATA			
# of Minorities Applied	# of Minorities Offered Admission	# of Minorities Entered Program	For those who entered program: Identify by sequential #	Current Status (in training, graduated, left the program, etc.)	Sources of Support	Subsequent Career Development/ Employment
5	5	4	1	in training	NIOSH	Employee Health Nurse/UIC
			2	in training	NIOSH	Registered Nurse
			3	in training	NIOSH	Registered Nurse
			4	in training	NIOSH	Research Assistant UIC CON

Refer to: Supplemental Instructions, page 11.

[1] First three columns are a group total; last four columns refer to individual trainees.

ERC Applicant Institution:Univ of Illinois at Chicago
Program Director: Susan Buchanan, MD, MPH
Discipline: Occupational Medicine

Table 13
Minority Recruitment Data[1]
Previous Budget Period: July 1, 2005 to June 30, 2006

GROUP DATA			INDIVIDUAL DATA			
# of Minorities Applied	# of Minorities Offered Admission	# of Minorities Entered Program	For those who entered program: Identify by sequential #	Current Status (in training, graduated, left the program, etc.)	Sources of Support	Subsequent Career Development/ Employment
30	4	3	1	in training	NIOSH ERC, UIC College of Medicine	
			2	in training	NIOSH ERC, UIC College of Medicine	
			3	in training	NIOSH ERC, UIC College of Medicine	

Refer to: Supplemental Instructions, page 13.

[1] First three columns are a group total; last four columns refer to individual trainees.

ERC Applicant Institution: University of Illinois
Program Director: Rachel Rubin, MD, MPH
Discipline: Occupational Medicine (Stroger)

Table 13
Minority Recruitment Data[1]
Previous Budget Period: July 1, 2005 to June 30, 2006

GROUP DATA			INDIVIDUAL DATA			
# of Minorities Applied	# of Minorities Offered Admission	# of Minorities Entered Program	For those who entered program: Identify by sequential #	Current Status (in training, graduated, left the program, etc.)	Sources of Support	Subsequent Career Development/ Employment
15	1	1	1	in training	Stroger Hospital/NIOSH	

Refer to: Supplemental Instructions, page 13.

[1] First three columns are a group total; last four columns refer to individual trainees.

ERC Applicant Institution: University of Illinois at Chicago
Program Director: Robert Aherin, PhD
Discipline: Agricultural Safety and Health- Academic

Table 13
Minority Recruitment Data[1]
Previous Budget Period: July 1, 2005 to June 30, 2006

GROUP DATA			INDIVIDUAL DATA			
# of Minorities Applied	# of Minorities Offered Admission	# of Minorities Entered Program	For those who entered program: Identify by sequential #	Current Status (in training, graduated, left the program, etc.)	Sources of Support	Subsequent Career Development/ Employment
1*	1	1		Graduated	NIOSH	Entered MS industrial hygiene program at UIC and is a NIOSH Graduate Trainee

* student was a trainee in the previous year but re-applied for his senior year.

Refer to: Supplemental Instructions, page 13.

[1] First three columns are a group total; last four columns refer to individual trainees.

Appendix C Publications by program area of faculty and trainees during the reporting period that have resulted, in whole or part, from ERC training grant support.

IHF=Industrial Hygiene Faculty; IHT=IH/HSAT Trainees; OMF=Occupational Medicine Faculty; OMT=Occupational Medicine Trainee; OHNT=Occupational Health Nursing Trainee, ASHT=Agricultural Safety and Health Trainee, ASHF=Agricultural Safety and Health Faculty

Industrial Hygiene

An Li (IHF) and Xiaoyu Liu. Combined Effects of Aging and Cosolvents on Sequestration of Phenanthrene in Soils, Journal of Environmental Engineering 131(7): 1068-1072, 2005

An Li (IHF), Chao Tai, Yawei Wang, Qinghua Zhang, and Guibin Jiang. Rapid Debromination of Decabromodiphenyl Ether by Nanoscale Zero-Valent Iron. The 2nd International Symposium on Persistent Toxic Substances. Beijing, China. May 15-18, 2005.

An Li (IHF), Todd M. Schoonover (IHT), Qimeng Zou, Felice Norlock (IHT), Lorraine M. Conroy (IHF), Peter A. Scheff (IHF), and Richard A. Wadden (IHF). Polycyclic Aromatic Hydrocarbons in Residential Air of Ten Chicago Area Homes: Concentration Levels and Influencing Factors. Atmospheric Environment, 39(19), 3491-3501, 2005

Curtis (IHT), L., S. Cali (IHF), L.M. Conroy (IHF), K. Baker (IHT), C.H. Ou, R. Hershow, F. Norlock (IHT), and P.A. Scheff (IHF): Aspergillus Surveillance Project at a Large Tertiary Care Hospital. J Hosp Infect. 2005 Mar;59(3):188-96.

Dardynskaia (IHF) I.V, Okeanov A.E., Petrenko S.V., Dardynskiy O.A., Cuvshinnikov A.V., Slutskiy M.A., Levushev B.Y The influence of environmentally related thyroid disorders on the development of breast cancer among women in Belarus Republic, Proceedings of the International Conference "Sakharov Readings 2005: Environmental problems of the XXI century", May 20-21, 2005, pp 91-93

David R. Buckley, An Li (IHF), Philip Bzdusek, Erik R. Christensen, Qimeng Zou. Source Apportionment of Sediment PAHs in Lake Calumet, Chicago: Application of Factor Analysis with Nonnegative Constraints Environ. Sci. Technol. (in review).

David R. Buckley, Karl J. Rockne, An Li (IHF), and William J. Mills. Organic Matter Degradation in Near-Surface Great Lakes Sediments. Journal of the Great Lake Research (in review)

Davis, F.G., Williams, L., Erdal, S(IHF)., and D.D. Bigner. 2006. Characterization of Work Exposures to a Subset of Known and Suspected Animal Neurocarcinogens using the National Occupational Health Survey (1980-1983). International Journal of Environmental and Occupational Health. 12(1):16-23

Erdal (IHF), S. and A. Carolla (IHT). Assessment of the Health Protectiveness of the Risk-Based Soil Remediation Standards of the Midwestern States. Submitted to the Human and Ecological Risk Assessment. (in press)

Erdal (IHF), S. and L. Berman (IHT). Occupational Exposure Environment, Risk Factors, and Hazard Awareness of Metal Sculptors and Artist Welders in the U.S. Submitted to International Journal of Environmental Health Research. (in press)

Erdal (IHF), S. and S.N. Buchanan (OMF). 2005. A Quantitative Look at Fluorosis and Fluoride Exposure and Intake of Children using a Health Risk Assessment Approach. Environmental Health Perspectives. 113(1):111-117

Erdal (IHF), S., Bigner, D.D., and F.G. Davis. Human Exposure Analysis of Animal Neurocarcinogens using Environmental Fate and Transport Information. Submitted to Neuro-Oncology

Erdal (IHF), S., D. Hryhorczuk (OMF), and L. Berman (IHT). Multi-media PCB Emissions Inventory for the Great Lakes Region in the U.S. Air and Waste Management Association Journal. Accepted.

GA Day, G. A., AB Stefaniak, A.B.,Hoover,M. D., Dickerson,R.M., Peterson,E. J., Esmen (IHF), N. A., Scripsick, R. C.: "Bioavailability of Beryllium Oxide Particles: An In Vitro Study in the Murine J774A.1 Macrophage Cell Line Model" Experimental Lung Research. 31: 341-360 (2005)

Huhn, Gregory D., C. Austin, M. Carr, D. Heyer, P. Boudreau, G. Gilbert, T. Eimen, M.D. Lindsley, S. Cali (IHF), C.S. Conover, and M.S. Dworkin, Two Outbreaks of Occupationally Acquired Histoplasmosis: More than Workers at Risk, Environmental Health Perspectives, Vol. 113, No. 5, May, 2005

Johnston, K. L., Phillips, M. L., Esmen (IHF), N. A. and Hall, T. A.: Evaluation of An Artificial Intelligence Program For Estimating Occupational Exposures Annals of Occ. Hyg. (In Press – Feb 2005)

Johnston, KL, Phillips, ML, Esmen (IHF), NA, and Hall, TA: Evaluation of an Artificial Intelligence Program for Estimating Occupational Exposures: Annals of Occ. Hyg. 49:147-153 (2005)

Lacey (IHT), (IHF), S., Forst, L., et al. Eye injury in migrant farm workers and suggested hazard controls. Submitted and under review, J Ag Safety and Health (2006).

Lacey, S., Conroy, L., et al. Dust emission rates from food processing. Submitted and under review, Ann Agric Environ Med (2006).

Lymari Ruiz-Sanchez (IHT), Margit Javor, An Li (IHF), Salvatore Cali (IHF), and Peter A. Scheff (IHF). Optimization of HPLC Method for Analysis of Mycotoxins in House Dust Samples. Indoor Air (submitted)

Lynn R. Anspaugh, Irina V. Dardynskaia (IHF), Valeri T. Khrouch, Yuri I. Gavrilin, Sergei M. Shinkarev, Daniel Hryhorczuk, and Oleg Dardynskiy. Preliminary assessment of in utero thyroid doses from I-131 for a sample of Belarusian children enrolled in a longitudinal study of health effects of radiation exposure from the Chernobyl accident, Radiation Research, 2005, in press.

Marsh, GM, Youk, AO, Esmen (IHF), NA and Buchanich, JM: Mortality Patterns among Workers in an U.S. Pharmaceutical Production Plant Annals of Epidemiology 15:112–122(2005).

Michael Rizzo and Peter A. Scheff (IHF): Comparison of Fine Particulate Source Contributions for Three Urban and One Rural Site in the Midwest United States. Manuscript under development, May, 2006.

Michael Rizzo and Peter A. Scheff (IHF): Examining Rotations for the Positive Matrix Factorization Model using Edges in Chicago. Manuscript under development, May, 2006.

Michael Rizzo and Peter A. Scheff (IHF): Fine Particulate Source Apportionment using Data from the USEPA Speciation Trends Network in Chicago, Illinois: Comparison of Two Source Apportionment Models. Manuscript under development, May, 2006.

Pelka-Mucha, A., Hryhorczuk, D., Serdyuk, A., Nakonechny, J., Zvinchuk, A., Erdal, S., Caudill, M., Scheff, P., Lukyanova, E., Shkiryak-Nyzhnyk, Z. and Chislovska, N.: Urinary 1-Hydroxypyrene as a Biomarker of PAH Exposure in Three-Year-Old Ukrainian Children. Environmental Health Perspectives, 114(4): 603-607, 2006.

Phillips, ML, Esmen (IHF), NA, Hall, TA, and Lynch, RL: Determinants of Exposure to Volatile Organic Compounds in Four Oklahoma Cities J. Exp. Anal. and Environ. Epid. 15: 35-46 (2005)

Lacey SE, Conroy LM, Forst LS, Franke JE, Wadden RA, Hedeker DR.: Personal dust exposures at a food processing facility.J Agromedicine. 2006;11(1):49-58.

Turyk, M., Curtis (IHT), L., Scheff (IHF), P., Contrares, A., Coover, L., Hernandez, E., Freels, S., and Persky, V.: Environmental Allergens and Asthma Morbidity in Low Income Children, Journal of Asthma 43:453-457, 2006.

Turyk, M., Curtis, L., Scheff, P., Contrares, A., Coover, L., Hernandez, E., Freels, S., and Persky, V.: Environmental Allergens and Asthma Morbidity in Low Income Children, Journal of Asthma 43:453-457, 2006.

Wenlu Song, An Li (IHF), Justin C. Ford (IHT), Neil C. Sturchio, David R. Buckley, Karl J. Rockne, William J. Mills. Polybrominated Diphenyl Ethers in the Sediment of the Great Lakes. 2 - Lakes Huron and Michigan. Environmental Science and Technology 39(10), 3474-3479, 2005

Wenlu Song, Justin C. Ford (IHT), An Li (IHF), Neil C. Sturchio, David R, Buckley, Karl J. Rockne, and William J. Mills. Polybrominated Diphenyl Ethers in the Sediment of the Great Lakes. 3 - Lakes Erie and Ontario. Environmental Science and Technology 39(15): 5600-5605, 2005

X. Wang, P.P. Gawde, D.M. Tessier (IHF). Activation of MAP kinases in human lung epithelial cells by the organo-phosphate insecticide chlorpyrifos. In Preparation for Toxicology Letters.

Yawei Wang, An Li (IHF), Hanxia Liu, Qinghua Zhang, Weiping Ma, Wenlu Song, Guibin Jiang. Development of Quantitative Structure Gas Chromatographic Relative Retention Times Models on Different Stationary Phases for 209 Polybrominated Diphenyl Ether Congeners. Journal of Chromatography A 1103, 324-328, 2006

Yawei Wang, Qinghua Zhang, An Li (IHF), Hanxia Liu, Guogang Li, and Guibin Jiang. Polybrominated Diphenyl Ethers in Sewage Sludge of Wastewater Treatment Plants in China. Environmental Science and Technology (in review)

Occupational Health Nursing

Katula S (OHNT).: Domestic violence in the workplace--part I: understanding how it affects victims. AAOHN J. 2006 May;54(5):197-200.

Katula S.(OHNT): Domestic violence in the workplace--Part II: employers' response. AAOHN J. 2006 Aug;54(8):341-4.

Lee H (OHN student), Wilbur J, (OHNF) Conrad KM, Miller AM (OHNF): Risk factors associated with work-related musculoskeletal disorders among female flight attendants: using a focus group to prepare a survey. AAOHN J. 2006 Apr;54(4):154-64.

Lee, H.(OHN student): A Self-reported Cabin Environment and Work-related Musculoskeletal Disorders (WMSDs) among Female Flight Attendants on Long-haul International Flights. Korean Journal of Aerospace and Environmental Medicine 16(1): 2006.

Wilbur J,(OHNF) McDevitt J, Wang E, Dancy B, Briller J, Ingram D, Nicola T, Lee H,(OHN student) Zenk SN: Recruitment of African American women to a walking program: eligibility, ineligibility, and attrition during screening. Res Nurs Health. 2006 Jun;29(3):176-89.

Occupational Medicine

Buchanan S, Krantz A, Klempner S, Alvarado R, Wesseling C, Fernandez E, Forst L.: Use of a national reporting system for occupational injuries in Costa Rica. Int J Occup Environ Health. 2006 Apr-Jun;12(2):142-6.

Dorevitch S (OMF), Erdal (IHF) S, Conroy (IHF) LM, Schoonover T, Demirtas H, Persky V, and PA Scheff (IHF). Particulate matter exposure adjacent to demolition of public housing. Submitted to Air and Waste Management Association Journal.

Dorevitch, S.(OMF), Demirtas, H., Perksy, V., Erdal, S.(IHF), Conroy, L.(IHF), Schoonover, T. and Scheff, P (IHF): Demolition of High-Rise Public Housing Increases Particulate Matter Air Pollution in Communities of High-Risk Asthmatics. Journal of the Air & Waste Management Association, 56:1022-1032, July, 2006.

Dorevitch, S. (OMF), Demirtas, H., Scheff, P (IHF) and Persky, V.: Bias and Confounding in Longitudinal Measures of Exhaled Monoxides. In press, Journal of Exposure Science and Environmental Epidemiology, 23-Sep-2006.

Forst, L.(OMF), Martinez, I., Lacey (IHT), (IHF), S., et al. Barriers and benefits of protective eyewear use by Latino farm workers. Accepted for publication, J Agromedicine (2006).

Forst, L.(OMF), Martinez, I., Lacey, S.(IHF), et al. Barriers and benefits of protective eyewear use by Latino farm workers. Submitted and under review, J Agromedicine (2006).

Welch LS, Acherman YI, Haile E, Sokas RK, Sugarbaker PH.: Asbestos and peritoneal mesothelioma among college-educated men. Int J Occup Environ Health. 2005 Jul-Sep;11(3):254-8.

Buchanan S, Krantz A, Klempner S, Alvarado R, Wesseling C, Fernandez E, Forst L: Use of a national reporting system for occupational injuries in Costa Rica. Int J Occup Environ Health. 2006 Apr-Jun;12(2):142-6

Agricultural Safety and Health

Morehouse, E.E (ASHT), D.B. Reed & R.A. Aherin (ASHF). Injury experiences of farm women over 50. Paper No. 23-06 National Institute for Farm Safety annual conference, Sheboygan, Wisconsin, June 2006.

Aherin, R.A.(ASHF) (2005). Cooperative extension service research to practice history and capabilities in agricultural safety and health. Invited presentation. 2005 Midwest Forum on Agricultural Safety and Health. University of Iowa, Iowa City,IA.

Appendix D Summary of Funded Research Projects, Application and Instructions.

Table 1: Pilot Project (PPRT) Applications and Awards

Fiscal Year	**Applications**	**Awards**	**Available Award Funds**
2000	7	4	$43,840
2001	4	3	$43,468
2002	5	5	$74,533
2003	5	4	$66,311
2004	10	5	$63,244
2005	11	5 (4)*	$66,795 ($50,894)*
2006	5	5*	$79,139*
2007	8	7	$60,000
Totals: 8 years	47	30	$497,330

*Note: One FY 2005 proposal awarded $15,901was later withdrawn by the PI. These funds were carried over to 2006 for award.

Table 2: Listing of all PPRT Awards to Date

Project #	Project Title	Principal Investigator	Instit-ution	Project Period	Award amount	IRB Status	Primary NORA Topic
2006-1	Welding Fume Exposure Characterization Methods	Todd Schoonover	UIC-SPH, EOHS	7/05-7/06	$15,972.80	No human subjects	Exposure Assesment / Mixed Exposures
2006-2	Exposure to ergonomic risk factors in physical therapy	Kathleen Rockefeller, PT, ScD, MPH, MS	UIC College of Applied Health Sciences	7/05-7/06	$15,308.57	Expedited review pending	musculoskeletal disorders; exposure assessment; health care
2006-3	Risk Assessment of health outcomes in workers with past exposure to dioxins in UFA Russian Federation (pilot phase)	Irina Dardynskaia	UIC-SPH, EOHS	7/05-7/06	$15,986.67	Expedited review pending	Risk assessment
2006-4	Workers' Centers Role in Accessing Occupational Health Services	Leslie Nickels	UIC-SPH, EOHS	7/05-7/06	$15,879.00	Expedited review pending	Intervention Effectiveness Research and Special Populations
2006-5	Quantification of Musculoskeletal Loading and Its Subjective Perception in the Health Care Profession	John Dzissah PhD	Department of Industrial Management, University of Wisconsin–Stout	7/05-7/06	$15,991.91	Pending	Musculoskeletal, Subjective perception, Work characteristics
2007-1	Biomechanical Analysis of Performing Ultrasounds	Darcie Olson, Project Assistant	University of Wisconsin - Milwaukee Occupational Therapy		$2,853.90	Expedited review; Pending	1, 4 & 5

2007-2	Evaluate Occupational Exposure to Contaminants in Truck Cabins	Xinlei Wang, Assistant Professor	University of Illinois at Urbana-Champaign Ag. and Bio. Engineering		$9,890.00	Not specified in application; does need review	Indoor Environmental Quality, Transportation (Injury)
2007-3	Shift rotation and risk of acute injury among healthcare workers	Douglas J. Myers, Postdoctoral Research Fellow	UIC School of Public Health, Epidemiology		$5,452.92	Expedited review; Pending	Organization of Work, Traumatic Injuries
2007-4	Demonstrating Effectiveness of Informed Informal Interaction	Joseph Zanoni, PhD Student	UIC College of Education, Curriculum and Instruction		$15,976.44	Expedited review; Pending	Special Populations at Risk, Vulnerable Immigrant Workers, Intervention Effectiveness
2007-5	Occupational Surveillance in Illinois: A Pilot Project Using Work Comp Data	Lee Friedman (Previously Ben-Michael), PhD Candidate	UIC, SPH, EOHS		$15,415.49	Expedited review; Pending	Disease and injury, exposure assessment methods, surveillance methods, intervention effectiveness
2007-6	Nasopharyngeal Cancer and Occupation in Chengdu, China	Francis Song, MD, Occupational Medicine Resident	University of Illinois at Chicago Occupational Medicine		$4,438.80	Expedited review; Pending	Mixed exposures, Industrial sector: manufacturing
2007-7	Association of H. pylori IgG antibodies and allergic sensitization	Linda Rosul, PhD Student	UIC School of Public Health Epidemiology and Biostatistics		$5,972.40	Full review; pending	Infectious Disease, Allergies, Asthma and COPD, Mixed Exposures, Indoor Environment

	Project Outcomes									
Project #	**Student Funding**	**# students funded**	**# proposals generated**	**# additional funding generated**	**# presentations given**	**# of reports/ abstracts/ posters/ papers generated**	**# publications generated**	**# of supplemental funding**	**# of findings/data toward degree**	**Miscellaneous Project Outcomes**
	0.25							Data will be used toward PhD thesis		
2006-2			RO3 application, NIOSH			Submitted to American Physical Therapy Association Combined Sections Meeting, Feb 07, Boston				
	1, 9 mos	0.25				Submitted to World Physical Therapy Conference, Vancouver, BC, June 2007American Physical Therapy Association Combined Sections Meeting, Feb 07, Boston				
2006-3										

2006-4										
2006-5										
2007-1	None									
2007-2	1 RA @ 25%, 6 mos; undergrad 60 hrs	2								
2007-3	2 RA hourly, 150 hr each	2								
2007-4	None									
2007-5	Self	1								
2007-6	None									
2007-7	None									