

Southwest Center for  
Occupational and Environmental Health  
NIOSH Education and Research Center

ANNUAL REPORT  
July 1, 2006 – June 30, 2007

The University of Texas  
Health Science Center at Houston  
School of Public Health  
Houston, Texas 77030

NIOSH Training Grant No. T42 OH 008421

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## **II. Introduction and Executive Summary**

The University of Texas (UT) Education and Research Center (ERC) is housed in the Southwest Center for Occupational and Environmental Health (SWCOEH) in the Division of Environmental and Occupational Health Sciences (DEOHS) in the School of Public Health (SPH), and incorporates faculty and students from various disciplines related to occupational and environmental health. The SWCOEH ERC was established in 1977 and competed for the most recent five-year award in 2005, for the period July 2005 – June 2010. The current core and specialty academic programs of the SWCOEH ERC include: Industrial Hygiene (IH), Occupational and Environmental Medicine (OM), and Occupational Health for Nurses (OHN), Occupational Epidemiology (OccEpi) and Occupational Injury Prevention (IP). A Pilot Projects Research Training program (PPRTP), a NORA Research Support Program area, a Continuing Education (CE) program, and Hazardous Substance Training (HST) program complete the spectrum of existing programs within the ERC. All programs were approved for five years in 2005

The UT SPH is a multi-campus system with the main campus located in Houston in the Texas Medical Center, and five Regional Campuses in San Antonio, Dallas, El Paso, Brownsville and Austin, Texas. This makes the UT SPH unique among the Schools of Public Health in the United States and all of campuses are linked electronically, which facilitates communication, expanded course offerings, and research collaboration. In addition to the facilities at the UT SPH, our current programs include two other campus locations: The UT School of Nursing, a collaborating institution in the Occupational Health for Nurses program located next door to the UT SPH; and The University of Houston, Cullen College of Engineering and College of Psychology for collaboration in selected activities of the Occupational Injury Prevention program.

### **A. Major Accomplishments**

The major accomplishments during this reporting period fall into four general categories of activity: 1) Faculty Recruitment and Development, 2) Regional Visibility and Outreach, 3) Continuing Education, and 4) Advisory Board Development.

1. There has been significant faculty recruitment and development in two academic program areas: Occupational Epidemiology and Occupational Health for Nurses. The Occupational Epidemiology program recruited two new faculty to the San Antonio Regional Campus with the return of Sharon Cooper, MS, PhD, as Regional Dean, and Eva Shipp, PhD, a UT ERC NIOSH graduate. Dr. Cooper is a Professor of Epidemiology with a specialty in Occupational Epidemiology and was the original Program Director of the UT ERC Occ Epi Program. Dr. Shipp is an Assistant Professor of Epidemiology and her training in occupational epidemiology provides additional faculty in this specialty area. These two new faculty provide exciting opportunities for the SWCOEH to expand its training and research program to the San Antonio Regional Campus.

There has been important faculty development in the OHN program during this reporting period with the increasing leadership role of Lisa Pompeii, PhD, MS, RN, COHN. Dr. Pompeii joined the faculty at the UT SPH as Assistant Professor in October 2005 and spent most of her first

year developing her research portfolio, building on her NIOSH career development award (K01) on Back Injury and Work Disability Among Health Care Workers. Her appointment is in the Division of Environmental and Occupational Health Sciences (EOHS) and the Southwest Center for Occupational and Environmental Health (SWCOEH). Dr. Pompeii holds an MS degree in occupational health nursing and a PhD in epidemiology, with a focus on occupational injury. During the reporting period, Dr. Pompeii has taken an important leadership role in student recruitment and in the development of a COHN review course for the CE program.

2. We have expanded our regional visibility through enhanced distance learning capabilities of the UTSPH, as well as through our Pilot Projects Research Training Program (PPRTP). Over 60% of the PPRTP awards go to institutions outside of the UTSPH and in the region, which is unique among the NIOSH ERCs. Visibility has also been enhanced through resources available to the region that the SWCOEH is well known for: occupational medicine clinical expertise, research and service expertise in the areas of occupational hazards of healthcare workers, environmental health hazards, and international aspects of occupational health through the SWCOEH NIH Fogarty International Center training grant.

3. Our Continuing Education (CE) program has expanded its scope and outreach to include collaboration with industry associations and under-served occupational groups including home health care professionals, metropolitan area school districts and the performing arts, as well as expanded collaboration with other UT component institutions and regional universities and colleges.

4. A new Board of Advisors was recruited and appointed during the reporting period, with the first meeting scheduled for October 2007. The new board is greatly expanded in its size, scope and membership affiliation over previous boards with representatives from all academic program areas, each major industry in the region, labor and worker training organizations, and relevant professional associations. A full list of the Board of Advisors is attached in Appendix A.

## **B. Significant Changes**

The most significant change since the FY 2006 Annual Report has been the curriculum reform in the UT SPH and in the Division of Environmental and Occupational Health Sciences (DEOHS). The number of total credit hours now required for the MPH degree increased from 36 to 45 credit hours (including practicum and thesis hours) and the course of study in EOHS was restructured to accommodate the new credit hour requirements and the development of a new EOHS core curriculum, including a new Foundations in Environmental and Occupational Health Sciences course, which is now required of all NIOSH ERC trainees who major in the EOHS division. A full description of the curriculum and sample course of study for each program area is attached in Appendix B.

## **C. ERC Website**

Links are provided for the University of Texas School of Public Health, the Division of Environmental and Occupational Health Sciences and the Southwest Center for Occupational and Environmental Health.

### UTSPH and EOHS Links

The University of Texas School of Public Health: [www.sph.uth.tmc.edu](http://www.sph.uth.tmc.edu)

Division of Environmental and Occupational Health Sciences: [www.sph.uth.tmc.edu/eohs/](http://www.sph.uth.tmc.edu/eohs/)

DEOHS Faculty: [www.sph.uth.tmc.edu/eohs/faculty.asp](http://www.sph.uth.tmc.edu/eohs/faculty.asp)

EOHS Degree Programs: [www.sph.uth.tmc.edu/eohs/default.asp?id=354](http://www.sph.uth.tmc.edu/eohs/default.asp?id=354)

EOHS Course Descriptions: [www.sph.uth.tmc.edu/eohs/coursedescriptions.asp](http://www.sph.uth.tmc.edu/eohs/coursedescriptions.asp)

### SWCOEH and Program Links

Southwest Center for Occupational and Environmental Health: [www.sph.uth.tmc.edu/swcoeh/](http://www.sph.uth.tmc.edu/swcoeh/)

SWCOEH Faculty: [www.sph.uth.tmc.edu/swcoeh/default.asp?id=2019](http://www.sph.uth.tmc.edu/swcoeh/default.asp?id=2019)

Program in Industrial Hygiene: [www.sph.uth.tmc.edu/swcoeh/default.asp?id=1997](http://www.sph.uth.tmc.edu/swcoeh/default.asp?id=1997)

Program in Occupational Medicine: [www.sph.uth.tmc.edu/swcoeh/default.asp?id=1969](http://www.sph.uth.tmc.edu/swcoeh/default.asp?id=1969)

Program in Occupational Health for Nurses: [www.sph.uth.tmc.edu/swcoeh/default.asp?id=1984](http://www.sph.uth.tmc.edu/swcoeh/default.asp?id=1984)

Program in Occupational Epidemiology: [www.sph.uth.tmc.edu/swcoeh/default.asp?id=1981](http://www.sph.uth.tmc.edu/swcoeh/default.asp?id=1981)

Program in Occupational Injury Prevention: [www.sph.uth.tmc.edu/swcoeh/default.asp?id=1994](http://www.sph.uth.tmc.edu/swcoeh/default.asp?id=1994)

Pilot Project Research Training Program: [www.sph.uth.tmc.edu/swcoeh/default.asp?id=1999](http://www.sph.uth.tmc.edu/swcoeh/default.asp?id=1999)

Continuing Education and Outreach: [www.sph.uth.tmc.edu/swcoeh/default.asp?id=2019](http://www.sph.uth.tmc.edu/swcoeh/default.asp?id=2019)

### **III. Program Progress Reports FY 2007**

#### **A. Center Wide Programs**

1. Center Administration
2. Outreach
3. Interdisciplinary Coordination
4. Pilot Projects
5. NORA Research Support

#### **B. Core Academic Programs**

1. Industrial Hygiene
2. Occupational Medicine
3. Occupational Health for Nurses

#### **C. Allied OH&S Academic Programs**

1. Occupational Epidemiology
2. Occupational Injury Prevention

#### **D. Continuing Education Programs**

1. Occupational Health and Safety
2. Hazardous Substance Training

### **III. Program Progress Reports: Center Wide Programs**

**A. Program Title:** Center Administration

**B. Program Director:** Sarah A. Felknor, MS, DrPH

#### **C. Program Description**

The mission of the Southwest Center for Occupational and Environmental Health (SWCOEH) is to promote health, safety, and well being in the workplace and the community. The overall goal of the Center is to respond to the critical need for well-trained occupational and environmental health specialists by providing graduate-level academic training and continuing education with an underlying foundation of a state-of-the-art occupational and environmental health research program. The SWCOEH was established as a NIOSH ERC in 1977, and was most recently re-funded for the five-year period of 2005 – 2010.

The SWCOEH has three core academic programs in Industrial Hygiene, Occupational Health for Nurses and an Occupational Medicine Residency Program; and two specialty programs in Occupational Epidemiology and Occupational Injury Prevention. Programs in Pilot Projects Research Training, NORA research support, Continuing Education, and Hazardous Substance Training complete the spectrum of existing programs within the ERC.

The SWCOEH is located at the University of Texas Health Science Center at Houston (UTHSCH) School of Public Health (UTSPH). The Center is administratively housed in the Division of Environmental and Occupational Health Sciences (DEOHS) in the UTSPH Building in the Texas Medical Center and incorporates faculty and students from various disciplines related to occupational and environmental health. The UTSPH is a multi-campus institution with a Regional Campus system that provides teaching and research opportunities in San Antonio, Dallas, El Paso, Brownsville, and Austin, Texas. Additional ERC activities are carried out with the UTHSCH School of Nursing (UTSON), a collaborating institution in the Occupational Health for Nurses program and the University of Houston, Cullen College of Engineering and College of Psychology, for collaboration on selected activities of the Occupational Injury Prevention program.

Center Administration is directed by an integrated team comprised of the Center Director, the Deputy Director, ERC Program Directors, and the Center Research Coordinator, with the advice and assistance of the Center Advisory Board. This multidisciplinary and team approach to Center Administration provides support for the multiple teaching, research, and service activities of the SWCOEH. Center Administration provides the infrastructure, management, and information systems support for all ERC programs.

#### **a. Goals and Objectives:**

Goals and objectives for Center Administration were established for the 2005 – 2010 period to support the development of all SWCOEH programs are fall into three general areas of support for training and research: Information Dissemination, Knowledge Transfer and Training. The unique goals by area are:

1. Information Dissemination: Increase the number of research trainee (including Pilot Project Research Training) publications in the peer-reviewed literature by at least 20% within 3 years; Increase the number of externally funded interdisciplinary projects of ERC faculty by at least 20% over 3 years; Develop at least one new major area of research focus within the ERC within 3 years to complement existing expertise and meet emerging needs in occupational and environmental health.
2. Knowledge Transfer: Increase the number of high school students exposed to occupational health and safety content within the region; and Increase the number of consultations to small businesses by 10% over 2 years.
3. Training: Increase the number of students recruited into ERC core academic programs by 20% within 3 years; Reduce time to program completion by 20% within 3 years.

b. Responsible Conduct of Science Training:

It is the policy of the UTHSC-H that faculty, staff, and students conduct research, research training, experimentation, and testing activities in the safest manner possible and with the highest ethical standards. A member of the UTHSC-H faculty, staff, or student body who conducts research in the name of the UTHSC-H must adhere to all federal, state, and local statutes and regulations; to The University of Texas Regents' *Rules and Regulations*; and to UTHSC-H policies, regardless of whether the research is conducted on a campus of the UTHSC-H or at an external facility.

All faculty, staff, students, and trainees planning to conduct research involving human subjects or data from human-derived materials must complete education on the protection of human subjects, and their research protocols must also be reviewed and approved by UTHSCH's Committee for the Protection of Human Subjects. This provides assurance that all students complete human subject training before starting research regardless of funding. Some programs may require additional training in Ethics as appropriate.

c. Faculty Participation:

The Center Director reports administratively to both the UTSPH Dean and the EOHS Director, and is responsible for providing leadership and direction for Center activities by assuring the functioning of critical Center elements, and for articulating the mission and services of the Center to outside parties. **Sarah A. Felknor, MS, DrPH**, has been Center Director since June 2006 and served as Deputy Director from 1997 to 2006. Dr. Felknor teaches core courses in health and safety program management and survey research design, and is PI of NIH Fogarty International Center research training grants in occupational and environmental health. She also serves as Associate Director of the WHO Collaborating Centre in Occupational Health. **George L. Delclos, MD, MPH, PhD**, is the Center Deputy Director and served as Center Director from 1997 to 2006. Dr. Delclos is Associate Director of the Occupational Medicine Program and Director of the DEOHS. He has been Director of the WHO Collaborating Centre in Occupational Health since 1993.

Center Administration is served by an Executive Committee that is comprised of the Program Directors of each of the ERC components. These faculty are described in more detail in each academic program report and include:

- **Lawrence Whitehead, PhD, CIH** - Industrial Hygiene
- **Arch (Chip) Carson, MD, PhD** – Occupational Medicine
- **Tom Mackey, PhD** – Occupational Health for Nurses
- **Ben Amick, PhD** – Occupational Epidemiology and Occupational Injury Prevention;
- **Janet Harreld, MA, MPA** – Continuing Education and Outreach
- **Maria Morandi, PhD, CIH** – Pilot Project Research Training Program
- **George Delclos, MD. MPH, PhD** – NORA Research Support

d. Curricula:

Please refer to the individual academic core and special emphasis program progress reports. A description of curricula and sample curriculum for each program area is provided in Appendix B.

#### **D. Program Activities and Accomplishments**

a. Progress Toward Goals and Objectives:

Information Dissemination: Writing workshops have been offered for trainees on a regular basis to assist in the identification of appropriate scientific journals, improve writing skills, and facilitate the submission of completed manuscripts; and a manuscript editing service is available to students and faculty. The manuscript editing service has been used on several occasions by ERC junior faculty with submission of several manuscripts for review. The SWCOEH in coordination with the DEOHS has developed a sophisticated research development infrastructure to assist faculty in identifying possible grant initiatives, provide pre and post- award assistance, including project management and accounting support. The SWCOEH has participated actively in an EOHS Division strategic planning process to build a research strategy for the SWOEH and the EOHS that builds on existing strengths, interests and community need. Three research areas of focus relevant to occupational health emerged from this process on which have guided faculty recruitment, NORA Research Support activities and staff recruitment and training. These areas are: a) Air Environment, b) Injury Prevention, and c) Multidisciplinary collaborative research in occupational and environmental health, with the latter of particular interest and opportunity for our Regional Campus system, particularly El Paso and most recently San Antonio. A formal search for tenure track faculty in Air Environment or Injury Prevention is underway, and the San Antonio campus has a current search underway in Occupational Health.

Knowledge Transfer: The main achievement in this area has been through the work of Dr. Vela-Acosta, IH program faculty at the UTSPH regional campus in Brownsville, who has continued to pilot and refine a curriculum in OHS for high school students in the Lower Rio Grande Valley area. In addition, exposure of undergraduate college students to OHS increased through several recruitment visits to undergraduate colleges within a 200 mile radius of Houston. In addition, applied presentations and seminars on occupational health and safety to small businesses in the region have been offered and a very successful Certificate in Industrial Hygiene has been offered to professionals in the region responsible for workplace health and safety.

Training: Recruitment efforts of the past year have resulted in an increase in enrollment. As these recruitment activities continue, we expect that we will see a continued increase over time.

During the reporting period, we have graduated students in Industrial Hygiene, Occupational Injury Prevention, and Occupational Epidemiology.

b. Trainee Honors, Awards, Scholarships:

Please see academic program reports.

c. Faculty Honors, Awards, Appointments:

During the reporting period **Sarah A. Felknor, MS, DrPH**, was appointed as Chair to the Board of Scientific Counselors (BSC) to NIOSH for the period 2007 – 2010. The BSC provides advice and guidance to the Director of NIOSH on the agency's research and prevention programs. **Dr. Felknor** was also appointed to the Board of Advisors of the Texas Transportation Institute (TTI) and elected Vice Chair of the Association of University Programs in Occupational Safety and Health. She is developing a Memorandum of Understanding with TTI to support research and training opportunities in the area of traffic safety and injury prevention. **Ben Amick, PhD**, was also appointed to the BSC membership for the period 2007 – 2009. Please see academic program reports for additional honors and awards.

d. Trainee Theses and Dissertations:

Please see academic program reports.

e. New Faculty Positions:

There were two new faculty recruited to join the SWCOEH during the reporting period: **Sharon Cooper, PhD**, Professor of Epidemiology and Regional Dean of the San Antonio campus of the UT SPH, and **Eva Shipp, PhD**, Assistant Professor of Epidemiology in San Antonio. Please see the section on Major Accomplishments for more detail. There are two open searches for new faculty in EOHS; one in Houston (Air Environment or Injury Prevention) and one in San Antonio (Occupational Health). It is anticipated that these searches will be completed during 2008.

f. New Courses:

Please see academic program reports.

g. Trainee Recruitment (include diversity efforts):

The University of Texas Health Science Center – Houston (UTHSC-H) School of Public Health is committed to equal access for all qualified applicants seeking quality graduate education in the fields of public health regardless of age, sex, race, disability, religion or national origin. The policies and programs are designed to create a diverse student population and a Diversity Office has been established in the School of Public Health and a director was appointed. Specifically the UTHSC-H School of Public Health has one of the highest minority enrollments for a school of public health

In addition to ongoing institutional minority recruitment efforts, a comprehensive review of web based and hard copy recruitment materials was conducted in collaboration with the Division of

Environmental and Occupational Health during the September 1, 2004 thru June 30, 2005 period. This review was completed and new academic program brochures were developed for the NIOSH training program. These brochures, along with updated web-based materials are being integrated into recruitment programs and activities at the School of Public Health level, and include the development of new division-based brochures and website.

## **E. Program Products**

### **a. Publications and Presentations of Program Faculty and Trainees:**

Publications and presentations resulting from this program in the reporting year are listed in Appendix C.

## **F. Future Plans**

Future plans for the SWCOEH include expanding faculty and research training program activities through the UT SPH Regional Campus system in San Antonio and El Paso; development of training and research collaboration in injury prevention with Texas Transportation Institute and the University of Texas Center for Transportation Research in Austin; development of strategic 5 and 10-year plans in collaboration with the newly appointed Board of Advisors; and continued support for increased recruitment and enrollment in our programs and interdisciplinary activities.

### III. Program Progress Reports: Center Wide Programs

A. **Program Title:** Outreach

B. **Program Director:** Janet Harreld, MA, MPA

C. **Program Description**

The Outreach Program in the SWCOEH is administratively located with Continuing Education and is funded as a single program (CE/O). The Outreach Program of the SWCOEH facilitates the availability of faculty to provide the services needed within the broad outline of occupational and environmental health. This program philosophy reflects the interdisciplinary nature of the SWCOEH and helps to better meet the needs of the Center's "customers". The need for outreach activities is communicated through professional associations and service groups, individual contact such as a request from a particular community or profession, and contact generated through applied research and training efforts in occupational and environmental health. Service to the community is part of the mission of the UT SPH and SWCOEH.

Outreach activities meet the broad general criteria provided by NIOSH in the three following areas:

1. Educational Development

Activities directed toward the development of safety and health content and materials for curricula, courses, seminars, workshops, continuing education or other forms of safety and health education.

2. Presentations/Lectures/Awareness Seminars

Making presentations, including the delivery of papers and lectures, to professional or non-professional audiences for the purpose of familiarizing the Recipient Group with the field of safety and health, and in general, making them cognizant of safety and health issues.

3. Consultations

This activity includes consultations with industry, state or local trade associations, labor unions, hospitals and other public groups.

4. Other

This category includes outreach not otherwise classified above.

Outreach activity is reported for each of the three core academic program areas: A. Industrial Hygiene, B. Occupational Medicine and C. Occupational Health for Nurses. A summary of the ERC's outreach activities by program area during the reporting period follows.

## **A. INDUSTRIAL HYGIENE PROGRAM AREA**

### **1. Educational Development**

Robert J. Emery, DrPH, CHP, CIH, CSP, RBP, CHMM, CPP, ARM

- Texas Woman's University Health Care Administration Course 5493, Performance Measurements and Quality, "The Compelling Display of Health & Safety Information for Desired Decision Making" and HCA 5493 Performance and Quality "The Compelling Display of Health and Safety Information for Desired Decision Making" Houston, TX, June 27 and July 19, 2007 College and University Hazardous Waste Management Association National Conference "The Compelling Display of Hazardous Waste Information for Desired Decision Making" Galveston, TX, August 7, 2006
- University of Texas System Risk Conference "Informed Risk for Operational Managers", Galveston, TX, October 2, 2006

### **2. Presentations/Lectures/Awareness Seminars**

Robert J. Emery, DrPH, CHP, CIH, CSP, RBP, CHMM, CPP, ARM

- Houston Area Hospitals Emergency Management Collaborative & Downtown Corridor of the Regional Hospital Preparedness Council "Comprehending the Threat of Radiological Terrorism", Houston, TX August 4, 2006
- NASA Occupational Medicine Program Teleconference Safety Series "The Compelling Display of Health and Safety Information for Desired Decision Making", Johnson Space Flight Center, Houston, TX, September 14, 2006
- Gulf Coast Downtown Section, American Society of Safety Engineers "The Compelling Display of Health and Safety Information for Desired Decision Making" Houston, TX, October 19, 2006
- 62<sup>nd</sup> Southwest Regional Meeting of the American Chemical Society, "The Compelling Display of Health and Safety Information for Desired Decision Making" Houston, TX, October 20, 2006
- Society for College and University Planning 2006 Southern Regional Conference "Disaster Resistant University Initiatives: Business Continuity Efforts" Atlanta, GA, October 24, 2006
- Emory University Environmental Health & Safety Department "Providing EH&S Services in a University Environment", Atlanta, GA, October 25, 2006
- Deep South Center for Occupational Health & Safety Annual Research Symposium, "The Compelling Display of Health and Safety Information for Desired Decision Making" Auburn, AL, October 26, 2006
- Texas Department of State Health Services Radiation Control X-ray Inspector Training Course, "Comprehending the Threat of Domestic Radiological Terrorism", Houston, TX, October 31, 2006
- Texas Department of State Health Services Radiation Control X-ray Inspector Training Course, "Facilitating the Medical Management of Radiation Overexposure Victims", Houston, TX, October 31, 2006
- Health Physics Society North Carolina Chapter "Radiation Protection Program Measures and Metrics That Matter" Carolina Beach, NC, November 3, 2006

- Basic Disaster Life Support Training Class, Radiological Disaster Threats, Houston Veterans Administration Hospital, Houston TX, December 1, 2006
- Radiological Terrorism Familiarization Briefing, Federal Bureau of Investigation Field Office, University of Texas Police Headquarters, Houston, TX, December 5, 2006
- University of Illinois – Urbana Champaign Division of Research Safety and Occupational Safety & Compliance, “On-site EH&S Academy” Champaign, IL December 7, 2006
- Annenberg Center for Health Sciences at Eisenhower and the University of Texas School of Public Health: The Science and Strategy of Biopreparedness “A Special Briefing on the Preparedness Impacts of the Recent Radiological Poisoning Events” Houston, TX January 13, 2007
- University of Texas System “EH&S Academy 40 Hour Training Course” Austin, TX January 22-26, 2007
- East Carolina University Environmental Health & Safety Department “Providing EH&S Services in a University Environment”, Greenville, NC, February 12, 2007
- East Carolina University Environmental Health Program (EHST 6010 Fundamentals of Environmental Health), “Effectively Communicating Safety and Health Information Through the Mass Media”, Greenville, NC, February 13, 2007.
- West University Rotary Club, “Panic or Preparedness: Responding to the Threat of Terroristic Uses of Weapons of Mass Destruction”, Houston, TX, February 15, 2007
- Greater Houston Industrial Hygiene Council, “The Compelling Display of Health and Safety Information for Desired Decision Making” Houston, TX, February 15, 2007
- Texas Public Health Association Annual Meeting “A Special Briefing on the Preparedness Impacts of the Recent Radiological Poisoning Events”, Galveston, TX, February 26, 2007
- Basic Disaster Life Support Training Class, Radiological Disaster Threats, Texas Public Health Association Annual Meeting, Galveston, TX, February 26, 2007
- Montgomery Community College and Conroe Regional Medical Center Radiologic Technologist Continuing Education Program “A Special Briefing on the Preparedness Impacts of the Recent Radiological Poisoning Events”, Conroe, TX, March 3, 2007
- Sul Ross State University Life Sciences Seminar “Panic or Preparedness: Comprehending the Threat of Domestic Uses of Weapons of Mass Destruction”, Alpine, TX, March 7, 2007
- Texas Medical Center Parking Services “Panic or Preparedness: Comprehending the Threat of Domestic Uses of Weapons of Mass Destruction”, Houston, TX, March 21, 2007
- U.S. State Department and Institute of International Education Public Health and Medicine Project for Iranian Medical Professionals “Managing Safety and Health Risks Inherent to Biomedical Research” Houston, TX, March 22, 2007
- Oklahoma State University Fire Protection and Safety Technology Academic Program FPST 4133 Industrial Hygiene Instrumentation and FPST 2023 Occupational Safety, “The Compelling Display of Health and Safety Information for Desired Decision Making” Stillwater, OK, March 26, 2007
- University of California System “EH&S Academy” San Diego, CA, April 2-3, 2007
- Twelve Oaks Hospital “Basic Disaster Life Support – Radiological and Chemical Threats” Houston, TX, April 12, 2007
- Campus Safety, Health and Environmental Management – PRIZM Regional EH&S Workshop, University of Central Florida “Understanding How Universities Work” and

A Risk Management and Insurance Primer for EH&S Programs” Orlando, FL, April 16, 2007

- Government Horizons Training Workshop: Medical Aspects of Disaster Management Conference: Lessons Learned in Disaster Medicine from Recent Natural and Manmade Catastrophes Program “A Special Briefing on the Preparedness Impacts of the Recent Radiological Poisoning Events”, Washington, DC, April 19, 2007
- Joint Terrorism Task Force Counter Terrorism Intelligence Group 2007 International Terrorism Training Conference “Comprehending the Threat of Domestic Nuclear Terrorism” and “A Special Briefing on the Preparedness Impacts of the Recent Radiological Poisoning Events”, Humble, TX, April 23, 2007
- University of Texas Police Department “Achieving Safety and Security Through Understanding How Universities Work and the Needs of Faculty”, Houston, TX, April 30, 2007
- US Department of State Office of International Visitors, International Leadership Program on Emerging Infectious Disease Surveillance for Uzbekistan. “Radiation Overexposure Events Related to Oil and Gas Exploration and Production Activities in Texas”, Houston, TX, May 8, 2007
- National University of Singapore Office of Safety, Health & Environment “On-site EH&S Academy” and “The Advantages of Achieving BSL3 Annual Re-certification Through a Self Certification Process”, Singapore, May 14-15, 2007
- Houston Police Department Homeland Security Division “Use of Radiological Monitoring Devices as a Component of the Domestic Nuclear Detection Office Initiative”, Houston, TX, May 23, 2007
- The 5<sup>th</sup> Conference for Effective Compliance Systems in Higher Education “How Do I Know if My Environmental Health & Safety Compliance Risks are Successfully Mitigated?” Austin, TX, June 4, 2006
- Texas Chemical Council EH&S Conference “What Didn’t Happen” Galveston, TX June 7, 2007
- University of Texas School of Public Health Basic Disaster Life Support “Radiological and Chemical Hazards” Houston, TX June 18, 2007

### 3. Consultations

Robert J. Emery, DrPH, CHP, CIH, CSP, RBP, CHMM, CPP, ARM

- Invited Site Reviewer, Methodist Hospital Comprehensive Emergency Response Exercise, Houston, TX. April 13, 2007
- Invited Consultant, Trinidad and Tobago Ministry of Health Medical Waste Management Strategies, Port of Spain, Trinidad. August 21-23, 2006

## **B. OCCUPATIONAL MEDICINE PROGRAM AREA**

### 1. Educational Development

George L. Delclos, MD, PhD, MPH

- Directed a NIOSH-approved spirometry course (#091), multiple offerings.
- 4 hour graduate course on Introduction to Occupational Medicine - Barcelona, Spain. 10/02/06
- 8 hour course on ethics in occupational health - Barcelona, Spain. 10/05/2006

- 20 hour course on occupational respiratory disease - Barcelona, Spain. 02/05/2007
- 16 hour course on spirometry for occupational health – Maracay, Venezuela. 07/16/07
- 8 hour course on advanced spirometry in occupational health – Maracay, Venezuela. 07/19/2007
- 20 hour course on spirometry for occupational health to nurses - Barcelona, Spain. 05/11/2007

## 2. Presentations/Lectures/Awareness Seminars

George L. Delclos, MD, PhD, MPH

- Guest Lecturer – Air Environment - 1 lecture. 09/07/2006
- Guest lecturer - Overview of Global Health - 1 lecture. 10/25/2006
- Guest lecturer - Medical Geography - 1 lecture. 11/01/2006
- Guest lecturer - Ethics in Health Care - 1 lecture. 11/30/2006
- Guest lecturer - Comparative Health Systems - 1 lecture. 03/21/2007
- Guest lecturer - Ethics in Research. 04/03/2007
- Guest lecturer - Principles of chest radiograph interpretation (School of Nursing) - 1 lecture. 11/16/2006
- Guest lecturer - Update on COPD (School of Nursing) - 1 lecture. 06/08/2007
- Grand Rounds in Allergy and Immunology - Asthma in the Workplace 2007 – The University of Texas Medical Branch at Galveston. 06/07/2007
- Grand Rounds in Internal Medicine - Work-related asthma in Texas healthcare professionals - St. Luke's Episcopal Hospital Medicine Grand Rounds. 10/22/2007

## 3. Consultations

George L. Delclos, MD, PhD, MPH

- Medical Director and Attending Physician (*continuously since September 1992*)  
The University of Texas Health Services clinic
- NIOSH-certified B Reader (*continuously since July 1987*) Reader of chest x-rays for federal surveillance programs of coal miners.
- NIOSH Expert Panel Evaluation panel for transitioning B reader program to digital radiographs
- Medical consultant (unpaid), *1994-present* Fitness standards for astronauts (respiratory system)
- Member; Advisory Board, Mothers for Clean Air
- Member, Steering Committee; Health Professionals for Clean Air
- Consulting Medical Director; Stericycle, Inc. (through The University of Texas Health Services clinic)
- Consulting Medical Director; Texas Children's Hospital Employee Health Services
- Consulting Medical Director; OMI, Inc. (through The University of Texas Health Services clinic)

#### 4. Other

George L. Delclos, MD, PhD, MPH

- Rotation preceptor; Clinical rotations in occupational respiratory disease for Baylor and University of Texas residents and fellows, year-round
- Clinical preceptor for nurse practitioner students at the University of Texas Health Services clinic. Year round.
- Associate Editor, Section Editor and Referee. *Archivos de Prevencioin de los Riesgos Laborales* (Spain)
- Member, International Editorial Board. "*Salud de los Trabajadores*" (Venezuela)
- Member, International Editorial Board and Referee. *International Journal of Occupational and Environmental Health*
- Referee for peer-reviewed scientific journals (*past year only*) *Occupational and Environmental Medicine*; *American Journal of Respiratory and Critical Care Medicine*; *CHEST/American College of Chest Physicians*
- Chair, 2004-present The University of Texas Health Science Center at Houston Safety Council
- Member, Environmental and Occupational Health Sciences Search Committee
- Chair, Literature Selection Technical Review Committee - National Library of Medicine
- Member, Residency Advisory Committee (Occupational Medicine), Pompeu Fabra University - Barcelona, Spain
- Member, Residency Advisory Committee (General Preventive Medicine) - Texas Dept. of State Health Services
- Member, Residency Advisory Committee (Occupational Medicine) – The University of Texas Medical Branch at Galveston
- Principal Investigator and Director, 1993-present, WHO Collaborating Centre for Occupational Health

### **C. OCCUPATIONAL HEALTH FOR NURSES PROGRAM AREA**

#### 1. Consultations

The OHN faculty collectively engaged in multiple consultations related to occupational health services for educational and industrial organizations. Between July 1, 2006 and June 30, 2007, direct and consultation services were provided to:

- |                                |                               |
|--------------------------------|-------------------------------|
| • American Red Cross           | • Physicians Endo Center      |
| • AOEC Washington              | • Planned Parenthood          |
| • AOEC World Trade Center      | • Prairie View A&M            |
| • Carpet Giant                 | • Pulse Staffing              |
| • CDM Resource Management      | • Retriever                   |
| • Chevron Phillips Petroleum   | • Rice University             |
| • City of Bellaire             | • Rita Camaratta Dental Group |
| • City of Houston Firefighters | • Seniors Center              |

- City of Houston Police Department
- Coca Cola of North America
- Encysive Pharmaceuticals
- Gallagher Basset Services
- Goldstein Oil
- Gossen Livingston Associates, Inc
- HCPC Infection Control
- KTRK-TV Channel 13
- LOMBARD
- Marcis & Associates, Inc.
- MD Anderson
- Mentor IMC
- Methodist Hospital
- Metropolitan Transit Authority
- Microbiology Specialists, Inc.
- Nannospectra
- Occidental Oil and Gas Company
- Occupational Marketing, Inc.
- Pecan Grove Kennel
- Petrobras Petroleum Company
- Shriners Hospital for Children
- St. Agnes Academy
- Stericycle
- Tanox
- TCEQ (Texas Commission on Environmental Quality)
- Texas A&M Animal Care
- Texas General Land Office
- Texas Parks & Wildlife
- Texas Woman's University
- The Lloyd Company
- Toyota Tsusho America, Inc.
- University of St. Thomas
- University of Texas Dental Branch
- University of Texas Health Science Center
- University of Texas Medical School
- UT Harris County Psychiatric Center
- Veritas Corporation
- West University Fire Department

#### 4. Other

##### **D. GENERAL OCCUPATIONAL HEALTH AND SAFETY**

###### 1. Educational Development

Sarah A. Felknor, MS. DrPH

- Content expert in the development of occupational safety and health curriculum for nurses in Honduras. Methodist International.
- Lead instructor in Health and Safety Program Management, annual core course offering at the UT SPH.

###### 2. Presentations/Lectures/Awareness Seminars

Sarah A. Felknor, MS. DrPH

- Guest Lecturer: "Organizational Performance in Public Health Agencies: Assessment of the Essential Services." University of Texas School of Public Health; PH 3710: Administration and Public Health. March 28, 2007; and PH 3715: Introduction to Management and Policy Health Sciences. April 20, 2007.

- Guest Lecturer: “International Research and Training Activities in Occupational and Environmental Health in Latin America”. Latin American Media Familiarization Visit. The University of Texas Health Science Center at Houston. Office of International Programs. March 1, 2007.
- Guest Lecturer: “The Global Burden of Eye Disease: NGOs Respond”. Heights Rotary Club, Houston, Texas, December 20, 2006; and the Richmond Rotary Club, Fort Bend County, Texas, February 20, 2007.
- Guest Lecturer: “Global Health: Career Options & Specialization”. University of Texas School of Public Health Global Health Seminar. January 30, 2007.
- Guest Lecturer: “Assessment of the Essential Services of a City Health Department.” University of Texas School of Public Health; PH 3715: Introduction to Management and Policy Sciences. December 1, 2006.
- Guest Lecturer: “Global Health: Career Options & Specialization”. Southwest Regional Global Health Education Conference. Galveston, Texas. November 11, 2006.
- Guest Lecturer: “Organizational Performance in Public Health Agencies: Assessment of the Essential Services of a City Health Department.” University of Texas School of Public Health; PHA 3715: Introduction of Management and Policy Sciences (Austin Campus). July 26, 2006.
- Consultations
- Methodist International: Consultant to quality assessment and training intervention program for healthcare workers in the Honduras Medical Center and area hospitals in Tegucigalpa, Honduras.
- Vision Health International: Program consultant to Vision Health International to develop and implement occupational safety and injury prevention policies for an international NGO that provides vision health care to developing countries.
- Other
- Reviewer, Association of Schools of Public Health 2007 Allan Rosenfield Global Health Fellowship. June 2007.
- Chair, Board of Scientific Counselors, 21007 – 2010
- Member, Board of Advisors, Texas Transportation Institute (TTI)
- Vice Chair, Association of University Programs in Occupational Safety and Health
- Editorial Committee, Archivos de Prevención de Riesgos Laborales; Barcelona, Spain. May 2007 to present

### III. Program Progress Report: Center Wide Programs

**A. Program Title:** Interdisciplinary Coordination

**B. Program Director:** Sarah A. Felknor, MS, DrPH

#### **C. Program Description**

An interdisciplinary approach to teaching, learning, research, and community service in public health generally and in occupational health specifically, is at the core of the philosophy of the UTSPH and the SWCOEH, respectively. The physical proximity of faculty and students on the 10<sup>th</sup> floor of the UTSPH where most of the ERC is housed promotes the interdisciplinary nature of the program. There are faculty in occupational medicine, industrial hygiene, biometry, environmental science, occupational health nursing, management and policy sciences, behavioral sciences, occupational injury prevention and epidemiology within the confines of the SWCOEH. Current research projects bring together students in epidemiology, biometry, and occupational medicine, and the physical proximity of faculty offices to the NIOSH and Fogarty student cubicles in the SWCOEH promote informal exchange as well. The Continuing Education Program, also located on the 10<sup>th</sup> floor of the UTSPH, likewise serves as an anchor for interdisciplinary activities by providing CE courses in the major disciplines of occupational health and safety. Monthly journal clubs in occupational and environmental health sciences and research seminars provide additional opportunities for interdisciplinary interaction among the SWCEOH students.

##### a. Goals and Objectives:

The goals and objectives of the Interdisciplinary Coordination component are to promote and enhance opportunities for our students to be involved in academic, research and service activities in multi-disciplinary settings.

##### b. Responsible Conduct of Science Training:

It is the policy of the UTHSC-H that faculty, staff, and students conduct research, research training, experimentation, and testing activities in the safest manner possible and with the highest ethical standards. A member of the UTHSC-H faculty, staff, or student body who conducts research in the name of the UTHSC-H must adhere to all federal, state, and local statutes and regulations; to The University of Texas Regents' *Rules and Regulations*; and to UTHSC-H policies, regardless of whether the research is conducted on a campus of the UTHSC-H or at an external facility.

All faculty, staff, students, and trainees planning to conduct research involving human subjects or data from human-derived materials must complete education on the protection of human subjects, and their research protocols must also be reviewed and approved by UTHSCH's Committee for the Protection of Human Subjects. This provides assurance that all students complete human subject training before starting research regardless of funding. Some programs may require additional training in Ethics as appropriate.

c. Faculty Participation:

All faculty from all program areas participate regularly in SWCOEH interdisciplinary activities in the classroom, laboratory, field research venues, journal club and research seminar settings.

d. Curricula:

Interdisciplinary interaction is a key component of many of the courses described in detail in the academic program progress reports and in Appendix B.

#### **D. Program Activities and Accomplishments**

Interdisciplinary interaction in the SWCOEH is evident among the various academic, research, and community service activities of the faculty and students. The academic program of the ERC is strengthened by strong interdisciplinary course offerings. Three interdisciplinary courses, PH1498 Behavioral Aspects of Occupational Health, PH1420/1421 Research Design and Analysis in Behavioral Sciences (I and II) and PH2998 Work Organization Epidemiology, were developed and taught by Dr. Ben Amick since the last review. The Behavioral Aspects of Occupational Health course was approved by the UTSPH as fulfilling the core course requirement in behavioral sciences for the MPH degree. These courses complement the list of our existing interdisciplinary courses that are regularly taken by SWCOEH students: PH6998 Occupational Health Field Trips, PH2998 Occupational Epidemiology, PH6610 Occupational and Environmental Health, and PH 3960 Health and Safety Program Management, and PH6998 Seminar in Workplace Safety. An additional new course in Injury Prevention and Control is being developed by Dr. Amick, and will be available to all ERC trainees, in particular the occupational injury and occupational epidemiology students at both campuses. The interaction between faculty and students through courses at the University of Houston and the UTSPH, along with two monthly interdisciplinary journal clubs in occupational health and environmental health sciences serve to further strengthen the ties among the SWCOEH component programs, faculty and students. The Occupational Health Journal Club, sponsored by the Continuing Education and Occupational Medicine Programs has been offered continuously for almost 20 years, and is open to students in all core programs, as well as to community leaders in occupational health and safety. Students in all core programs make presentations, with questions and discussion by attendees. Continuing education credits are available for each Journal Club session. During this reporting period, a DEOHS Journal Club in Environmental Health provides monthly opportunities for SWCOEH students to present journal articles and for increased interdisciplinary interaction among all of our academic programs. In addition, research presentations by both students and faculty, including thesis and dissertation work, are regularly presented to the community through the biweekly DEOHS Research Seminar.

The UT Health Services Clinic is another interdisciplinary activity which provides both academic and research opportunities for ERC students. The UT clinic is under the medical direction of Dr. Delclos. Dr. Tom Mackey, director of the OHN program, is the clinical director. SWCOEH students are provided opportunities for clinical practice as well as research opportunities relating to the investigation of occupational exposures, illness, injury and treatment. The relationships between the clinic and the general areas of industrial hygiene and safety are strengthened by the presence of Dr. Robert Emery in the Center faculty, since he is also Executive Director of the UTHSCH campus Environmental Health and Safety Department. Dr. Emery regularly hosts several Journal Club sessions at his off-campus facility. Dr. Emery has provided occupational

medicine residents, industrial hygiene and occupational health nurse students with various opportunities for short-term rotations and research projects.

#### **E. Future Plans**

Future plans for Interdisciplinary Coordination include continued support and development of the monthly Journal Clubs and Research Seminar, as well as the development of courses that encourage interdisciplinary learning. A feasibility assessment will be conducted to ascertain the opportunities for increased interdisciplinary interaction in the UT Health Services clinic for the OHN students and OM residents. Possible changes in the laws and policies that govern worksite clinical services may require a change in client base for the UT Health Services clinic. We will assess opportunities for increased participation of our students, pending the results of this anticipated legislation. The SWCOEH Interdisciplinary Coordination core will work with the DEOHS in promoting participation in monthly seminars to increase opportunities for our students to interact, as well as opportunities for students to provide presentations or lectures in EOHS courses where appropriate.

### III. Program Progress Reports: Center Wide Programs

**A. Program Title:** Pilot Project Research Training Program

**B. Program Director:** Maria T. Morandi, PhD

**C. Program Description:**

The Pilot Project Research Training Program (PPRTP) provides a support mechanism for small research projects, initiated by new investigators and/or research trainees, that explore the feasibility of new areas of study, allow investigators to collect preliminary data to subsequently develop R01 applications, and/or complete short-term projects. The mission of the PPRTP is to enhance the SWCOEH's occupational health and safety research training mission and to foster stronger inter-institutional ties in occupational health research within Federal Region VI (Arkansas, Louisiana, New Mexico, Oklahoma, and Texas). The PPRTP is a critical element in the strategy of the SWCOEH to develop its regional outreach activities. The responsibilities of this interdisciplinary core include: development and dissemination of a formal Request for Proposal (RFP) each year; development of scientific and programmatic review criteria; annual selection of members of the scientific review panel on the basis of their expertise for evaluating the scientific merit of applications submitted in response to the RFP; organization and facilitation of the scientific review and conduct of the subsequent programmatic review of proposals; fiscal oversight and storage of all documentation and records of the PPRTP and of any products derived from funded projects.

a. Goals and Objectives:

The goals of the PPRTP are:

1. Continue further refinement and increase the efficiency of distribution of the announcement of the RFP.
2. Strive to increase the number of applications while maintaining the rigor of the review process.
3. Improve productivity by devising mechanisms to facilitate the dissemination of study findings in the peer review literature.
4. We will work with our contracts and grants office to devise ways of improving the efficiency of the contract process and fiscal administration of the projects awarded.
5. Continue refining and administering the research trainee survey as a means of collecting information on the impact of the program and for program improvement.

b. Responsible Conduct of Science Training:

It is the policy of the UTHSC-H that faculty, staff, and students conduct research, research training, experimentation, and testing activities in the safest manner possible and with the highest ethical standards. A member of the UTHSC-H faculty, staff, or student body who conducts research in the name of the UTHSC-H must adhere to all federal, state, and local statutes and regulations; to The University of Texas Regents' *Rules and Regulations*; and to UTHSC-H policies, regardless of whether the research is conducted on a campus of the UTHSC-H or at an external facility.

All faculty, staff, students, and trainees planning to conduct research involving human subjects or data from human-derived materials must complete education on the protection of human subjects, and their research protocols must also be reviewed and approved by UTHSCH's Committee for the Protection of Human Subjects. This provides assurance that all students complete human subject training before starting research regardless of funding. Some programs may require additional training in Ethics as appropriate.

All applications submitted in response to the annual RFA for this ERC Pilot Projects Research Training Program must indicate the IRB status (approved/pending) of their projects at the time of submission of the application. Once the decision of award is communicated to the applicant, projects are not allowed to begin until contract negotiations are final, IRB approvals have been obtained, and NIOSH has reviewed and approved these materials.

c. Faculty Participation:

The current Research Training Coordination core for this program is composed of the following faculty, and remains unchanged since the last competing application:

**Maria Morandi, PhD, CIH** serves as Research Training Program Director for this project. Dr. Morandi is an Assistant Professor (Research) in the Division of Environmental and Occupational Health Sciences at the UTSPH and a full-time faculty member. Dr. Morandi is well known to NIOSH, not only through her contributions in teaching, advising and research in the SWCOEH Industrial Hygiene Program, but also as a NIOSH ERC site visitor, past member of several NIOSH Training Grant Special Emphasis Panels, and of the NIOSH Study Section and the Mine, Safety and Health Research Advisory Panel (MSHRAC). Her main research interests are in exposure characterization and assessment of chemical and physical agents in occupational, community and indoor environments, health effects of oxidants and other gaseous and particle-bound air pollutants, and development and evaluation of air pollution personal monitoring methods.

Additional program faculty include: **George Delclos, MD, MPH** tenured Professor of Occupational Medicine, Director of the Division of Environmental and Occupational Health Sciences, and Associate Director of the Occupational Medicine Program. His interests include medical surveillance of petrochemical workers, molecular epidemiological aspects of occupational cancer, occupational hazards of healthcare workers, occupational and environmental respiratory disease, and occupational health in developing countries. Dr. Delclos serves frequently as an ad hoc member of the NIOSH/NORA Study Section. **Benjamin Amick III, PhD** tenured Professor of Behavioral Sciences, Director of the Occupational Epidemiology and Occupational Injury Prevention Programs. His research interests integrate the disciplines of ergonomics, epidemiology and organizational psychology to create healthy workplaces. Dr. Amick is a leader in the development of new work outcome measures for evaluating occupational health and safety interventions and for assessing the human and economic burden of occupational illnesses and injuries. He is a member of the NIOSH Board of Scientific Counselors. **Xifeng Wu, MD, PhD**, tenured Professor of Epidemiology at the M.D. Anderson Cancer Center and Adjunct Associate Professor of Epidemiology at the UTSPH. Dr. Wu is an occupational physician and with a PhD in epidemiology from the UTSPH. She has extensive experience with biological markers related to occupational exposures and cancer, and has been principal and/or co-investigator on numerous NIH-funded grants in cancer research, with

emphasis on cancer susceptibility, biomarkers, environmental exposures, and molecular epidemiology.

d. Curricula:

Please refer to the individual academic core and special emphasis program progress reports.

**D. Program Activities and Accomplishments**

a. Progress towards Goals and Objectives:

The goals established at the start of the 5-year funding cycle guide the activities of this program. The annual process for announcing, accepting, reviewing, awarding, contracting and disseminating results of our pilot projects awards remain viable and increasingly successful. In the 2006-2007 reporting period, a total of 15 applications were received and seven received awards (see below). Of these, two were transitional awards. Two awards were received by faculty or doctoral students at the UT School of Public Health and the remainder to research trainees in other institutions. Four of the awards were made to applicants from other institutions in Texas and one to Arkansas. The annual offering continues to attract attention and an increased number of quality applications.

b. Trainee Theses and Dissertations:

The following are the seven pilot project awards (including two transitional investigator awards) made during the reporting period (through June 30, 2007):

Farah Ahmed, PhD Student, the University of Texas School of Public Health: "Work Related Asthma among Dental and Radiology Professionals".

Morris Cranmer, PhD, University of Arkansas for Medical Sciences: "Conditions Controlling the Release of Sulfur Dioxide from Sodium Metabisulfite Shrimp Dip Solutions". (Transitional Investigator Award)

Georgianna Gould, PhD, the University of Texas Health Science Center at San Antonio, "Effects of Chronic, Low-Level Pesticide Exposure on Zebrafish Central monoamine Transporters".

Courtney Hill, PhD Student, the University of Texas Medical Branch at Galveston, "Role of Polymorphisms in the MGMT Gene in Modifying Cellular Response in an Occupational Exposure Model to Antineoplastics".

Ann Malecha, PhD, Texas Woman's University, "Preparing the Future Nursing Workforce: a Pilot Study Examining Stressors and Nursing Students Success". (Transitional Investigator Award)

Lisa Pompeii, PhD, the University of Texas School of Public Health, "The Physicians' Role in Determining Appropriate Work Assignments for Women who Work During Pregnancy".

Gensheng Wang, PhD, M.D. Anderson Cancer Center, "Role of Oxidative Stress in the Short and Long Term Toxic Effects of 1,2-Dibromo-3-Chloropropane (DBCP) on Rat Testis".

The annual RFA announcement for pilot projects for the 2007-2008 reporting period was distributed in March 8, 2007. Applications were accepted in April 27, 2007. The announcement was distributed exclusively by electronic communications for the first time since the inception of the program. As in past years, the distribution list included the offices of sponsored projects of all eligible institutions within Region VI, departments with occupational health-relevant programs within those institutions, prior applicants to the program, and past and current members of the scientific review panel.

c. New Faculty Positions:

There have been no changes in faculty since the last report.

d. Trainee Recruitment:

The University of Texas Health Science Center – Houston (UTHSC-H) School of Public Health is committed to equal access for all qualified applicants seeking quality graduate education in the fields of public health regardless of age, sex, race, disability, religion or national origin. The policies and programs are designed to create a diverse student population and a Diversity Office has been established in the School of Public Health and a director was appointed. Specifically the UTHSC-H School of Public Health has one of the highest minority enrollments for a school of public health.

In addition to ongoing institutional minority recruitment efforts, a comprehensive review of web based and hard copy recruitment materials was conducted in collaboration with the Division of Environmental and Occupational Health during the September 1, 2004 through June 30, 2005 period. This review was completed and new academic program brochures were developed for the NIOSH training program. These brochures, along with updated web-based materials are being integrated into recruitment programs and activities at the School of Public Health level, and include the development of new division-based brochures and website.

As per the last competing renewal and progress report, an extensive distribution of the annual PPRT RFA is made, targeting all occupational health and safety and other relevant graduate programs in region VI are eligible to submit proposals for pilot project funding. Proposals that include inter-institutional collaboration are especially encouraged.

**E. Program Products**

a. Publications and Presentations of Program Faculty and Trainees:

Publications and presentations resulting from this program in the reporting year are listed in Appendix C.

b. Conference/Symposia Sponsored:

As has been the case since its inception, the major seminar offered by the ERC Pilot Projects Research Training Program is the annual seminar, held at the UTSPH, where all current awardees publicly present the results of their pilot projects. Recipients of awards for the 2006-2007 reporting period presented their results at a seminar held on June 15, 2007.

c. Research Projects Completed and having Significant Trainee Involvement:

Since it was first offered in 1999 through June 30, 2007, the Texas ERC Pilot Projects Research Training Program has awarded a total of \$562,786.55, distributed among 56 pilot projects, of the 56 projects, 49 were awarded in Texas, 3 in Louisiana, 2 in Oklahoma and one each in Arkansas and New Mexico. We are in year nine of our program and are one of the few ERC Pilot Projects programs that have made at least one award in each of the component states of its federal region. The program continues to improve each year and strives to cover its region.

**F. Future Plans**

Work will continue on the five program goals described earlier in this section.

### III. Program Progress Report: Center Wide Programs

**A. Program Title:** NORA Research Support

**B. Program Director:** George P. Delclos, MD

#### **C. Program Description**

The NORA Research Support Program has supported the development of an effective research administration and grants management infrastructure with the ERC. An important function of the SWCOEH is to promote and facilitate the professional growth of its faculty and student members, both individually and collectively, and to serve as a resource for the conduct of responsible research in occupational and environmental health. To this end, it is advantageous to have a clearly defined functional unit within the SWCOEH that promotes these activities and provides the necessary infrastructure to allow its members to transform research opportunities into concrete projects and activities which lead to outcomes that make a measurable difference. This infrastructure has provided a comprehensive, quality service to SWCOEH faculty and students in the areas of: a) identification of research grant opportunities, b) assistance with preparation of grant applications, c) day to day management of extramural funding, d) provision of technical assistance in the areas of laboratory and information technology, e) assistance with grant reports preparation and close-out activities, and f) promoting effective dissemination of research results through scientific publications, other print and electronic media, continuing education offerings and outreach seminars. The NORA program promotes the dissemination of Research 2 Practice (R2P) and support for continuing education activities.

##### a. Goals and Objectives:

Overall, NORA Research Support funds are being used to make a major investment in:

1. Identification of research opportunities.
2. Assistance with preparation of grant applications, day to day management of extramural funding and assistance with grant reports preparation and close-out activities.
3. Provision of technical assistance in the areas of laboratory and information technology.
4. Promoting effective dissemination of research results through scientific publications, other print and electronic media, continuing education offerings and outreach seminars.

##### b. Responsible Conduct of Science Training:

It is the policy of the UTHSC-H that faculty, staff, and students conduct research, research training, experimentation, and testing activities in the safest manner possible and with the highest ethical standards. A member of the UTHSC-H faculty, staff, or student body who conducts research in the name of the UTHSC-H must adhere to all federal, state, and local statutes and regulations; to The University of Texas Regents' *Rules and Regulations*; and to UTHSC-H policies, regardless of whether the research is conducted on a campus of the UTHSC-H or at an external facility.

All faculty, staff, students, and trainees planning to conduct research involving human subjects or data from human-derived materials must complete education on the protection of human subjects, and their research protocols must also be reviewed and approved by UTHSCH's Committee for the Protection of Human Subjects. This provides assurance that all students complete human subject training before starting research regardless of funding. Courses include either classroom or independent study of Ethical Principles in the Biomedical Sciences and Research Ethics for Public Health. Some programs may require additional training in Ethics as appropriate.

c. Faculty Participation:

The NORA research support funds have been used to develop an outstanding core of faculty and staff that collectively reflect numerous years of research and administrative experience, which has been brought together to produce an integrated grants management and research coordination infrastructure for the SWCOEH.

**George Delclos, MD, MPH** is tenured Professor of Occupational Medicine, SWCOEH Deputy Director and Director of the Division of Environmental and Occupational Health. He has served as the Director of the NORA Research Support Program since 2002. As NORA Program Director, Dr. Delclos is responsible for identifying new interdisciplinary research opportunities for the SWCOEH and seeks creative ways in which NORA support funds can be combined with ongoing research projects to further enhance opportunities for ERC faculty, students and trainees have to be involved in research projects and practicum experiences.

Additional NORA faculty include representatives from all core and specialty academic program areas as well as research coordination support provided by the SWCOEH Research Coordinator. These faculty and staff include: **Keith Bureau, PhD**, Associate Professor of Biometry (research track). **Arch (Chip) Carson, MD, PhD**, Assistant Professor (research track) and Director of the Occupational Medicine Residency Program; **Sarah Felknor, DrPH**, Associate Professor of EOHS (tenure track); **Janet Harreld, MA, MPA**, Specialist in Continuing Education and Outreach and Director of the SWCOEH CE Program; **Tom Mackey, PhD, NP-C**, Professor of Nursing and Director of the OHN Program; **Maria Morandi, PhD, CIH**, Assistant Professor of EOHS (research track) and Director of PPRTP; **Susan Parnell, MPH, MSN, COHN-S**, Assistant Professor of Nursing and Associate Director of the OHN Program; and **Lisa Pompeii, RN, MS, PhD, COHN**, Assistant Professor of EOHS. Key support for the NORA Research Support program is provided by **Michelle Payton, MS**, Research Coordinator for the SWCOEH and Masoud **Afshar, MS**, Senior Research Associate and analytical chemist.

## **D. Program Activities and Accomplishments**

a. Progress towards Goals and Objectives

1. Identification of research opportunities. The NORA research support program at the SWCOEH uses four main methods of assessing regional research needs and identifying new grant opportunities: a) weekly screening of research funding opportunities, b) feedback generated through the SWCOEH Pilot Projects Research Training Program, c) feedback on research needs identified through the School of Public Health regional campuses, and d) advice on research agenda development activities provided by

consultants/colleagues from graduate academic institutions within Region VI. This has not changed since the last report.

2. Assistance with preparation of grant applications, day to day management of extramural funding and assistance with grant reports preparation and close-out activities. Since the last progress report, the administration of research services within the EOHS Division were restructured, resulting in a shift of some of the staff positions between the SWCOEH and the Division. This restructuring is nearing completion. During this reorganization, however, both SWCOEH faculty as well as faculty in the Division continued to avail themselves of the infrastructure for grants management by submitting several new proposals for funding.
3. Provision of technical assistance in the areas of laboratory and information technology. Major contributions were made by the NORA Research Support Program in support of this goal. Three additional pieces of analytical and field laboratory equipment were purchased: a) a CDS Analytical system, b) a vibration analyzer kit in support of the industrial hygiene and ergonomics research efforts, and c) a Fisher microbalance. These equipment items, together with a leveraged purchase of an ICP-MS analytical unit, completed in July 2007, complete the upgrading of our occupational and environmental health laboratory facilities targeted by the 2006-2010 EOHS Division Research Strategic, to which the SWCOEH has been a major contributor. Our current laboratory capabilities position us to be much more competitive for research funding in the area of exposure assessment. NORA monies were also used to support subscription fees for the CCINFO database access, renewal of software licenses for various statistical packages (SPSS, SUDAAN and SAS), and website updating and support for the Center.
4. Promoting effective dissemination of research results through scientific publications, other print and electronic media, continuing education offerings and outreach seminars. NORA monies were used to support faculty travel to School of Public Health regional campuses for lectures and work on research projects, as well as to scientific meetings in injury prevention, epidemiology and occupational safety. Trainee travel was also provided for students to attend national meetings and workshops in San Francisco (1 occupational injury prevention trainee), Indianapolis (1 occupational health nurse trainee), Philadelphia (1 occupational medicine resident), and New Orleans (3 occupational medicine residents).

b. New Faculty Positions:

There have been no changes to faculty since the last report.

c. Trainee Recruitment (include diversity efforts):

The University of Texas Health Science Center – Houston (UTHSC-H) School of Public Health is committed to equal access for all qualified applicants seeking quality graduate education in the fields of public health regardless of age, sex, race, disability, religion or national origin. The policies and programs are designed to create a diverse student population and a Diversity Office has been established in the School of Public Health and a director was appointed. Specifically the UTHSC-H School of Public Health has one of the highest minority enrollments for a school of public health.

In addition to ongoing institutional minority recruitment efforts, a major and comprehensive review of web based and hard copy recruitment materials was launched in 2004-2005. During this most recent report period, newer materials, to be used primarily for large-scale student recruitment campaigns, were developed.

#### **E. Program Products**

a. Publications and Presentations of Program Faculty and Trainees:

Not applicable (please refer to individual academic program progress reports).

b. CE Courses Presented:

Not applicable (please refer to Continuing Education progress reports).

c. Successful R2P Projects:

Dr. Amick, together with Shelley Brewer (trainee), completed a systematic literature review of the effectiveness of worksite-based interventions, which is currently in press through the Institute for Work and Health in Canada. This work provides workplace safety managers with an evidence base for selecting effective preventive interventions (at worksites in general).

Dr. Amick, together with Cammie Chaumont-Menendez (trainee), completed an evaluation of risk injuries among Rice University College of Engineering students that was subsequently presented to the Deans of that school, to help guide the design of appropriate interventions. In addition, Dr. Chaumont (graduated summer 2007) presented her findings at a national meeting in San Francisco.

The successful preparation of a report on air quality in Houston, presented to the Mayor of Houston in June 2006 (and reported in the last report) continued to have high visibility among local stakeholders, with the report serving as the initial work product of a new Institute for Public Health Policy, housed in the School of Public Health, and as the basis for several publications. This report represented the first attempt at identifying leading pollutants in the Houston area and where the greatest impact on health is likely to be.

d. Research Projects Completed having Significant Trainee Involvement:

Air monitoring of VOCs: Dr. Maria Morandi and Dr. Tom Stock, faculty; Coty Maypole, trainee.

Asthma in healthcare workers: Drs. Delclos, Carson, Stock, Whitehead, Symanski, Lai, faculty; Farah Ahmed, trainee.

Systematic literature review of effectiveness of workplace interventions: Drs. Amick and Delclos, faculty; Shelley Brewer, trainee.

A review of occupational hazards in nursing: Dr. Delclos, faculty; Dawn Green Marshall, trainee (final draft of manuscript under review).

A review of occupational respiratory hazards in the services industries. Dr. Delclos, faculty. Lea Ann Tullis, trainee (final draft, in preparation for a book chapter).

A systematic literature review of interventions for the prevention of musculoskeletal injuries among healthcare workers. Dr. Amick, faculty; Jessica Tullar, trainee.

Analysis of role of computing exposures in musculoskeletal injuries among college students: Dr. Amick, faculty; Cammie Chaumont-Menendez, trainee.

PMR and SMR study of bladder cancer among polyethylene pipe manufacturing workers: Drs. Felknor and Delclos, faculty; Sandra Olfert, trainee. Although completed in the past report period, this work has also led to participation on a scientific committee preparing a white paper on bladder cancer, to be delivered in Stockholm in April 2008.

## **F. Future Plans**

This program has been critical to the strengthening of our research infrastructure and productivity. Its flexible nature allows us to buttress and supplement our other research and continuing education activities in ways that effectively leverage the budgets of each of those programs. The NORA Research Support Program has supported the development of an effective research administration and grants management infrastructure with the ERC. This infrastructure provides a comprehensive and quality service to SWCOEH faculty and students. The NORA program promotes the dissemination of Research 2 Practice and support for continuing education activities. For the coming year, some refocusing of program goals will occur. Specifically, we will prepare for the significant change in nature and scope of the NORA program in the 2010 competition, develop a clear research focus within the NIOSH ERC, and disseminate and implement NORA findings through professional practice.

### III. Program Progress Reports: Core Academic Programs

**A. Program Title:** Industrial Hygiene

**B. Program Director:** Lawrence W. Whitehead, PhD

#### **C. Program Description**

The **Industrial Hygiene Program (IH)** provides Master's (MPH) and Doctoral (DrPH and PhD) students a broad education in industrial hygiene and related areas of public health. The IH program currently has the largest faculty in its history and represents one of the largest academic IH faculties in the U.S. The **major goals** of the program are: increase recruiting activities, maintain ABET status, maintain current interdisciplinary interaction within the UTSPH programs, and maintain current CE and outreach activity.

##### a. Goals and Objectives:

Goals for the reporting period remain the same as in the competing application for the period 2005-2010, and include: 1) recruiting activities, for both masters and doctoral level full-time students. 2) Maintain ABET status by developing outcomes assessment activities to comply with ASAC requirements, and achieve re-accreditation on the next review in 2008-2009. 3) Maintain current interdisciplinary interaction within the SPH programs. 4) Maintain current CE and outreach activity.

##### b. Responsible Conduct of Science Training:

It is the policy of the UTHSC-H that faculty, staff, and students conduct research, research training, experimentation, and testing activities in the safest manner possible and with the highest ethical standards. A member of the UTHSC-H faculty, staff, or student body who conducts research in the name of the UTHSC-H must adhere to all federal, state, and local statutes and regulations; to The University of Texas Regents' *Rules and Regulations*; and to UTHSC-H policies, regardless of whether the research is conducted on a campus of the UTHSC-H or at an external facility.

All faculty, staff, students, and trainees planning to conduct research involving human subjects or data from human-derived materials must complete education on the protection of human subjects, and their research protocols must also be reviewed and approved by UTHSCH's Committee for the Protection of Human Subjects. This provides assurance that all students complete human subject training before starting research regardless of funding. Courses include either classroom or independent study of Ethical Principles in the Biomedical Sciences and Research Ethics for Public Health. Some programs may require additional training in Ethics as appropriate.

##### c. Faculty Participation:

All faculty members presented in the competing renewal application for 2005-2010 continue to provide key leadership to the IH program. The IH Program Director is **Lawrence W. Whitehead, PhD, CIH**, and tenured Associate Professor in the DEOHS. He is lead instructor for IH1: Fundamentals of Industrial Hygiene; and co-instructor for IH2: Occupational Health Controls;

Occupational Health Field Trips; Physical Agents; Occupational Safety; Foundations of EOHS. Dr. Whitehead also serves on the Council (board of directors) of the Academy of Industrial Hygiene. **Thomas Stock, PhD, CIH**, tenured Associate Professor, teaches Air Environment, and Environmental Sampling and Analysis, and is involved in research and research training. **Maria Morandi, PhD, CIH**, Assistant Professor, is also involved in research and research training. **Elaine Symanski, PhD**, tenured Associate Professor teaches Methods of Exposure Analysis, even though having switched to Epidemiology administratively. She is involved in research and also has done very extensive work in academic review/revision in the EOHS. **Jimmy Perkins, PhD, CIH**, tenured Professor in DEOHS, is based at the SPH San Antonio regional campus. He co-teaches IH2: Occupational Health Controls, leading instruction in industrial ventilation, and chemical protective clothing. He is actively involved in Continuing Education for the ERC. Dr. Perkins is also the Vice President of ACGIH, and will move up into the Presidency over a three year cycle. **Robert Emery, DrPH, CIH,SP, CHP**, Associate Professor in DEOHS and Assistant Vice President of The Health Science Center, and Executive Director of the UT office of Environmental Health and Safety, and co-teaches courses in Physical Agents, and Occupational Health Program Management. Dr. Emery is active in Continuing Education, serving as course organizer for CE courses in Radiation Safety Officer training, ESH Academy (intensive training for campus, and institutional ESH staff), and several refresher courses. Dr. Emery is also very active in outreach and professional education nationwide. **Martha Soledad Vela Acosta, MD, PhD**, is based at the SPH Brownsville regional campus. In addition to DEOHS teaching in Brownsville, she is available to lecture on agricultural H&S, conducts extensive community outreach in the Brownsville area, and with the Spanish-speaking community, carries OH knowledge and research into the community, and is active in AIHA in this area.

#### d. Curricula

The course of study for the Industrial Hygiene and Air Environment curriculum is presented in Appendix B, and consists of a required IH core (25 hours plus thesis or culminating experience), a related Public Health required core (approximately 21 hours including internship or practice experience), and 9 hours of electives. This totals 55 hours plus thesis or culminating experience, and usually requires two academic years (full time) for courses and often one added year for completion of thesis or equivalent. This is a large load of coursework; we feel confident that the quality of the graduate produced is high, but the number of credit-hours required may be contributing to the reduced enrollment observed.

All of the ERC primary core areas (IH, OM, OHN), are housed in the new UTSPH Environmental and Occupational Health Division, which reinforces interdisciplinary interaction. Specific interactions include (1) ERC core students take several courses in common, specifically Fundamentals of Industrial Hygiene, Principles of Toxicology, and Occupational Health Field Trips. The latter course, especially, creates an interdisciplinary experience by establishing teams of IH, OM, and OHN students, to the extent feasible given the specific enrollees. Teams prepare pre-visit presentations and write site-visit reports on each of 6 field trips, coordinating analysis and writing tasks.

A change in curricula during this reporting period is the addition of a divisional requirement for Foundations of Environmental and Occupational Health Sciences, total 6 credits. The number of technical elective credits has been reduced from 9 to 6 to compensate somewhat in program length.

As of May 2006, the Division of EOHS stopped accepting MS degree students, and all masters including IH students will follow the MPH degree track. This is not of consequence for IH as most students in IH were already on the MPH track, and the few (2) on MS will be allowed to complete their programs on the MS track. We will not reapply for ABET accreditation for the closed MS track.

#### **D. Program Activities and Accomplishments**

##### **a. Progress towards Goals and Objectives**

Extensive recruiting was conducted in 06-07, the second year of expanded recruiting by the DEOHS and industrial hygiene. Steps are being taken toward our next ABET accreditation; given an ongoing major curriculum revision by the DEOHS, a request was made and approved to extend the current period of accreditation by one year, to 2008-2009. This will permit our application to have much more information about the future objectives and curriculum design of the DEOHS and therefore the IH track.

Interdisciplinary activity remains high. Occupational physician, occupational health nurse, and IH students take several courses together, including Occ. Health Field Trips, where cross-disciplinary teams jointly write walk-through reports.

CE/outreach activities of IH faculty remain high. Dr. Robert Emery has the highest participation, and Drs. Whitehead and Perkins also lecture and are involved with developing new course proposals at present. Drs. Stock, Morandi, and Symanski conduct more research so participate less in CE, but do advise on content for new courses, and on occasion lecture in CE.

##### **b. Trainee honors, awards, scholarships**

NIOSH doctoral trainee for 05-06 and 06-07 (and former summer intern at NIOSH Morgantown) Michelle McHugh was awarded for the 2005-2006 academic year an American Industrial Hygiene Foundation Fellowship. For 2007-08 she was awarded a 3M Corporation Industrial Hygiene Scholarship. These are national, prestigious awards. She also received a scholarship from the local section of the AIHA, for the second time.

Coty M. Maypole, NIOSH trainee in 05-06 and 06-07, obtained a substantial industrial internship with a national chemical company, and was awarded a national AIHF Fellowship for 2007-08, at the AIHCE in May 07. She will enter the PhD program in January 08.

Graduate and former NIOSH Trainee Nicole Greeson was elected to the Council of the Academy of Industrial Hygiene, to begin her term in fall 07. She was also selected for the AIHA Future Leaders program in 06-07, as was current student Louis Holtz. Two other grads of our program (and both former NIOSH trainees) have also been through the first AIHA Future Leaders program two years ago (Kate Murray Del-Aguila and Amy Cress).

c. Faculty Honors, Awards, and Appointments

Perkins, J. Elected Vice-President of the American Conference of Governmental Industrial Hygienists. Will move into posts of President-Elect, President, and Past-President over the next four years.

Perkins, J. Member, IOM Committee to Review the NIOSH Personal Protective Technology Program, 2007-2008

Symanski, E. Committee on Contaminated Drinking Water at Camp Lejeune, The National Academies, National Research Council, August 2007-January 2009.

Vela Acosta MS . Acute and Chronic Noise Exposure Scholarship. Harvard School of Public Health, March 28,2007,

Vela Acosta MS. Currently advisor to the occupational health graduate program for the Institute for Work Research (Instituto de Investigaciones en el Trabajo) at the University of Guanajuato, Leon, Mexico, on development for accreditation by the National Institute of Science (CONACYT). Content advisor for industrial hygiene, safety and occupational health. May 2007- present.

Vela Acosta MS . Social Concerns Committee Award, American Industrial Hygiene Association, June 4, 2007

Whitehead, L. Elected to the Council of the Academy of Industrial Hygiene, began term in fall, 2006.

d. Trainee theses and dissertations

Mathis, Jim. August 2006. Characterization of ultraviolet radiation exposures from biological safety cabinets at the University of Texas - M.D. Anderson Cancer Center. MPH Thesis.

Smith, Jacqueline. December 2006. Revising the national ambient air quality standards: the integration of science and policy. PhD Dissertation.

e. New Faculty Positions

No new positions in Industrial Hygiene. One IH faculty member, Dr. Elaine Symanski, transferred to the Division of Epidemiology, but continues to offer Methods in Exposure Assessment, advise IH students interested in that area, and participate fully in IH program discussions and planning.

f. New Courses

No new courses in industrial hygiene were created in the reporting year. A new divisional course, Foundations of Environmental and Occupational Health Science, was first offered in 2006-2007. Industrial hygiene students along with all other majors in DEOHS admitted in 2007 and after are required to take this course. Further refinement of the EOHS core curriculum

occurred in 2006-07. Up to two more EOHS core courses will be created in 07-08 and 08-09, which will be required of IH students. These will enrich the IH curriculum, and permit reduction of time on certain topics in other courses.

g. Trainee Recruitment (include diversity efforts)

The University of Texas Health Science Center – Houston (UTHSC-H) School of Public Health is committed to equal access for all qualified applicants seeking quality graduate education in the fields of public health regardless of age, sex, race, disability, religion or national origin. The policies and programs are designed to create a diverse student population and a Diversity Office has been established in the School of Public Health and a director was appointed. Specifically the UTHSC-H School of Public Health has one of the highest minority enrollments for a school of public health, including, we believe, the second-highest Latino enrollment of any SPH, following only Univ. of Puerto Rico.

New academic program brochures were developed for the NIOSH training program in the year prior to the reporting period, and have been in use this past year. These brochures, along with updated web-based materials are being integrated into recruitment programs and activities at the School of Public Health level, and include the development of new division-based brochures and website.

In the 2006-2007 reporting period, the DEOHS contacted all undergraduate schools within a roughly 200 mile radius for the second year, emailing information on the division and its web sites to chairs of appropriate science departments. Division faculty accompanied SPH recruiters or exhibited alone at two graduate school fairs at undergraduate schools. Repeating relationships have been established with two schools, one a Latino-majority school. A class in environmental sciences from the latter visited the SPH and attended the EOHS research seminar.

**E. Program Products**

a. Publications and Presentations of Program Faculty and Trainees

Publications and presentations resulting from this program in the reporting year are listed in Appendix C.

b. Conference/Symposia Sponsored

None in 06-07, although an all-Texas IH conference, co-sponsored by the ERC, was planned and occurred in Fall 2007.

c. CE Courses Presented:

Please see Continuing Education report.

d. Successful R2P Projects

Robert J. Emery, DrPH

Emery, R.J. Federal Bureau of Investigation Intelligence Bulletin, Counterterrorism Intelligence Group. Radiation Sources and Risks. FBI Field Intelligence Group, Houston TX 77008, February 2007

Emery R.J. Federal Bureau of Investigation Intelligence Bulletin, Counterterrorism Intelligence Group. Radioactive Source Identification. FBI Field Intelligence Group, Houston TX 77008, February 2007

Emery, R.J. Federal Bureau of Investigation Intelligence Bulletin, Counterterrorism Intelligence Group. Analysis of Cases of Reported Stolen Sources of Radioactivity in Texas, FBI Field Intelligence Group, Houston TX 77008, March 2007

Emery, R.J. Federal Bureau of Investigation Intelligence Bulletin, Counterterrorism Intelligence Group. Recent Po-210 Poisoning Impacts on Preparedness. FBI Field Intelligence Group, Houston TX 77008, March 2007

A number of other outreach presentations by Dr Emery are on the topic of implications of stolen radiation sources, and these are all considered as delivery of applied information to the user communities to modify professional practice, based on research.

Martha S. Vela Acosta, MD, MPH

Conducts an applied research agenda proposing prevention strategies addressing occupational health disparities among Spanish speaking farmworkers. *The Work Safely-Trabaje con Cuidado Curriculum*, a bilingual occupational health and safety intervention, was implemented in two high school equivalency programs (HEP) in south Texas, and also tested in a regular high school setting. Educators, parents, students, and farmworkers participated in developing this culturally appropriate, bilingual curriculum. Ad-Hoc members (in and out of state) reviewed and provided feedback about curriculum contents. After four years of continued research efforts the *Work Safely-Trabaje con Cuidado Curriculum* is the first bilingual curriculum available for Hispanic workers at the high school level and it holds the potential for use anywhere bilingual education is in demand. The local public education television station is interested in establishing a partnership along with the Texas Education Agency to adapt this *Curriculum* into a state-wide initiative that can reach all youth enrolled in school programs.

e. Research Projects Completed having Significant Trainee Involvement

Investigation of Key Determinants of VOC exposure, The Mickey Leland National Urban Air Toxics Research Center (NUARTC), 12/1/06-11/30/07. (Grace Tee, NIOSH ERC trainee).

f. Unique Training Courses Presented

We consider the Continuing Education courses in Radiation Safety Officer Training, and the EHS Academy (intensive course on campus/institutional HSE), both created at UT, as unique offerings.

A Hispanic Culture: Participatory Research Addressing Occupational Health for Farmworkers in the Lake Region. Keynote speaker and workshop training for the Environmental Protection Agency. Washington, DC., October 2006. Vela Acosta MS.

Work Safely-Trabaje con Cuidado Bilingual Curriculum for Farmworkers. Workshop at First National Conference of High School Equivalency Programs (HEP/CAMP). San Diego, CA. October 2006. Vela Acosta MS.

A certificate in industrial hygiene has been started, at the technician or first cross-training level. The first class in Intro. to Industrial Hygiene was conducted in summer 07 by Drs. Whitehead and Perkins, and was fully booked, with 18 students. The next class is planned in 07-08.

## **F. Future Plans**

Plans for the next academic year address the four goals in the competing renewal period that began in July 2005. On recruitment, we plan to repeat the email and campus visit effort initiated two years ago. A request was made and approved to extend the current ABET accreditation period for one year. Assessment methods have been added this year to our prior less-formal assessment procedures, to address outcomes at graduation and after a few years of practice. For interdisciplinary activities, we will maintain current activity, primarily joint classes with trainees from other programs within the ERC. Continuing Education plans are underway and these plans are expanding offerings in industrial hygiene. A contract has been received from a private industry for train-the-trainer courses in IH, in Spanish. A sequences of classes in IH has been begun at a new-to-IH level of training, and will be continuing. Further detail is being sought on an inquiry from another organization. These are in addition to annual courses. A CE class in EHS for technical theater is scheduled in spring 2008.

### **III. Program Progress Report: Core Academic Programs**

**A. Program Title:** Occupational Medicine

**B. Program Director:** Arch I. Carson, MD

#### **C. Program Description**

Occupational and Environmental Medicine Residency (OMR) Program trains practicing physicians to be qualified for careers in occupational and environmental medicine in private practice, industry, government, military or academia. This two-year program includes one academic year, leading to completion of the requirements for a Master of Public Health degree, and one practicum year of experiential rotations in various aspects of professional practice in the field. The major goals of this program are: maintain consistently high quality of residency candidates, continue to add variety and solid educational value to the practicum year rotations, and increase opportunities for interdisciplinary practicum projects. The Occupational and Environmental Medicine (OM) Program is housed in the University of Texas-Houston School of Public Health (UTSPH). The OM residency is fully accredited by the Accreditation Council on Graduate Medical Education (ACGME). It is the oldest and largest of the three OM residency programs in the ERC Region VI, and the only one housed in an interdisciplinary unit. Since its founding in 1978, it has graduated 57 physicians.

Training in the OM residency consists of two years of training that must be preceded by at least one year of hospital-based general clinical training in an ACGME approved program (clinical year), although additional full residency training in a primary care specialty is preferred. This first clinical year of training is not provided within the OM residency, but must be obtained elsewhere to be eligible to enter the program. Residents must also be eligible for an unrestricted Texas medical license or institutional permit. The first residency year consists of matriculation in graduate studies leading to the MPH degree. All or most of the course requirements for the degree are typically accomplished within twelve months. During this period, the residents also engage in other academic and clinical activities, including weekly clinical conferences, periodic patient evaluations, monthly journal club/research seminar sessions and various occupational medicine professional service projects. The second residency year consists of a series of supervised professional practice rotations as a member of a functioning occupational health team or in a medical specialty setting of particular interest or value to the Resident. Each rotation is rated for the specific OM professional competencies and training depth it provides for the residents. At the conclusion of the two-year program, residents will have mastered the required list of competencies and are eligible for certification by the American Board of Preventive Medicine.

#### **a. Goals and Objectives:**

Several objectives were defined for the OM Program for the period 2005 – 2010 and remain consistent. These goals and objectives are:

1. Maintain consistently high quality of residency candidates by developing a systematic annual recruitment plan and procedure, directed primarily at existing internal/general medicine, family medicine and emergency medicine residencies in the region.

2. Continue to add variety and solid educational value to the practicum year rotations.
3. Increase opportunities for interdisciplinary practicum projects for all occupational health students, by increasing the penetration of clinical occupational health services at the UTHSC and by promoting outside referrals and contracts.
4. Provide strong elective rotation opportunities and combined residency training tracks for medical schools and other academic institutions in Houston and Texas. Increase the participation of OM faculty at the undergraduate level in both Houston medical schools.
5. Strengthen ties with other local, regional and international academic institutions and agencies through more collaborative research and outreach projects, as well as joint continuing education offerings. Explore the possibilities and opportunities for joint residency programs with medical schools and other academic institutions in Houston and Texas.

b. Responsible Conduct of Science Training:

It is the policy of the UTHSC-H that faculty, staff, and students conduct research, research training, experimentation, and testing activities in the safest manner possible and with the highest ethical standards. A member of the UTHSC-H faculty, staff, or student body who conducts research in the name of the UTHSC-H must adhere to all federal, state, and local statutes and regulations; to The University of Texas Regents' *Rules and Regulations*; and to UTHSC-H policies, regardless of whether the research is conducted on a campus of the UTHSC-H or at an external facility.

All faculty, staff, students, and trainees planning to conduct research involving human subjects or data from human-derived materials must complete education on the protection of human subjects, and their research protocols must also be reviewed and approved by UTHSCH's Committee for the Protection of Human Subjects. This provides assurance that all students complete human subject training before starting research regardless of funding. Some programs may require additional training in Ethics as appropriate.

c. Faculty Participation:

The Program Director and the Associate Director administer the activities of the OM Program. The Director is responsible for the day-to-day management of the program, oversight of the budget and expenditures, response to resident, preceptor, and institutional inquiries, answer of requests for information from prospective applicants and the community, and supervision of subordinate personnel providing service to the program. The Associate Director, who is the former Director and current ERC Director, addresses curriculum issues, historically based grant writing and accreditation activities, advises some residents, and directs the University of Texas Health Services Clinic.

**Arch Carson, MD, PhD**, Assistant Professor of Occupational Medicine, has served as OM Program Director since 1998. He has an active clinical practice in occupational medicine and toxicology. He teaches the core Occupational and Environmental Health course, co-teaches the Occupational and Environmental Respiratory Disease course, cross-lectures in toxicology and environmental health courses at the School of Public Health, directs the weekly didactic sessions with the OM residents, and supervises residents during their clinical rotations in clinical toxicology. Jointly with Drs. Emery and Whitehead, he co-directs the Workplace Safety and Public Health learning track, started in 1995, and with Dr. Emery, teaches a fall course, "Seminar on Workplace Safety", first offered in 1995. He serves as advisor to Occupational

Health and Environmental Sciences students and chairs or serves on their thesis and dissertation committees. Dr. Carson is recognized as a regional authority in clinical toxicology and is frequently consulted by the community regarding occupational and environmental exposures of concern to citizens.

Additional OM Program faculty include: **George Delclos, MD, MPH**, Professor of Occupational Medicine and Director of the Division of Environmental and Occupational Health. In addition to his UT SPH appointment, Dr. Delclos is also a Clinical Associate Professor of Medicine at Baylor College of Medicine, and Medical Director of the UT Health Services clinic. **Arnold Schecter, MD, PhD**, is Professor of Environmental Sciences. He is a member of the Dallas Regional Campus faculty of the UT SPH and makes frequent trips to the Houston campus. He maintains an active research program and is a recognized international authority on environmental exposures to Agent Orange, polyhalogenated dioxins and flame retardants.

Other DEOHS Faculty who contribute to the OM Program include: **Lawrence Whitehead, PhD, CIH**, is Associate Professor of Environmental Health, Director of the Industrial Hygiene Program and past Director of the SWCOEH. He teaches Fundamentals of Industrial Hygiene, Fundamentals of Workplace Safety, and co-teaches the Occupational Safety and Field Trips in Occupational Health courses. Dr. Whitehead also serves on academic advisory and thesis committees for OM residents; **Thomas Mackey, PhD, NPC**, is Professor of Clinical Nursing, Director of the Occupational Health for Nurses Program at the SWCOEH, and Clinic Director of UT Health Services. Together with Drs. Delclos and Whitehead, he teaches the interdisciplinary course, Field Trips in Occupational Health, which is offered in the Spring; **Robert Emery, DrPH, CIH, CSP** is Associate Professor of Occupational Health. Jointly with Dr. Felknor, he teaches an interdisciplinary course, Health and Safety Program Management, advises core program students in their coursework and thesis research, and is preceptor for OM residents during their rotation at the University of Texas-Houston Health Science Center, Environmental Health and Safety Department. Jointly with Dr. Carson, he teaches the Workplace Safety Seminar in the Fall Semester; **Sarah Felknor, DrPH, MS** is Associate Professor of EOHS and Director of the SWCOEH. Dr. Felknor is the lead instructor of Health and Safety Program Management, which she co-teaches with Dr. Emery, and lead co-instructor of Health Survey Research Design; **Michael Smolensky, PhD**, is Professor of the Environmental Sciences. He is a recognized authority in chronobiology and circadian physiology. He lectures to residents on topics such as “shiftwork” and “circadian pharmacology,” and serves on advisory and research committees.

d. Curricula:

Occupational Medicine Residents and Trainees, engage in a curriculum leading to acquisition of a Master of Public Health degree with a concentration in any of the core disciplines of public health. In doing so, they must complete all requirements for the degree in that discipline as well as those of the Occupational and Environmental Medicine Residency (Occupational and Environmental Health, Fundamentals of Industrial Hygiene, Toxicology, Seminar on Workplace Safety, Occupational Medicine Practice). A Culminating Experience meeting the requirements of the School must be completed in order to qualify for the degree.

The OM Residency Program consists of a traditional two-year track, with an academic year and a practicum year. A complete description of course of study for this track is presented in Appendix B, together with course outlines. In brief, during the academic year, residents complete a minimum of 36 semester hours of coursework. Clinical duties during this year are

limited to one half day per week evaluating occupational medicine patients alternating with formal didactic lectures and case presentations. Additional requirements during the academic year include attending the monthly journal and research seminar. During the practicum year, residents typically spend four to six months at a minimum of two industrial sites; two to four months in clinical rotations; one or two months in a public health agency rotation, and the balance of the 12 months spent in elective and/or project rotations.

In addition, a combined four-year general internal medicine/occupational medicine residency track, in collaboration with the Baylor College of Medicine Department of Internal Medicine, is available. Admission to this track is contingent on separate admission to both Baylor and the UTSPH.

#### **D. Program Activities and Accomplishments**

##### **a. Progress towards Goals and Objectives**

We have established the Texas Occupational Medicine Residency Consortium including the University of Texas Medical Branch in Galveston, the University of Texas Health Science Center Houston and the University of Texas Health Center at Tyler.

##### **b. Trainee Honors, Awards, Scholarships**

Two Residents have been appointed during the reporting period:

- Barnabas Fote, MD (June 2007)
- Saka R. Disu, MD, MPH (September 2007)

Four Residents are continuing during the reporting period:

- Monica Clark, MD
- C. Austin Cropper, MD, MS
- Savithri Fernando, MD
- Zizhuang Li, MD, PhD

##### **c. New Courses**

During the reporting period one new course was developed: Public Health Risk Communication.

##### **d. Trainee Recruitment**

The University of Texas Health Science Center – Houston (UTHSC-H) School of Public Health is committed to equal access for all qualified applicants seeking quality graduate education in the fields of public health regardless of age, sex, race, disability, religion or national origin. The policies and programs are designed to create a diverse student population and a Diversity Office has been established in the School of Public Health and a director was appointed. Specifically the UTHSC-H School of Public Health has one of the highest minority enrollments for a school of public health.

In addition to ongoing institutional minority recruitment efforts, new program brochures and hard copy recruitment materials have been produced in collaboration with the Division of Environmental and Occupational Health. These brochures, along with updated web-based

materials are now integrated into recruitment programs and activities at the School of Public Health level, and integrate with the program website.

The Program continues to receive a substantial number of inquiries and completed applications from top level practicing physicians.

#### **E. Program Products**

##### a. Publications and Presentations of Program Faculty and Trainees

Publications and presentations resulting from this program in the reporting year are listed in Appendix C.

##### b. Conference/Symposia Sponsored

Texas College of Occupational and Environmental Medicine, Annual Meeting, Dallas TX.

##### c. CE Courses Presented:

NIOSH Approved Spirometry Training, 8 instances in Region VI during the grant year.

##### d. Unique Training Courses Presented

Public Health Risk Communication was a new and unique training course that we presented during the reporting period.

#### **F. Future Plans**

The Program Leadership is actively engaged in the present domestic and international debate on the future of occupational medicine training and practice. We are participants in the national debate through the ACOEM Task Force on the Future of Occupational Medicine and the Association of Occupational and Environmental Medicine Residency Directors, and in the international debate through the Union of European Medical Specialists Conference on Occupational Medicine Training and the International Commission on Occupational Health. We will continue to participate in the generation of both national and international policy recommendations by the end of calendar year 2008.

### **III. Program Progress Report: Core Academic Programs**

**A. Program Title:** Occupational Health for Nurses

**B. Program Director:** Thomas A. Mackey, PhD

#### **C. Program Description**

The Occupational Health for Nurses (OHN) Program prepares students for expanded practice in a variety of settings through the Master of Public Health (MPH) option with a concentration in Occupational and Environmental Health or through a dual degree in nursing and public health (MPH/MSN). Nurses enrolled in the program study a nursing clinical specialty and learn a public health nursing specialist role in occupational health through collaboratively taught courses and practice experiences. Currently the major goals of this program are: increase the number of students in the program, establish a collaborative research program with the School of Nursing and School of Public Health faculty, strengthen participation of OHN trainees in interdisciplinary activities, and secure additional institutional support from the School of Nursing.

The OHN Program was first established in 1988 with a curriculum leading to an MPH degree; in 1995 a joint MPH/MSN degree option was developed through collaboration between the UT SPH and the UT School of Nursing (SON). The OHN program prepares students for expanded practice in a variety of settings through the Master of Public Health (MPH) option with a concentration in Occupational and Environmental Health at the UTSPH or through a dual degree in nursing and public health (MPH/MSN) offered in collaboration with The University of Texas School of Nursing (SON). Occupational health nurses interested in the dual MPH/MSN degree option must be admitted to both the UTSPH and the SON separately.

The focus of the MPH/MSN coordinated degree program is to prepare a public health /occupational health nurse specialist for advanced practice. Nurses enrolled in the program will study a nursing clinical specialty and will learn a public health nursing specialist role in occupational health through collaboratively taught courses and practice experiences. The curriculum includes core courses in public/occupational health taught by UTSPH faculty; specialty nursing and supporting sciences courses taught by SON faculty; and courses for the public/occupational health practice role co-taught by SON and UTSPH faculty. In addition, the curriculum is designed to enable graduates to sit for the American Nurses Association Certification exam as a Clinical Specialist in Community Health Nursing as well as to provide the necessary knowledge base for the Certification in Occupational Health Nursing offered by the American Board for Occupational Health Nurses.

#### **a. Goals and Objectives:**

Specific goals for the OHN Program period 2005-2010 are:

- a. To increase the number of students in the program through aggressive recruiting efforts at the local and regional levels.
- b. To establish a collaborative research program with School of Nursing and School of Public Health faculty to obtain funded research and produce publications.

- c. To recruit a part time faculty member to assist in teaching didactic courses, arranging field experiences and practicum, and conducting continuing education.
- d. To provide necessary support and guidance to successfully complete theses in progress so that these trainees can graduate and enter the workforce as soon as possible.
- e. To develop and strengthen participation of OHN trainees in interdisciplinary activities of the SWCOEH and provide outreach opportunities for trainees to interact with the community at large.
- f. To secure additional institutional support from the SON in the form of additional funding for faculty.

b. Responsible Conduct of Science Training:

It is the policy of the UTHSC-H that faculty, staff, and students conduct research, research training, experimentation, and testing activities in the safest manner possible and with the highest ethical standards. A member of the UTHSC-H faculty, staff, or student body who conducts research in the name of the UTHSC-H must adhere to all federal, state, and local statutes and regulations; to The University of Texas Regents' *Rules and Regulations*; and to UTHSC-H policies, regardless of whether the research is conducted on a campus of the UTHSC-H or at an external facility.

All faculty, staff, students, and trainees planning to conduct research involving human subjects or data from human-derived materials must complete education on the protection of human subjects, and their research protocols must also be reviewed and approved by UTHSCH's Committee for the Protection of Human Subjects. This provides assurance that all students complete human subject training before starting research regardless of funding. Some programs may require additional training in Ethics as appropriate.

c. Faculty Participation:

**Thomas A. Mackey, Ph.D., NP-C, FAAN, FAANP** has been OHN Program Director since 1997, and currently devotes 50% of his efforts to the OHN program with an additional 10% dedicated to research and 40% devoted to his clinical practice and administration of The University of Texas Health Services (UTHS) clinic. He has a dual appointment at the Schools of Nursing and Public Health. Dr. Mackey teaches the Occupational Health Nursing I course scheduled each spring, Occupational Health Nursing II - Practicum course scheduled each summer and guest lectures in various courses in the School of Nursing at the graduate level. He co-teaches the Field Trips in Occupational Health course with Drs. Delclos and Whitehead. He advises all of the OHN students and serves on thesis committees. **Susan Parnell, MPH, MSN, COHN-S, CIC** is the program Associate Director and an Assistant Professor with a joint appointment in the Schools of Nursing and Public Health. Ms. Parnell's primary duties in the OHN Program include coordination of the clinical preceptorship, lecturing in the OHN I course, student advisement and recruiting. **Julie Lindenberg, MSN, NP-C** is Assistant Professor of Clinical Nursing at the SON with a cross appointment at the UTSPH. Her primary duties include providing clinical services at UTHS, acting as Clinical Manager for UTHS, and precepting students in the clinic. Ms. Lindenberg's contributions to the OHN program include precepting students in the UTHS clinic throughout the OHN II course and lecturing in the OHN I course. As

of 2003, Ms. Lindenberg also directs the Family Nurse Practitioner program at the SON. **Lisa Pompeii, RN, MS, COHN, PhD** joined the faculty of the OHN program in 2005, and has taken an increasing leadership role in mentoring trainees during their thesis projects and assisting with student recruitment. Dr. Pompeii co-teaches the Foundations in Environmental Health Sciences course and conducts research in the area of occupational health hazards and risk factors among health care workers.

In addition, the OHN program is enhanced by the considerable commitment of SON faculty who teach the required core courses in the MSN portion of the MSN/MPH program. UTSPH core faculty who regularly contribute to the OHN program include **Dr. George Delclos** and **Dr. Arch Carson** (Occupational Medicine) and **Dr. Larry Whitehead** (Industrial Hygiene). Other UTSPH and SON faculty also serve on thesis committees depending on the students' need for expertise.

d. Curricula:

The OHN program offers two academic plans, one culminating in a master of public health (MPH) degree and the other in public health and nursing (MPH/MSN). The goals of the MPH program are to prepare students for expanded practice in a variety of settings. The interdisciplinary curriculum is based on a public health model for practice where the major focus is on population aggregates rather than individuals and indirect rather than direct care to clients. Graduates are prepared to participate in a multidisciplinary approach to planning, implementing and evaluation services for worker health and safety. The dual degree (MPH/MSN) program is designed to enable graduates to sit for the American Nurses Association's (ANA) certification exam as a clinical specialist in community health nursing. It also provides the necessary background for taking the certification exam in occupational health nursing offered by the American Board of Occupational Health Nurses. The graduates of this program understand concepts of aggregate care, but also are specialists in an area of clinical practice.

The required course of study for MPH candidates includes a minimum of 45 credit hours of coursework, with at least one course in each of the five core areas of public health, as well as completion of the occupational health and occupational health nursing curriculum, as identified below, completion of a thesis project and a practicum experience. Usually, OHN students will have completed closer to 50 credit hours by graduation.

The course of study for dual degree (MSN/MPH) candidates includes 1) a minimum of 71 credit hours of coursework as identified below, and 2) completion of a joint UTSPH/SON thesis project. The dual degree program plan includes all of the core public health, occupational health and occupational health nursing core courses described above, a thesis and completion of additional nursing courses. See Appendix B for a complete sample curriculum for the OHN program.

Trainees in the MPH program complete a total of 260 hours of an occupational health nursing practicum; trainees in the MPH/MSN program complete an additional 540 hours for the MSN portion of their program. All trainees are expected to complete at least a portion of their 260 required hours at the University of Texas Health Services (UTHS) clinic. This clinic provides primary and occupational health services to students, UT employees, and businesses in the area. It also provides exposure to some health education programs, including stress management and smoke cessation. The 540 MSN hours are typically in settings that are both

occupational health nursing and non-occupational health nursing sites. In non-occupational health nursing sites they must focus their experience on the nursing specialty selected for the MSN portion of the program. Additional elective and thesis research hours vary. A single thesis fulfills the joint requirements of both schools.

#### **D. Program Activities**

##### a. Progress Toward Goals and Objectives:

Increase the number of students in the program. Significant efforts at recruitment of new students have not been successful this year. However, we anticipate three new students in the Spring semester so we do feel that our recruitment efforts will bear fruit in the next couple semesters.

Establish a collaborative research program with the School of Nursing and School of Public Health faculty. We have requested a joint appointment for Dr. Lisa Pompeii with the School of Nursing. Dr. Pompeii is our new OHN faculty member who is an accomplished researcher, currently engaged in occupational health hazards and risk factors for health care workers.

Strengthen participation of OHN trainees in interdisciplinary activities. OHN trainees have continued to take classes with other occupational and environmental health students; participated in interdisciplinary clinical rotations and had thesis chairs other than a nurse (i.e. physician).

Secure additional institutional support from the School of Nursing. The School of Nursing has increased its share of salary support for Dr. Mackey and Ms. Parnell. In addition, the School of Nursing is poised to provide a joint appointment for the newest OHN faculty member, Dr. Lisa Pompeii.

Susan Parnell completed a pilot project was completed 12/2007: Patient On Staff Assault Among Mental Health Care Worker: A Qualitative Examination Of Worker Perceptions. This is a step toward completion of Dissertation.

##### b. Faculty Honors, Awards, Appointments:

During the reporting period, Dr. Mackey, OHN Director has received two prestigious awards. He was awarded the PARTNERS Professor in Nursing endowed professorship awarded at the UT SON, and the Loyola University of Chicago President's outstanding alumni award (Damen Award).

##### c. New Faculty Positions:

Dr. Lisa Pompeii has taken an active role in the OHN program this year with increased teaching and research activities. Dr. Pompeii has a research track appointment in the UT SPH and a joint appointment with the UT SON is pending.

d. Trainee Recruitment (include diversity efforts):

We have recently sent recruitment brochures OHNs who are members of AAOHN in Region VI. These brochures provided overview information about the OHN program. This mailing also included a letter from Dr. Mackey about the NIOSH program and the availability of tuition reimbursement and stipend for students who attend the graduate program full-time. This has resulted in several contracts from from OHNs who are interested in the program. We plan to send this same targeted mailing to nurses who have reported to the Texas Board of Nursing that they work in business. We will also send to a random sample of nurses in the clinical/hospital setting.

**E. Program Products**

a. Publications and Presentations of Program Faculty and Trainees:

Publications and presentations resulting from this program in the reporting year are listed in Appendix C.

**F. Future Plans**

The number one priority for the OHN Program is to recruit students. We plan a targeted marketing campaign to nurses in Texas and the immediate surrounding states during November 2007.

### **III. Program Progress Report: Allied OH&S Academic Programs**

**A. Program Title:** Occupational Epidemiology

**B. Program Director:** Benjamin C. Amick, PhD

#### **C. Program Description**

The Occupational Epidemiology (Occ Epi) Doctoral Training Program serves to enhance interdisciplinary collaboration and to increase opportunities to attract outstanding students to this field where the need for skilled researchers and practitioners is great. The program trains students to work in government, academia, large corporate settings, or as private consultants. The current major goals of this program are: expand recruitment of students, continue to develop and expand the research activities of the occupational epidemiology faculty, strengthen ties with Texas A&M School of Rural Public Health and the Department of Epidemiology and Biostatistics, and strengthen collaboration with practicing occupational epidemiologists.

The Occ Epi program leads to a PhD or DrPH degree in occupational epidemiology that joins the existing academic programs in occupational medicine, occupational health nursing, industrial hygiene, and occupational injury prevention in the NIOSH Education and Research Center (ERC), within the SWCOEH at the UTSPH. While epidemiology already provides an essential scientific core to all of the other occupational health programs at the UTSPH, this recognizable program in occupational epidemiology serves to enhance interdisciplinary collaboration and to increase opportunities to attract outstanding students to this field where the need for skilled researchers and practitioners is great.

##### **a. Goals and Objectives:**

The goals and objectives of the Occ Epi program for the 2005-2010 period are:

1. Expand recruitment of students at the local and regional level to identify outstanding candidates for traineeships.
2. Continue to strengthen the integration of occupational epidemiology into the interdisciplinary activities of the SWCOEH, such as the other core and special component programs, as well as in continuing education and outreach.
3. Continue to develop and expand the research activities of the occupational epidemiology faculty with the SWCOEH to provide stable and new opportunities for research training.
4. Complete recruitment of an additional tenure track faculty member with specific expertise in occupational and/or injury epidemiology.
5. Strength collaboration with occupational epidemiologists in the five-state Federal Region VI.

##### **b. Responsible Conduct of Science Training:**

It is the policy of the UTHSC-H that faculty, staff, and students conduct research, research training, experimentation, and testing activities in the safest manner possible and with the

highest ethical standards. A member of the UTHSC-H faculty, staff, or student body who conducts research in the name of the UTHSC-H must adhere to all federal, state, and local statutes and regulations; to The University of Texas Regents' *Rules and Regulations*; and to UTHSC-H policies, regardless of whether the research is conducted on a campus of the UTHSC-H or at an external facility.

All faculty, staff, students, and trainees planning to conduct research involving human subjects or data from human-derived materials must complete education on the protection of human subjects, and their research protocols must also be reviewed and approved by UTHSCH's Committee for the Protection of Human Subjects. This provides assurance that all students complete human subject training before starting research regardless of funding. Some programs may require additional training in Ethics as appropriate.

c. Faculty Participation:

**Benjamin Amick, PhD**, tenured Professor of Behavioral Sciences, Occupational Health and Epidemiology, is Director of the Occupational Epidemiology Program. Dr. Amick worked at NIOSH in the Applied Psychology and Ergonomics Branch while completing his doctoral dissertation on the health effects of technological change mentoring under several ergonomists. Dr. Amick's research has sought to integrate the disciplines of epidemiology, ergonomics, and organizational psychology to create healthy workplaces. He is also Director of the Occupational Injury Prevention Program, a special component program of this ERC application. Although the goals and objectives of training for these two doctoral programs are different, there is frequent interdisciplinary interaction among students in both programs through joint coursework, projects and attendance at scientific meetings. Dr. Amick teaches the Work Organization Epidemiology and Behavioral Aspects of Occupational Health courses and co-teaches the Research Design and Social Epidemiology courses. He has also developed a new course on Applied Multilevel Modeling and he lectures in Occupational Epidemiology, and Introduction to Epidemiology courses.

During the reporting period, Dr. Amick was on leave of absence in Toronto, where he assumed the role of Scientific Director of the Institute for Work and Health, and will be returning in 2008, at which time he will resume the directorship of the Occupational Injury Prevention Program. Dr. Delclos has served as Interim Director of both the Occ Epi and Injury Prevention Program during this leave, and request has been made to NIOSH for approval of Dr. Sharon Cooper as director of the Occupational Epidemiology program (see New Faculty, below). During his leave, however, Dr. Amick continues working regularly with program faculty and trainees, all of whom were in the dissertation phase of their doctoral programs.

Other program faculty include: **Xianglin Du, M.D., PhD**, Associate Professor of Epidemiology. Dr. Du joined the UTSPH faculty in 2003. Dr. Du co-teaches the course in Advanced Epidemiological Methods and a course in large database analysis. Dr. Du's areas of research interest are in the analysis of large national and state claims-based databases, cancer epidemiology, aging populations and health disparities. **George Delclos, MD, MPH, PhD** is tenured Professor of Occupational Medicine and is the Director of the Division of Environmental and Occupational Health Sciences and Associate Director of the Occupational Medicine Program. He teaches the Occupational Health Field Trips course, Clinical Occupational Medicine, Occupational and Environmental Respiratory Disease, and a new Foundations of Environment and Occupational Health Sciences core course. **Ralph F. Frankowski, PhD**,

Professor of Biometry, has collaborated in both research and teaching with faculty of the SWCOEH since its inception. Dr. Frankowski has extensive experience in the teaching of Biostatistics and Epidemiology to specialists in Occupational Medicine. Dr. Frankowski has taught the Basic Biostatistics Curriculum in the Occupational Medicine Review Course for the American College of Occupational and Environmental Medicine. He teaches the one year course (PH1725-26) in Intermediate Biometry that is a prerequisite for all doctoral students in Occupational Epidemiology and he has co-taught Occupational Epidemiology and is the lead instructor of the Injury Epidemiology course.

**John Herbold, DVM, MPH, PhD**, Associate Professor of Epidemiology (research track) at the regional campus in San Antonio in 1993. He teaches courses in Introductory Epidemiology, Applied Epidemiology, and Occupational Health. **Kim Waller, PhD**, tenured Associate Professor of Epidemiology, teaches the Advanced Epidemiological Methods I and II courses and her major research interests include the etiology of birth defects, preterm birth and late fetal death. **Stephen Waring, DVM, PhD**, Assistant Professor of Epidemiology (research track) teaches courses in basic and advanced epidemiology, as well as special topics courses in clinical epidemiology, disaster epidemiology, and emerging infectious diseases. Dr. Waring's expertise is in the area of epidemiologic methods with application to neurodegenerative and zoonotic diseases. **Xifeng Wu, M.D., PhD**, tenured Professor of Epidemiology at the M.D. Anderson Cancer Center and Adjunct Associate Professor of Epidemiology at the UTSPH, is an occupational physician with extensive experience with biological markers related to occupational exposures and cancer. Dr. Wu is the lead instructor of the Molecular Epidemiology course and regularly lectures in other UTSPH courses, including Cancer Epidemiology, Mutagenesis and Carcinogenesis, and Clinical Occupational Medicine.

d. Curricula:

The Doctor of Philosophy (PhD) degree in Community Health Sciences with a concentration in Epidemiology will be the usual degree path selected by research trainees in this program. Candidates for the PhD should hold a MS in Epidemiology or have other accomplishments that indicate similar readiness for doctoral study in Epidemiology. The PhD degree at the UTSPH requires 36 semester credit hours beyond the MS, at least 12 courses, successful completion of a qualifying examination, and a doctoral research dissertation. Typically, this will mean 3 to 4 years of full-time study beyond the MS degree in Epidemiology.

The Doctor of Public Health (DrPH) degree in Community Health with a concentration in Occupational and Environmental Health signifies distinguished scholarly accomplishment in the professional field. The DrPH degree path will be less common for trainees in this program, but may be selected because of a candidate's prior background and interests. Admission requirements include a prior MPH degree or equivalent preparation. In the case of a trainee following the DrPH route rather than the PhD for this program, a concentration in epidemiology would need to be declared with appropriate epidemiology faculty representation on the committee.

There have been no changes to the curriculum for this program. Please see Appendix B for a sample course of study.

## **D. Program Activities and Accomplishments**

### **a. Progress towards Goals and Objectives**

We implemented a new relationship with the Texas Department of State Health Services, via a NIOSH-funded State-based Occupational Safety and Health Surveillance grant, awarded in 2005 to the Environmental and Injury Epidemiology branch. In this capacity, the SWCOEH provides assistance with detailed statistical analysis of patterns and trends of leading occupational health indicators. Trainees have begun to explore work on thesis and/or dissertation projects under faculty supervision. Trainee travel to and from Austin is supported primarily via the state-based grant.

### **b. Trainee Honors, Awards, Scholarships**

Trainees have begun to explore work on thesis and/or dissertation projects under faculty supervision. Trainee travel to and from Austin is supported primarily via the state-based grant.

### **c. Trainee theses and Dissertations**

We have graduated one NIOSH trainee during the reporting period, Erin Fox, although another was slated for graduation in summer 2007. Dr. Fox, whose dissertation was titled: "Cancer in Vietnam veterans", has taken a position as Senior Epidemiologist for the Texas state cancer registry. Farah Ahmed is nearing completion of her dissertation on work-related asthma among Texas dental professionals and radiology technologists. Grace Tee has defended her dissertation on "Phthalate exposures in the US Population: relationships to serum gonadotropin levels and occupation" and is scheduled for official graduation in Fall 2007. Thereafter she plans on being a consultant in epidemiology. One new trainee slot opened up and a new candidate, Philip Lupo, was scheduled to start his traineeship in summer 2007.

### **d. New Faculty Positions**

Two new faculty at the UTSPH San Antonio Regional Campus joined the occupational epidemiology program. Sharon Cooper, PhD is Professor and Regional Dean. Dr. Cooper was the first program director of Occupational Epidemiology, prior to moving to Texas A&M School of Rural Public Health, where she spent 5 years as chair of the epidemiology department. Dr. Cooper returned to the UTSPH in July 2007. Dr. Eva Shipp, Assistant Professor of Epidemiology at the UTSPH San Antonio Regional Campus, also came with Dr. Cooper from Texas A&M. Before working at Texas A&M, Dr. Shipp obtained her PhD in epidemiology from the UTSPH in Houston, as a NIOSH-supported occupational epidemiology trainee. The addition of these two new faculty adds important depth to the program as well as greater visibility at, and ties with, the UTSPH regional campuses.

### **e. New Courses**

A major curriculum review and reorganization for the Division of Environmental and Occupational Health Sciences (EOHS) continued during this reporting period. Competencies for all EOHS-related degree programs (masters and doctoral), originally approved in 2004, are serving as the basis for the development of a new core curriculum. Although the initial

curriculum targets MPH students, the doctoral programs will also benefit from this process since opportunities for new course development (at a more advanced, doctoral level) are emerging by building on a more solid masters curriculum. The new core curriculum will be launched in Fall 2008. In addition, the PH2498 Occupational Epidemiology course will be offered, for the first time, from the San Antonio Regional Campus in Spring 2008, by Dr. Cooper.

f. Trainee Recruitment

The University of Texas Health Science Center – Houston (UTHSC-H) School of Public Health is committed to equal access for all qualified applicants seeking quality graduate education in the fields of public health regardless of age, sex, race, disability, religion or national origin. The policies and programs are designed to create a diverse student population and a Diversity Office has been established in the School of Public Health and a director was appointed. Specifically the UTHSC-H School of Public Health has one of the highest minority enrollments for a school of public health.

In addition to ongoing institutional minority recruitment efforts, a major and comprehensive review of web based and hard copy recruitment materials was launched in 2004-2005. During this most recent report period, newer materials, to be used primarily for large-scale student recruitment campaigns in all programs, were developed. As noted above, one new trainee, Philip Lupo, was recruited to the program, with a start date of summer 2007. A second candidate, Kristi Walker, has been identified to fill the next available traineeship, most likely in spring 2008.

**E. Program Products**

a. Publications and Presentations of Program Faculty and Trainees

Publications and presentations resulting from this program and are listed in Appendix C.

b. Research Projects Completed having Significant Trainee Involvement

Trainees Erin Fox and Grace Tee completed their dissertation work, as noted above.

c. Unique Training Courses Presented

The multi-level modelling course being developed by Drs. Amick and Harrist is offered as a training course where students actually analyze data and prepare it for a publication.

**F. Future Plans**

The most important future activity is to work towards the successful graduation of the current class of students and to recruit new students.

### III. Program Progress Report: Allied OH&S Academic Programs

**A. Program Title:** Injury Prevention

**B. Program Director:** Benjamin C. Amick, PhD

#### **C. Program Description**

The Occupational Injury Prevention Program provides doctoral students in the UTHSC School of Public Health an integrated education in occupational injury epidemiology, safety engineering, and occupational health psychology. The program builds competencies in conducting 'integrative research' to identify and prevent occupational injuries. The major goals of this program are: continue to develop and enhance collaborative relationships between faculty, students, and universities, continue to develop and expand the research activities of the occupational injury prevention faculty, identify employment opportunities for training program graduates, and implement mechanisms to evaluate program progress.

##### a. Goals and Objectives:

Several goals, objectives have been defined for OIP program. These goals remain consistent for the reporting period and they are:

1. Establishment of a recognized program in occupational injury prevention within the UTSPH program;
2. Recruit excellent applicants;
3. Continue to develop and enhance collaborative relationships between faculty, students and universities;
4. Select appropriate representation to the SWCOEH Advisory Board and hold meetings to garner input;
5. Continue to develop and expand the research activities of the occupational injury prevention faculty to provide stable and additional opportunities for research training;
6. Identify employment opportunities for training program graduates;
7. Implement mechanisms to evaluate program progress.

##### b. Responsible Conduct of Science Training:

It is the policy of the UTHSC-H that faculty, staff, and students conduct research, research training, experimentation, and testing activities in the safest manner possible and with the highest ethical standards. A member of the UTHSC-H faculty, staff, or student body who conducts research in the name of the UTHSC-H must adhere to all federal, state, and local statutes and regulations; to The University of Texas Regents' *Rules and Regulations*; and to UTHSC-H policies, regardless of whether the research is conducted on a campus of the UTHSC-H or at an external facility.

All faculty, staff, students, and trainees planning to conduct research involving human subjects or data from human-derived materials must complete education on the protection of human subjects, and their research protocols must also be reviewed and approved by UTHSCH's Committee for the Protection of Human Subjects. This provides assurance that all students

complete human subject training before starting research regardless of funding. Some programs may require additional training in Ethics as appropriate.

c. Faculty Participation:

The OIP program core faculty represents a broad cross-section of teaching and research experience in occupational injury prevention including: epidemiology, biostatistics, injury prevention and control, occupational health, ergonomics, safety engineering, industrial and organizational psychology, and economics. **Benjamin Amick III, Ph.D** is the Program Director. He is a tenured full-time faculty member with substantial experience in occupational injury prevention research and teaching. Dr. Amick is responsible for training program coordination and management of the program. Dr. Amick is also Program Director of the Occupational Epidemiology Program. Although the goals and objectives of these two programs are different, there is frequent interaction among students through joint coursework, projects, participating on research teams and attending scientific meetings. Dr. Amick currently teaches a required course on social and behavioral aspects of occupational health, and a two semester course on work organization epidemiology.

**George L. Delclos, MD, MPH, PhD**, is tenured Professor of Occupational Medicine, Director of the Division of Environmental and Occupational Health Sciences, and Associate Director Occupational Medicine Residency program. He teaches *Clinical Occupational Medicine* and *Occupational Epidemiology and Foundations of Environmental and Occupational Health Sciences*. **Sarah A. Felknor, Dr.PH., M.S.**, is Associate Professor (tenure track) of Environmental and Occupational Health Sciences. Dr. Felknor is the lead instructor in Health and Safety Program Management and co-teaches Health Survey Research Design. Her research interests include occupational health and safety with a focus on workplace interventions designed to reduce injury and improve compliance with safety practices. **Ralph F. Frankowski, Ph.D.**, tenured Professor of Biometry has collaborated in both teaching and research with students and SWCOEH faculty since its inception. Dr. Frankowski has held numerous appointments on Federal Government public advisory committees, including Chair, CDC-NCIPC, Injury Research Grant Review Committee; currently, he is Co-Chair, Technical Advisory Board of the AFL-CIO Building and Construction Trades Center to Protect Workers Rights, and member of the Scientific Advisory Board of the Defense and Veterans Brain Injury Center. Dr. Frankowski teaches the one-year course sequence in Intermediate Biometry, a prerequisite for all doctoral students in occupational injury prevention, and co-teaches the Injury Epidemiology and Occupational Epidemiology courses. He is also a faculty mentor for the NIH-NIGMS Trauma Research Fellowship Program at the UT-Houston Medical School Department of Surgery.

Additional OIP faculty include: **Luisa Franzini, Ph.D.** Associate Professor of Health Economics (tenure track) at UTSPH. She has extensive experience in cost-effectiveness analysis methods. She co-teaches the core course on cost-effectiveness evaluations and teaches a methods course, Econometrics for Public Health. **Lawrence J. H. Schulze, Ph.D., P.E., C.P.E.** tenured Associate Professor in the Department of Industrial Engineering at the University of Houston and Graduate Program Director for the Ergonomics/Safety Program. He teaches three safety engineering and industrial engineering core courses.

**Christiane Spitzmüller, Ph.D.** is an Assistant Professor in Psychology at University of Houston (tenure track), where she directs the occupational health psychology program. She completed

her Ph.D. in Industrial/Organizational psychology at Bowling Green State University. Dr. Spitzmüller has previously conducted research as a Fulbright scholar and Dissertation Fellow at Bowling Green State University. Her research interests are in three major areas: occupational safety and health, employee well-being and survey methodology. She teaches the *Occupational Health Psychology* and the *Job Design* courses in the OIP program curriculum.

During the reporting period, **Dr. Amick** was on leave of absence in Toronto, where he assumed the role of Scientific Director of the Institute for Work and Health, and will be returning in 2008. **Dr. Delclos** is serving as Interim Director during this leave, in close consultation with Dr. Amick. During his leave, however, Dr. Amick continues working regularly with program faculty and trainees, all of whom were in the dissertation phase of their doctoral programs. Moreover, his relationship with Institute for Work and Health has led to dissertation projects for two trainees (Brewer and Tullar).

d. Curricula:

The OIP doctoral training program is designed to provide an integrated education in occupational injury epidemiology, safety engineering and occupational health psychology. The University of Houston (UH) (College of Psychology and Department of Industrial Engineering) is partnering with UTSPH; both institutions are located within five miles of each other. The strong interdisciplinary relationship that currently exists between these two universities through the SWCOEH, and shared research and training interests among both institutions, makes this collaborative agreement successful. The program's goal is to train occupational injury prevention researchers on the basis of the public health model through an interdisciplinary curriculum and an excellent environment for conducting research and evaluating the effectiveness of occupational injury prevention programs. Program graduates should be able to apply the research tools of epidemiology, industrial/safety engineering and industrial/organizational psychology to occupational injury prevention research.

The proposed training plan assumes 3 to 4 years of full-time study to complete the academic course work, qualifying exam and dissertation. The course of study, sample curriculum and individual course outlines are provided in Appendix B. This course of study assumes that the trainee has completed a course of study equivalent to the master's level program. It is intended to be a fairly structured course of study and represents the minimum that is expected of each student in the doctoral program. The actual course sequence is not specified, and students can be exempted from courses if they demonstrate equivalency.

**D. Program Activities and Accomplishments**

a. Progress towards Goals and Objectives

The Injury Prevention Program remains strong. All students are or were actively engaged in their dissertation work. Two trainees (Brewer and Menendez) have graduated. Two other trainees (Calabro and Tullar) will graduate this academic term. One trainee (Reynolds) continues work on her dissertation. A new traineeship will be offered this coming term. This traineeship was relocated to space in the SWCOEH allowing for greater synergy.

b. Trainee Honors, Awards, Scholarships

There were no new appointments during the reporting period. However, a new traineeship became available, and was offered to a new DrPH student, Amber Hogan, with a start date of fall 2007.

c. New Faculty Positions

There are two new epidemiology faculty at the UTSPH San Antonio Regional Campus, both of whom will be active in the ERC occupational injury prevention as well as the occupational epidemiology programs. **Sharon Cooper, PhD** is Professor and Regional Dean. Dr. Cooper was the first program director of Occupational Epidemiology, prior to moving to Texas A&M School of Rural Public Health, where she spent 5 years as chair of the epidemiology department. Dr. Cooper returned to the UTSPH in July 2007. Dr. Cooper has published extensively in injury prevention, with a focus on adolescent injuries and migrant farmworkers. **Eva Shipp, PhD**, Assistant Professor of Epidemiology at the UTSPH San Antonio Regional Campus, also came with Dr. Cooper from Texas A&M. Before working at Texas A&M, Dr. Shipp obtained her PhD in epidemiology from the UTSPH in Houston, as a NIOSH-supported trainee. Her research centers on musculoskeletal injuries in farmworkers. The addition of these two new faculty adds important depth to the program as well as greater visibility at, and ties with, the UTSPH regional campuses. Dr. Bahman Roudsari, a new faculty member at the UTSPH Dallas regional campus, and identified in the last progress report, has extensive experience in international traffic injury research joined the School of Public Health faculty. During the present reporting period, he has taken an increasingly active role in trainee mentoring, with a focus on injury epidemiology research methods.

d. New Courses

A major curriculum review and reorganization for the Division of Environmental and Occupational Health Sciences (EOHS) continued during this year. Competencies for all EOHS-related degree programs (master's and doctoral), originally approved in 2004, are serving as the basis for the development of a new core curriculum. Although the initial curriculum targets MPH students, the doctoral programs will also benefit from this process since opportunities for new course development (at a more advanced, doctoral level) are emerging by building on a more solid masters curriculum. The new core curriculum will be launched in Fall 2008.

e. Trainee Recruitment

The University of Texas Health Science Center – Houston (UTHSC-H) School of Public Health is committed to equal access for all qualified applicants seeking quality graduate education in the fields of public health regardless of age, sex, race, disability, religion or national origin. The policies and programs are designed to create a diverse student population and a Diversity Office has been established in the School of Public Health and a director was appointed. Specifically the UTHSC-H School of Public Health has one of the highest minority enrollments for a school of public health.

In addition to ongoing institutional minority recruitment efforts, a comprehensive review of web based and hard copy recruitment materials was conducted in collaboration with the Division of Environmental and Occupational Health during the September 1, 2004 - June 30, 2005 period.

This review was completed and new academic program brochures were developed for the NIOSH training program. These brochures, along with updated web-based materials are being integrated into recruitment programs and activities at the School of Public Health level, and include the development of new division-based brochures and website.

Dr. Amick regularly attends the International Ergonomics Association meetings and the American Society for Safety Engineers meetings to try and recruit prospective students. In addition, he, Dr. Pompeii and one trainee (Menendez) attended the PRIMUS meeting in Boston this year, where two trainee research presentations were made.

## **E. Program Products**

### **a. Publications and Presentations of Program Faculty and Trainees**

Publications and presentations resulting from this program in the reporting year are listed in Appendix C.

### **b. Successful R2P Projects**

Another systematic literature review was completed by trainee Shelley Brewer, and that served as the basis for her dissertation work. The review centered on the identification of successful workplace interventions for injury prevention. This review had extensive stakeholder involvement and was a collaborative effort with the Institute for Work & Health in Toronto, Canada.

Cammie Menendez continued her work at Rice University, focusing on an assessment of ergonomic issues among college students. Trainee Jessica Tullar remained actively involved in the implementation of the Sacred Vocation Program (a work reorganization effort) at a large health care system in Dallas, Texas, and at a Neighborhood Health Center in Houston, Texas. Trainee Karen Calabro completed her data collection on patient assault-related injuries at Texas state psychiatric hospitals, which involved stakeholder input at all levels of hospital management and staff. Trainee Jessica Tullar completed her systematic review on interventions in health care settings to reduce musculoskeletal injuries, again in partnership with the Institute for Work and Health in Toronto.

### **c. Research Projects Completed having Significant Trainee Involvement**

During the reporting periods, two trainees graduated. Dr. Brewer's dissertation was on a systematic literature review of effectiveness of workplace-based interventions for injury prevention. The work product from this dissertation is in the form of an IWH report, which will be widely disseminated, as well as submissions to scientific journals. Upon graduation, Dr. Brewer is working as an occupational health and safety consultant. Dr. Cammie Menendez completed her dissertation on ergonomic issues among college students, the results of which are being submitted for publication in the peer-reviewed scientific literature. Upon graduation, Dr. Menendez joined NIOSH in Morgantown as a new EIS fellow.

d. Unique Training Courses Presented

The multi-level modelling course developed by Drs. Amick and Harrist is offered as a training course where students actually analyze data and prepare it for a publication.

**F. Future Plans**

Plans for the next year include that we: (1) graduate two more trainees (Calabro and Tullar), (2) recruit our second wave of students, (3) continue to develop our research portfolio, and (4) build partnerships with industry.

### III. Program Progress Report: Continuing Education Programs

**A. Program Title:** Occupational Health and Safety

**B. Program Director:** Janet L. Harreld, MPA

#### **C. Program Description**

The Continuing Education (CE) Program provides a comprehensive curriculum covering a wide range of topics that target the most important needs of today's occupational health and safety professional—from refresher courses to certification to emerging issues. The program continually adjusts offerings based on needs assessments, course evaluations, requests from the community, our advisory committees, and collaboration with local groups and organizations. The major goals of this program are: develop new course titles, develop/continue courses which may be repeated several times each year, develop new relationships with outside organizations while continuing to build upon existing relationships, and enhance program visibility and marketing efforts through the Internet.

##### a. Goals and Objectives:

The goals and objectives established for the Occupational Health and Safety Program are:

1. Develop new course titles
2. Develop/continue courses which may be repeated several times each year
3. Develop new relationships with outside organizations while continuing to build upon existing relationships
4. Enhance program visibility and marketing efforts through the Internet

##### b. Faculty Participation:

**Janet Harreld, MPA, MA**, is the Director of the CE Program. Ms. Harreld was appointed in March 2006. Ms. Harreld has experience in the development and offering of courses at the undergraduate and graduate level, as well as experience in the management of public agencies and non-profit institutions. In addition to the CE Program Director, academic program faculty make significant contributions to the CE program. The level of participation by UT SPH faculty has been quite high, and the CE Program has been able to take advantage of faculty from regional campuses as well. The CE Program is looking forward to accessing additional faculty in different disciplines as the Regional Campus system develops. Not only will this increase our number of distinguished faculty who participate in CE offerings but it will also increase our abilities to geographically reach across Texas and Region VI.

##### c. Curricula:

The following courses were offered during the reporting period and are presented by program area:

Industrial Hygiene

- Certified Industrial Hygiene Review
- Fundamentals of Industrial Hygiene
- Greater Houston Industrial Hygiene Council

- NIOSH Pulmonary Function Testing (OMI)
- CAOHC Hearing Conservation (OMI)
- Hazardous Materials Management Review
- Radiation Safety Officer; Biosafety Basics – Biological Safety Officer
- Data Display for Decision Making
- EHS Academy (5 days) and EHS Academy – Selected Topics (3 days)

#### Occupational Health for Nurses

- Blood Borne Pathogens Update: New Approaches for OHNs
- OHN Case Management
- Non-Violent Crisis Intervention for nurses;

#### Occupational Medicine

- Occupational Medicine Journal Club (monthly)
- Occupational Hazards for Healthcare Workers
- Sleep in America in the 21<sup>st</sup> Century; Professional Writing Workshop

### **D. Program Activities**

#### a. Progress towards Goals and Objectives:

1. The Program has developed several new titles and is also looking to partners (existing and new) to create additional programming. One specific development is the partnership with the City of Houston Department of Health and Human Services in the CDC/EPS/HUD program *Healthy Homes*. The CE Program is in the planning stages to provide several new titles in the 2007 – 2008 fiscal year. Please see b. New Courses, below, for a complete listing.
2. Demand remains strong for the Radiation Safety Officer course, and the SWCOEH is one of a few institutions across the US offering this course. We are currently considering offering Fundamentals of Industrial Hygiene (new course) more frequently as well, based on increased demand.
3. New relationships have been developed with the City of Houston Department of Health and Human Services, the City of Houston Department of Homeland Security, the American Society of Safety Engineers, and Texas Association of Environmental Professionals. Continuing relationships exist with the Texas Public Health Training Center, Center for Biosecurity and Public Health Preparedness, UT Arlington CE Program, Alabama Education and Research Center, Texas State Association of Occupational Health Nurses, and the Region VI chapters of the American Industrial Hygiene Association.
4. The University of Texas System is making progress toward using a universal, firewall/secure third party for all on line registration and payment transactions. The UT System hopes to have the SPH on line for payments sometime during the 2007 calendar year. The CE Program has worked to provide course information in a format that is available for download on line at the SWCOEH web site. The CE Program received a small grant from the UT System to develop an on line toxicology course with Dr. Arch Carson (Occupational Medicine Residency Program) geared for physicians and other professionals. The

development of the course is ongoing and plans the use of content “games,” interactive model construction, clips from motion pictures and the insertion of videoed case studies.

b. New Courses:

New courses developed during the reporting period include: Fundamentals of Industrial Hygiene; Biosafety Basics – Biological Safety Officer; Data Display for Decision Making; EHS Academy – Selected Topics (3 days); Blood Borne Pathogens Update: New Approaches for OHNs; Non-Violent Crisis Intervention for nurses; Occupational Hazards for Healthcare Workers; Sleep in America in the 21<sup>st</sup> Century; and Professional Writing Workshop.

c. Trainee Recruitment (include diversity efforts):

The CE and Outreach Program has worked very closely with the HST Program in the specific recruitment of HBCU/Minority Oriented institutions and personnel. In addition to providing The direct benefit of this effort is that CE can and does take direct advantage of the data base(s) developed to recruit potential participants for other types of courses which may apply to these populations. The CE Program is working with the NIOSH Pilot Project administrator in sending out broadcast emails of current offerings in addition to the email addresses currently in the CE/Outreach database and those sent out through the UT School of Public Health broadcasts.

**E. Program Products**

a. Conferences and Symposia Sponsored:

Spring Institute at the University of Texas School of Public Health

b. CE Courses Presented:

Please see “Curricula” above.

c. Unique Training Courses Presented:

Unique CE courses presented during this reporting period include: EHS Academy (3 day and 5 day); Data Display for Decision Making; and Non-Violent Crisis Intervention for nurses.

**F. Future Plans**

Plans for the next program year include: 1. Increase efforts in terms of electronic marketing – quality and quantity; 2. Search for sponsorship and/or course development opportunities with partners; 3. Develop new and additional programming including outreach with Healthy Homes project (visiting nurses and other home healthcare) including but not limited to more offerings for safety professionals, nurses and doctors; 4. Assist HST in developing EHS Academy for the Healthcare industry; 5. Pursue the development of online courses with other existing courses; 6. Expand the certificate program in Industrial Hygiene (perhaps expand the idea into other disciplines); 7. Develop additional working relationships with other ERCs by co-sponsoring conferences, etc.; 8. Develop new audiences; 9. Schedule more courses outside of Houston to provide better access to Region VI; 10. Develop image as professional CE provider in Region VI; 11. Identify new classroom space.

### **III. Program Progress Report: Continuing Education Programs**

**A. Program Title:** Hazardous Substances Training

**B. Program Director:** Robert J. Emery, DrPH

#### **C. Program Description**

The Hazardous Safety Training (HST) Program trains staff from small and historically underserved colleges and universities, professionals working in a healthcare setting, and state and local health and environmental agency personnel. The program provides a broad management overview and focuses on specific program elements such as managing hazardous exposures, hazardous materials, and hazardous waste. Smaller institutions have an equally diverse range of health, safety, and environmental (HSE) challenges as larger schools, and they are frequently understaffed in the health, safety and environmental area, as our needs assessment has shown. At such schools, frequently as few as one or possibly two HSE professionals must cope with a wide range of issues, including exposure to hazardous agents and disposal of hazardous wastes. HSE staff from small colleges and universities are a unique group in need of broad-based training, which is at the same time focused on campus HSE issues.

The HST Program is directed at, but not limited to, a subset of this specific and unique population which SWCOEH research has identified as an underserved population: occupational health, safety and environmental staff at historically minority-oriented colleges and universities. The HST program builds on previous offerings, focusing on public historically black colleges and universities (HBCU's) as the readily identifiable target population within the underserved community. Efforts are also directed towards the needs of other underserved populations, such as predominantly Hispanic, Asian and Native American educational institutions. Additionally, this HST program focuses on reaching professionals in healthcare settings and state and local health and environmental agency personnel engaged in the management of hazardous substances. Scholarships are offered to participants from historically black colleges and universities.

#### **a. Goals and Objectives:**

Specific program objectives of this HST program for the reporting period are:

1. Focus on providing HST training to small and historically underserved colleges and universities.
2. Assemble and engage an HST Advisory Committee.
3. Conduct needs assessments for HST training and identification of existing resources;
4. Expand offerings to the full region.
5. Work cooperatively with other ERCs to provide unique learning opportunities to other regions for their underserved populations.
6. Evaluate training quality and effectiveness by immediate and by long term survey.
7. Evaluate instruction methodologies in light of adult learning and long term retention.

b. Responsible Conduct of Science Training:

It is the policy of the UTHSC-H that faculty, staff, and students conduct research, research training, experimentation, and testing activities in the safest manner possible and with the highest ethical standards. A member of the UTHSC-H faculty, staff, or student body who conducts research in the name of the UTHSC-H must adhere to all federal, state, and local statutes and regulations; to The University of Texas Regents' *Rules and Regulations*; and to UTHSC-H policies, regardless of whether the research is conducted on a campus of the UTHSC-H or at an external facility.

All faculty, staff, students, and trainees planning to conduct research involving human subjects or data from human-derived materials must complete education on the protection of human subjects, and their research protocols must also be reviewed and approved by UTHSCH's Committee for the Protection of Human Subjects. This provides assurance that all students complete human subject training before starting research regardless of funding. Courses include either classroom or independent study of Ethical Principles in the Biomedical Sciences and Research Ethics for Public Health. Some programs may require additional training in Ethics as appropriate.

c. Faculty Participation:

The program director for the HST program is **Robert Emery, DrPH, CIH, CSP, CHP**. Dr. Emery is Executive Director, Environmental Health and Safety, University of Texas-Houston, and Associate Professor of Occupational Health, U.T. School of Public Health. Dr. Emery has been very active in Continuing Education activities of the SWCOEH, originating the five-day Radiation Safety Officer (RSO) course, the one-day RSO annual refresher course, the one-day OSHA Annual Refresher course on Emergency Response in Clinical and Lab Settings, and the pilot course in Comprehensive Hazardous Waste Management for Educational Institutions, targeting minority-oriented institutions. He also co-teaches a one-semester academic course in Health and Safety Program Management with Dr. Sarah Felknor, and has taught for several years a one-semester academic course in Environmental Radioactivity and Radiation.

**Lawrence Whitehead, PhD, CIH**, is Associate Professor of Environmental Health and serves as an Assistant Program Director for this ERC component. He also has directed the ERC Industrial Hygiene component since 1986, and was ERC Center Director of the SWCOEH from 1991 through 1997. Dr. Whitehead teaches academic courses including the two-semester core industrial hygiene course, and co-teaches the Occupational Health Field Trips course. He directs the annual CE one-day course in Indoor Air Quality, and also teaches in the IH Review course twice each year and in the periodic CAOHC audiometric testing courses. **Bruce Brown, MPH, CHMM, ARM** is the Director of Environmental Health and Safety at UTHSC-H. He also serves as the Manager of the Biological Safety program. Previously, he managed the Chemical and Environmental Protection programs at UTHSC-H. Prior to coming to UTHSC-H, he worked at Silliker Laboratories of Texas, where he had a wide variety of duties, including microbiologist, chemical hygiene/safety officer and customer service representative.

**Janet McCrary, BS** serves as the Radiation Safety Manager of Environmental Health and Safety at the UTHSC-H where she brings over 6 years of experience in radiological and chemical hazards. Ms McCrary teaches several topics in the biannual Radiation Safety Officer Course. As the 2003-2004 President of the Gulf Coast Section of the American Industrial

Hygiene Association, Ms. McCrary is also actively involved with local health physicists and industrial hygienists, and serves in various roles in the South Texas Health Physics Society including teaching middle, junior and senior high school teachers about radiation in the Science Teachers Workshop. Ms McCrary also teaches and coordinates bimonthly basic radiation safety training as well as individually tailored laser safety, x-ray safety, liquid scintillation counting and basic radiation awareness for ancillary employees.

**Kate Maness, MS** is acting manager of the chemical safety program of the Office of Environmental Health and Safety at the UTHSC-H. She is a member of the American Industrial Hygiene Association local and national chapters. Since joining UTHSC-H in 2001, she has taken an active role in preserving the health and safety of the UTHSC-H community through training, laboratory surveillance, hazardous materials handling, and exposure monitoring. **Joe Parham, BS, CIH, CFI** is the manager of Fire and Life Safety and Emergency Preparedness at the UTHSC-H. He holds a Bachelor's of Science degree from the University of North Alabama with majors in Industrial Hygiene and General Chemistry. Mr. Parham is also pursuing a Master's degree in Public Health with a concentration in Industrial Hygiene from the UT Houston School of Public Health. Mr. Parham is a Certified Industrial Hygienist by the American Industrial Hygiene Association and a Certified Fire Inspector by the National Fire Protection Association. **Alan Lucas, MS** manages the Environmental Protection Program, within the Office of Environmental Health & Safety, at UTHSC-H. Mr. Lucas is a certified hazardous material manager (CHMM) and is president of the Houston area Buffalo Bayou Chapter of the Academy of Certified Hazardous Material Managers.

Several staff members of the UTHSC-H Department of Environmental Health & Safety and other collaborating institutions also participate in SWCOEH HST courses, providing depth and breadth of expertise and teaching capabilities.

d. Curricula:

The SWCOEH has conducted hazardous substance training since 1998. From 1998 until mid-2004, the Center has held seven editions of the Comprehensive Environmental Health and Safety for Educational Institutions and trained 114 professionals from historically black colleges and universities, small colleges, University of Texas regional campuses, and private companies. The fundamental curricula of the HST training program includes: EHS Academy (jointly offered as a CE course for non-HBCU course participants); BioSafety Basics - Biological Safety Officer, Radiation Safety Officer; Hazardous Materials Management Overview; and Data Display for Decision Making.

**D. Program Activities**

a. Progress Toward Goals and Objectives:

The HST Program has witnessed an increasing number of HBCUs and minority participants with each offering of EHS Academy. Participation has grown from three to thirteen attendees within two fiscal years. HST has worked directly with at least one other ERC to provide specialized EHS/HST training opportunities to new constituents outside of Region VI. The demand for Radiation Security Officer Training has grown significantly. We are considering how best to handle demand – a) increase number of participants at single offering (not ideal) or b) offer course more than once per fiscal year.

HST has investigated three new topics: *Security Issues for EHS* (course offering scheduled for August '07), *Environmental Health Training in Emergency Response* (training for instructors to begin after beginning of calendar year at CDC) and *Enhancing Security & Radioactive Materials with the NNSA* (to be offered in the fall of 2007). The HST Program is in the process of developing plans for more healthcare oriented content based upon existing courses to take advantage of synergy of the Texas Medical Center.

We are improving our evaluation process to take advantage of technology. This should enable the Program to process evaluations much more quickly, review the findings in more depth and make adjustment and corrections more quickly. Currently, the HST Program is identifying individuals in the discipline to whom we may look for advisory purposes and the constitution of an active committee.

b. Trainee Honors, Awards, Scholarships:

HST Program awarded nine full tuition scholarships for HBCU and/or Minority oriented colleges and universities and four tuition reduction scholarships to “small” schools. (The definition of “small” school for the purposes of scholarship: two or fewer individuals dedicated full time to EHS on that campus.)

c. Faculty Honors, Awards, Appointments:

During the reporting period, Dr. Robert Emery received the following awards:

- The University of Texas Health Science Center at Houston Michael J. Jimenez Leadership in Action Award, February 2006.
- American Industrial Hygiene Association, Recognition of Excellence: Top Ten Professional Development Course “A Risk Management & Insurance Primer for Industrial Hygienists”, Chicago, IL, May 2006.
- American Industrial Hygiene Association, Recognition of Excellence: Top Ten Professional Development Course “A Risk Management & Insurance Primer for Industrial Hygienists”, Philadelphia, PA, June 2007.

d. New Courses:

The following new courses were developed during the reporting period: Data Display for Decision Making; BioSafety Basics – Biological Safety Officer; Enhancing Security & Radioactive Materials: The NNSA; and Security 101 for EHS Personnel

e. Trainee Recruitment (include diversity efforts):

The HST Program has engaged in the identification of HBCU/Minority schools in Region VI and also across the United States. The program has sent personalized letters of invitation to HBCU and Minority Oriented institutions. The letters are sent either to the institution president or financial officer along with NIOSH scholarship information. This effort has been responsible for much of the increase in HBCU/minority oriented schools.

## **E. Program Products**

### a. CE Courses Presented:

Please refer to “Curricula” above.

### b. Unique Training Courses Presented:

Unique courses developed during the reporting period include: EHS Academy; Data Display for Decision Making; Enhancing Security and Radioactive Materials; and Security 101 of EHS Personnel.

## **F. Future Plans**

Future plans include work in the following areas:

- a. Courses in development – EHS Academy for Hospitals and Healthcare Facilities; Environmental Health Training in Emergency Response
- b. Internships and certificate program for returning/disabled veterans in HST (four to six month training program along with attendance at several HST CE courses resulting in a certificate and job opportunities in HST/EHS – cooperative program with Veterans Administration, DeBakey VA Hospital in Houston, TX and a local community college)
- c. Investigation for developing existing courses for online availability (likely through University of Texas Telecampus)
- d. Condensed or selected version of EHS Academy offered with another ERC
- e. EHS Academy for additional constituencies such as live performance venues, museum/curatorial situations, etc.

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

The SWCOEH ERC has supported activities that have resulted in specific improvements in Occupational Safety & Health in the region and in the practice of the profession in three main areas: 1) Occupational Health and Safety Surveillance, 2) Systematic Literature Review Methods in Occupational Health and Safety, and 3) Air Quality in Houston.

##### Occupational Health and Safety Surveillance in Texas

During the reporting period the SWCOEH began an collaboration with the Texas Department of State Health Services (DSHS), through a NIOSH-funded State-based Occupational Safety and Health Surveillance grant, to conduct the detailed statistical analysis of patterns and trends of leading occupational health indicators in the State. This activity has greatly enhanced the capacity of the DSHS to monitor trends and identify risk factors in occupational health and safety throughout the State. In addition to providing impact during this reporting period, this activity provides the future occupational health workforce (and, more specifically, trainees) with opportunities to participate in these surveillance activities.

##### Systemative Literature Review Methods in Occupational Health and Safety

An important contribution to the field of Occupational Health and Safety (OH&S) during this reporting period has been the development and testing of systematic literature review methods in OH & S literature. As this literature review method gains popularity and use, its validity and reliability in the OH&S literature becomes increasingly important. During the reporting period, two of our trainees completed systematic literature reviews in two significant sectors: workplace interventions for injury prevention and interventions to reduce musculoskeletal injuries in the health care setting. In addition to serving as trainee dissertations, these reviews provided important information to the researcher and practitioner of occupational health that will promote access to reliable data that is the key to identifying risk factors and developing appropriate interventions to promote workplace health and safety. This work was conducted in collaboration with the Institute for Work and Health in Toronto, Canada.

##### Air Quality in Houston

The successful preparation of a report on air quality in Houston, presented to the Mayor of Houston in June 2006 (and reported in the last report) continued to have high visibility among local stakeholders, with the report serving as the initial work product of a new Institute for Public Health Policy, housed in the School of Public Health, and as the basis for several publications. This report represented the first attempt at identifying leading pollutants in the Houston area and where the greatest impact on health is likely to be.



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OSHA Region VI

**Appendix B**  
**Program Curricula, Course Requirements and**  
**Sample Curricula by Academic Program**

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<b>1. Industrial Hygiene</b>	<b>Page 74</b>
<b>2. Occupational Medicine</b>	<b>Page 76</b>
<b>3. Occupational Health for Nurses</b>	<b>Page 79</b>
<b>4. Occupational Epidemiology</b>	<b>Page 81</b>
<b>5. Occupational Injury Prevention</b>	<b>Page 83</b>

INDUSTRIAL HYGIENE & AIR ENVIRONMENT CURRICULUM  
The University of Texas School of Public Health

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**Accredited by the Applied Science Accreditation Commission,  
Accreditation Board for Engineering and Technology  
MS (Environmental Sciences), or MPH (Occupational & Environmental Health)**

**Core Courses in Industrial Hygiene & Air Environment**

(F = fall semester, S = spring semester, I = spring institute)

PH 6615 F Fundamentals of Industrial Hygiene (IH I)  
PH 6620 S Occupational Health Controls (IH II)  
PH 2155 S Environmental Sampling and Analysis  
PH 2175 F Principles of Toxicology  
PH 2150 F Air Environment  
PH 2498 S Physical Agents (offered in 2004-2005)  
PH 6998 S Occupational Health Field Trips  
PH 2498 S Environmental Sciences Seminar  
PH 9998 Thesis Research

**Core Courses in Related Areas**

PH 1725 F Intermediate Biometric Methods I  
PH 1726 S Intermediate Biometric Methods II  
PH 2610 F,S Introduction to Epidemiology  
PH 6998 S Health & Safety Program Management, or equivalent\*\*  
PH 1230 F Behavioral Aspects of Occ and Env Health or equivalent\*\*  
PH 9997 Practice Experience in Public Health (internship, practicum, or other approved activity) \*\*required of all students unless proceeding directly to PhD.

**Elective Advanced or Cognate Courses (min. nine sem.cr.hrs.;more recommended)**

PH 2498 F Methods – Exposure Assessment [**recommended for all IH students**]  
PH 6610 S Occupational and Environmental Health  
INDE6325 S Industrial Ergonomics (taught at Univ.of Houston)  
PH 6998 F Fundamentals of Occupational Safety (alt. years)  
PH 2498 F Hazardous and Solid Waste Management  
PH 6998 F Seminar in Workplace Safety

Other electives relevant to a student's interests may be taken as additional hours or, by permission of the industrial hygiene curriculum director, may be counted in the minimum of nine elective credit hours required.

**Preparation:** (1) requirements determined by accreditation: a Baccalaureate or higher degree with at least 120 semester credit hours, which should include at least 63 semester credit hours of science, math, engineering, or technology, at least 15 hours of which are at the upper level; and courses in communications, humanities, or social sciences; (2) requirements determined by the curriculum faculty: 1 semester calculus, 2 semesters chemistry including organic chemistry (4 semesters incl. 2 of organic chemistry recommended), 2 semesters biology (the IH faculty may consider minor variations in these requirements); (3) the GRE is required, with a preferred average per section >550; (4) a GPA  $\geq 3.0$  out of 4, overall and in math/sciences, is highly recommended; (5) letters of recommendation should attest to an individual's ability to do graduate level work, and should where possible include academic recommendations; (6) physics, statistics, and physiology are also recommended.

## ***Industrial Hygiene Sample Course of Study***

### **Typical Full-Time program**

#### **Fall Semester First Year**

PH 6615 Fundamentals of Industrial Hygiene (IH I)  
PH 2175 Principles of Toxicology  
PH 1725 Intermediate Biometric Methods I  
PH 2610 Introduction to Epidemiology

#### **Spring semester First Year**

PH 6620 Occupational Health Controls (IH II)  
PH 2155 Environmental Sampling and Analysis  
PH 1726 Intermediate Biometric Methods II  
PH 6998 Occupational Health Field Trips  
PH 2498 Environmental Sciences Seminar

#### **Summer semester First Year**

PH 9997 Practice Experience in Public Health (e.g., internship, practicum, or other approved activity)\*\*

#### **Fall Semester second Year**

PH 2150 Air Environment (3)  
PH 6998 Fundamentals of Occupational Safety  
PH 2498 Methods for Exposure Assessment  
PH 6998 Seminar in Workplace Safety  
PH 1498 Behav. Aspects of Occ/Env Health  
PH 9999 Thesis, or PH 6999 Individual Study

#### **Spring Semester Second Year**

PH 9998 Thesis Research  
PH 6998 Health & Safety Program Management  
PH 2498 Special Topics: Physical Agents  
Elective in IH curriculum

#### **Summer semester Second Year (and later if required)**

PH 9998 Thesis Research

## **Occupational and Environmental Medicine Residency The University of Texas School of Public Health**

### *Sample course of study*

#### **Academic Year**

A minimum of 45 semester credit hours is required for the M.P.H. degree. At least one course in each of the Public Health core disciplines of epidemiology, biometry, environmental sciences, management and policy sciences and behavioral sciences is required. Supplemental courses include industrial hygiene, toxicology, clinical occupational medicine, occupational and environmental health, and workplace safety. Residents are also able to choose from electives in environmental health law, occupational and environmental epidemiology, injury epidemiology, occupational and environmental respiratory disease, radiation safety and various independent studies. To fulfill the requirements for a M.P.H. degree, a Master's level thesis is also required. During the academic year, residents perform periodic patient evaluations in the clinic, participate in case conferences and engage in didactic sessions on various topics, under the supervision of either the Program Director or Associate Program Director. In this academic year, a Master's Advisory Committee that meets with the student at the end of each semester monitors progress.

Opportunities for research projects exist in many areas, and currently include occupational and environmental respiratory disease, epidemiology, international occupational health, occupational hazards of health care workers and molecular epidemiology.

#### **Academic Year- Typical Course Sequence**

**Summer 1**     General orientation to the OM Residency  
                  Pulmonary function testing certification course  
                  Audiometric testing certification course  
                  Computer skills courses  
                  Introduction to the U.T. Health Services clinic

**Fall**            PH 1610 Intro to Biometry  
                  PH 2610 Intro to Epidemiology  
                  PH 6615 Fundamentals of Industrial Hygiene  
                  PH 2175 Principles of Toxicology  
                  PH 6998 Seminar on Workplace Safety  
                  Monthly Journal Club/Research Seminar

**Spring**        PH 6610 Occupational and Environmental Health  
                  PH6680 Clinical Occupational Medicine  
                  PH3998 Health and Safety Program Management  
                  PH6998 Field Trips in Occupational Health  
                  PH 1110 Social and Behavioral Aspects of Community Health or PH1115 Health  
                  Survey Research Design  
                  Elective/Thesis Research  
                  Monthly Journal Club/Research Seminar

### **Practicum Year**

The practicum year consists of applied practical in-plant, corporate, public health agency and clinical rotations, in a block format. These include a minimum of four to six months of assignments at some of the large industries in the greater Houston or Dallas areas, one month in a public health agency, and two to four months of rotations at various occupational medicine and subspecialty clinics. Preceptors for each rotation are board-certified in occupational medicine and/or internal medicine.

#### **Industrial rotation sites include:**

- *Dow Chemical U.S.A. (Freeport)*
- *Exxon Company U.S.A. (Baytown and Houston locations)*
- *University of Texas M. D. Anderson Cancer Center (Houston)*
- *American Airlines (Dallas)*
- *Shell Oil Company (Houston)*
- *SeaRiver Maritime (Houston)*
- *Kerr McGee Corporation (Houston)*

#### **Clinical rotation sites include:**

- *University of Texas-Houston Health Science Center, Health Services*
- *Milby Clinic (serving small to midsize manufacturing and transportation businesses)*
- *U.S. HealthWorks (various locations in the Houston area)*
- *Concentra Medical Centers (several Houston locations)*
- *Respiratory Consultants of Houston (in the Texas Medical Center)*
- *Occupational and Environmental Medicine Clinic, University of Texas Health Science Center at Tyler*
- *The Institute for Rehabilitation and Research*
- *Texas Medical Center Employee Health Clinic*
- *Strawberry Clinic (Pasadena Texas, near the Houston Ship Channel)*
- *Hermann Hospital Emergency Room*

Opportunities also exist for elective rotations with various specialty clinics within the University of Texas Houston Health Science Center.

#### **Public health agency rotation sites include:**

- *OSHA Regional Office (Houston, Dallas) or OSHA Office of Occupational Medicine (Wash D.C.)*
- *Texas Department of Health (Houston)*
- *NIOSH Morgantown (Respiratory Disease) or Cincinnati (Hazard Evaluations or Industry-wide Studies)*

### **Resident evaluation**

A reciprocal evaluation system is in place for residents, rotation sites and faculty preceptors.

### **Resident Colloquium**

One half day each week the residents convene at the School of Public Health for formal didactic sessions and to discuss interesting cases.

**Occupational and Environmental Medicine Journal Club**

The monthly interdisciplinary Journal Club features presentations by occupational medicine residents and occupational/environmental health doctoral students. Academic and community professionals in the fields of occupational medicine, occupational nursing, industrial hygiene, occupational safety and environmental engineering, and epidemiology attend this unique forum. As of the 1998-1999 term, a research seminar has been incorporated into the Journal Club, with presentations by students and faculty. Also, as of the 1998-1999 term, Category I Continuing Medical Education credits are awarded to attendees of the Journal Club.

**THE UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT HOUSTON**  
**School of Public Health/School of Nursing**  
**Occupational Health for Nurses Program**

**Sample Courses of Study**

**MPH Program**

The required course of study for MPH candidates includes a minimum of 36 credit hours of coursework, with at least one course in each of the five core areas of public health, as well as completion of the occupational health and occupational health nursing curriculum, as identified below, completion of a thesis project and a practicum experience. Usually, OHN students will have completed closer to 50 credit hours by graduation. A typical MPH curriculum includes:

Public Health Core	Introduction to Epidemiology Introduction to Biometry Health and Safety Program Management Behavioral Aspects of Occupational Health
Occupational Health Core	Occupational and Environmental Health Fundamentals of Industrial Hygiene Clinical Occupational Medicine Principles of Toxicology Field Trips in Occupational Health Workplace Safety Seminar
Occupational Health Nursing Core	Occupational Health Nursing I Occupational Health Nursing II Electives Thesis research

**MSN/MPH Program**

The course of study for dual degree (MSN/MPH) candidates includes: 1) a minimum of 71 credit hours of coursework as identified below, and 2) completion of a joint UTSPH/SON thesis project. The dual degree program plan includes all of the core public health, occupational health and occupational health nursing core courses described above, a thesis and completion of additional nursing courses. The table on the following page presents a typical course of study.

Public Health Core	Introduction to Epidemiology Introduction to Biometry Health and Safety Program Management Psychosocial Aspects of Community Health or Behavioral Aspects of Occupational Health
Occupational Health Core	Occupational and Environmental Health Fundamentals of Industrial Hygiene Clinical Occupational Medicine

Principles of Toxicology  
Field Trips in Occupational Health  
Workplace Safety Seminar

Occupational Health Nursing Core    Occupational Health Nursing I  
Occupational Health Nursing II

School of Nursing Core    Advanced Pathophysiology  
Introduction to Population and Environmental Assessment  
Advanced clinical nursing I-III ( in a specialty track such as mental  
health, women's health, oncology, or emergency nursing)  
Pharmacotherapy  
Health assessment  
Electives  
Thesis research

The course of study for dual degree (MSN/MPH) candidates includes 1) a minimum of 71 credit hours of coursework as identified below, and 2) completion of a joint UTSPH/SON thesis project. The dual degree program plan includes all of the core public health, occupational health and occupational health nursing core courses described above, a thesis and completion of additional nursing courses.

*OCCUPATIONAL EPIDEMIOLOGY RESEARCH TRAINING PROGRAM*  
**The University of Texas School of Public Health**

**Sample Doctoral Course of Study in Occupational Epidemiology**

The following courses or their equivalents are assumed to have been taken in the master's program: Introduction to Epidemiology, Epidemiology Proposal Development, Demography, Intermediate Biometry I and II, Advanced Epidemiologic Methods I, Field Epidemiology, and Statistical Methods in Epidemiology. It should be understood, however, that the individual course of study, directed by the student's committee, will vary depending on each trainee's background prior to entering the program.

A DrPH. student, choosing to concentrate in occupational epidemiology would also be expected to follow this curriculum and have the necessary master's level prerequisites.

**Sample Course of Study**

Fall Semester (first year)

PH1830      Logistic Regression\*  
PH2175      Principles of Toxicology  
PH2998      Work Organization Epidemiology (Part 1)  
PH6615      Fundamentals of Industrial Hygiene  
PH6998      Seminar in Workplace Safety

Spring Semester (first year)

PH2998      Work Organization Epidemiology (Part 2)  
PH2998      Occupational Epidemiology  
PH2711      Advanced Epidemiologic Methods II  
PH6610      Occupational and Environmental Health

Summer Semester (special topics courses--examples)

PH1115      Health Survey Research Design\*  
PH1998      Introduction to SAS\*  
PH2998      Cancer Epidemiology  
PH2298      Social Epidemiology

Fall Semester (second year)

PH1745      Sampling Techniques for Health Surveys\*  
PH1831      Survival Analysis  
PH2170      Methods for Exposure Assessment  
PH2711      Advanced Epidemiologic Methods III  
PH2998      Injury Epidemiology

Spring Semester (second year)

PH6998      Occupational Health Field Trips  
                 Electives (optional)  
PH9999      Dissertation Proposal Development  
                 (after passing qualifying exam)

\*if not already taken in master's program

The remainder of the program consists of Dissertation Research courses (6 credit hours in the summer semester of the second and third years, and 9 credit hours in each of the fall and spring semesters during the third year).

Other elective courses available to students include Research Survey Design in Behavioral Sciences, Statistical Programming, Ergonomics, Chronobiology, Ethics and Public Health, Mutagenesis and Carcinogenesis, Pathology, Molecular Epidemiology, Genetic Epidemiology, Reproductive and Perinatal Epidemiology, Causal Thinking, Fundamentals of Occupational Safety, Occupational and Environmental Respiratory Diseases, Workplace Safety Seminar, and Rapid Epidemiologic Assessment.

To augment the formal courses recommended to prepare independent researchers, attendance and participation in a number of regularly scheduled interdisciplinary seminars and conferences will be strongly recommended to the trainees. Currently there are two seminars that include relevant topics. Academic and community occupational health professionals, averaging approximately 30 participants per session, attend the SWCOEH monthly Journal Club. There is also a bimonthly SWCOEH Research Seminar (inserted into the Journal Club) that features ongoing or recently completed faculty and student research projects; alternatively, there is also a monthly Division of Environmental and Occupational Health Research Seminar. Occupational epidemiology trainees are expected to present their proposals and final results either in one of these seminars or as a separate, publicly announced dissertation presentation. In addition, there are various regularly scheduled discipline-specific brown bag seminars and conferences that offer trainees the opportunity to familiarize themselves with research activities and programs of other UTSPH faculty and students. It is expected that trainees will present preliminary and/or final results from their research in at least one national scientific meeting, and will prepare at least one manuscript for publication in an appropriate scientific journal. Skills in oral and written communication will be developed and practiced at school seminars; and formal teaching experience is recommended through teaching assistantships.

*OCCUPATIONAL INJURY PREVENTION RESEARCH TRAINING PROGRAM*  
**The University of Texas School of Public Health**

*Sample Doctoral Course of Study in Occupational Injury Prevention*

The following core curriculum has been established for the doctoral course of study in occupational injury prevention research. This is intended to be a fairly structured course of study and represents the minimum that will be expected of each student in the doctoral program. **In response to reviewers, we have reduced the number of required courses creating a 36-38 credit core curriculum supplemented by methodological courses and specified a series of optional courses.** Also, the reduction in required credits was based on student input that there was overlap between courses. We do not specify the course sequence. Students will be exempted from courses if they demonstrate equivalency. For example, a student with a Masters degree in Industrial Engineering would likely place out of the three safety engineering courses. **All courses are currently in existence, except injury prevention and control, added in response to reviewer concerns about the lack of a focused course on injury prevention.** Additional new course development may ensue based on the outcome of the program evaluation by trainees, faculty and Advisory Board.

Dr. Cooper recently moved from The University of Texas School of Public Health to the Texas A&M School of Rural Public Health and will be co-teaching these courses. Dr. Steve Moore, also at Texas A&M, will be collaborating with Dr. Amick on teaching Work Organization Epidemiology. Dr. Spitzmueller has replaced Dr. Tetrick and will teach the College of Psychology courses. Dr. Amick is now co-teaching a course with Dr. Ron Harrist, a biostatistician, on applied multi-level modeling. Dr. Felknor is now co-teaching with Dr. Aday a course on Survey Design.

Core Curriculum

University of Houston: Safety Engineering  
INDE 6322 Occupational Safety Engineering  
INDE 7397 Biomechanics and Rehabilitation  
INDE 7397 Systems Safety

University of Houston: Psychology  
PSYC 7366 Motivation  
PSYC 6379 Occupational Health Psychology  
PSYC 7365 Leadership and Teams

UT School of Public Health: Epidemiology  
PH 2998 Occupational Epidemiology  
PH 2998 Injury Epidemiology

UT School of Public Health: Occupational Health  
PH 6998 Injury Prevention and Control (to be developed)  
PH 6680 Clinical Occupational Medicine  
PH 6610 Occupational and Environmental Health

UT School of Public Health: Management and Policy Studies  
PH 3915 Methods for the Economic Evaluation of Health Programs

Because each student will have placed out of some of the core courses due to his or her background, students will be expected to supplement core courses with at least three of the quantitative methods courses indicated in the table below. Depending upon their background, some students may have already completed some of these courses or equivalent courses at other universities. For example, an epidemiology student entering the program will likely have completed both Intermediate Biometry courses and Advanced Epidemiology Methods courses. A Behavioral Sciences student may have already completed Research Design I & II and Program Evaluation.

#### Supplemental Methodological Courses

PH 3998	Econometrics for Public Health
PH 1725/1726	Biometry I & II
PH 2711/2712	Advanced Epidemiological Methods I & II
PH 1120	Program Evaluation
PH 1420	Research Design and Analysis in Behavioral Sciences I & II
PH 2498	Exposure Assessment Methods
PH 1830	Logistic Regression
PH 1831	Survival Analysis
PH 1998	Applied Multilevel Analyses
PH 3998	Health Survey Research Design

In addition, the following substantive area courses are optional for students to take, depending on their particular area of interest and/or research focus: Industrial Ergonomics; Leadership and Teams; Work Organization Epidemiology I & II; and Occupational Health and Safety Program Management.

To augment the formal courses recommended to prepare independent researchers, attendance and participation in a number of regularly scheduled interdisciplinary seminars and conferences will be strongly recommended to the trainees. Currently there are two seminars that include relevant topics. Academic and community occupational health professionals, averaging approximately 30 participants per session, attend the SWCOEH monthly Journal Club. There is also a bimonthly SWCOEH Research Seminar (inserted into the Journal Club) that features ongoing or recently completed faculty and student research projects; alternatively, there is also a monthly Division of Environmental and Occupational Health Research Seminar. Occupational injury prevention trainees are expected to present their proposals and final results either in one of these seminars or as a separate, publicly announced dissertation presentation. In addition, there are various regularly scheduled discipline-specific brown bag seminars and conferences that offer trainees the opportunity to familiarize themselves with research activities and programs of other UTSPH faculty and students. It is expected that trainees will present preliminary and/or final results from their research in at least one national scientific meeting, and will prepare at least one manuscript for publication in an appropriate scientific journal. Skills in oral and written communication will be developed and practiced at school seminars; and formal teaching experience is recommended through teaching assistantships.



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

Student names are underlined.

## **Center Administration**

### **Publications**

Felknor S and Delclos G (2006). Occupational risk factors. In: Lerner SP, Schoenberg M, Sternberg C (Eds): Textbook of Bladder Cancer. London: Taylor & Francis 2006.

Gershon RRM, Sherman, MF, Mitchell CS, Vlahov D, *Erwin MJ*, Lears MK, Felknor S, Lubelczyk RA, Alter M (2007). Prevalence and Risk Factors for Bloodborne Exposure and Infection in Correctional Healthcare Workers. *Infection Control and Hospital Epidemiology* 2007; 28:24-30.

*Olfert SM*, Felknor SA, Delclos GL. An Updated Review of the Literature: Risk Factors for Bladder Cancer with Focus on Occupational Exposures. *Southern Medical Journal* 2006; 99(11):1256-1263.

Sarah A. Felknor, George L. Delclos, *David Gimeno*, Ineke Wesseling, Patricia Monge, Jorge Chavez, Leonardo Quintana, Lawrence Schulze (2006). Pilot Projects as a Tool for Research Infrastructure and Human Resource Development in Occupational Health. *International Journal of Occupational and Environmental Health*; 12(4):409-416, Oct - Dec 2006.

## **Pilot Projects**

### **Publications**

Branham, S.L., Wilson, M.S. and Hurlebaus, S.: Autonomous Overhead Power Line Monitoring. Fourth World Conference on Structural Control and Monitoring, University of California, San Diego, 2006, CDROM

Branham, S.L., Wilson, M.S., Hurlebaus, S., Beadle, B.M., and Gaul, L.: Nondestructive Testing of Overhead Transmission Lines. NDTnet, Dec. 2006.

Wilson, M.S., Tian, M., and Hurlebaus, S.: Power Line Monitoring. American Control Conference 2007, abstract submitted.

### **Presentations**

Ann Malecha, PhD, Texas Woman's University, "Preparing the Future Nursing Workforce: a Pilot Study Examining Stressors and Nursing Students Success". (Transitional Investigator Award)

Courtney Hill, PhD Student, the University of Texas Medical Branch at Galveston, "Role of Polymorphisms in the MGMT Gene in Modifying Cellular Response in an Occupational Exposure Model to Antineoplastics".

Farah Ahmed, PhD Student, the University of Texas School of Public Health: "Work Related Asthma among Dental and Radiology Professionals".

Gensheng Wang, PhD, M.D. Anderson Cancer Center, "Role of Oxidative Stress in the Short and Long Term Toxic Effects of 1,2-Dibromo-3-Chloropropane (DBCP) on Rat Testis".

Georgianna Gould, PhD, the University of Texas Health Science Center at San Antonio, "Effects of Chronic, Low-Level Pesticide Exposure on Zebrafish Central monoamine Transporters".

Lisa Pompeii, PhD, the University of Texas School of Public Health, "The Physicians' Role in Determining Appropriate Work Assignments for Women who Work During Pregnancy".

Morris Cranmer, PhD, University of Arkansas for Medical Sciences: "Conditions Controlling the Release of Sulfur Dioxide from Sodium Metabisulfite Shrimp Dip Solutions". (Transitional Investigator Award)

## **Industrial Hygiene**

### **Publications**

Delclos, G.L., A.A. Arif, L.Aday, A.I. Carson, D. Lai, C. Lusk, T. Stock, E. Symanski, L.W. Whitehead, F.G. Banavides, J.M. Anto (2006). Validation of an Asthma Questionnaire for Use in Healthcare Workers. Occupational and Environ. Med. 63: 173-179.

Delclos, G.L., D. Gimeno, A.A. Arif, K.D. Burau, A. Carson, C. Lusk, T. Stock, F.G. Benavides, J.M. Anto (2007). Occupational Risk Factors and Asthma Among Healthcare Professionals. Am. J. Respiratory and Critical Care Med. Accepted for publication.

Tovalin-Ahumada, H., and L. Whitehead. Personal Exposure to Volatile Organic Compounds Among Outdoor and Indoor Workers in Two Mexican Cities. Sci. Total Env. (Revised version submitted for publication).

Tovalin-Ahumada, H., M. Valverde, M. Morandi, S. Blanco, L. Whitehead, E. Rojas, (2006). DNA Damage in outdoor workers occupationally exposed to environmental air pollutants. Occupational and Environ. Med. 63(4): 230-236.

## **Occupational Medicine**

### **Publications**

Delclos GL, Arif AA; Aday L; Carson A; Lai D; Lusk C; Stock T; Symanski E; Whitehead LW; Benavides FG; Anto JM, "Validation of an asthma questionnaire for use in healthcare workers" Occupational and Environmental Medicine, 000:1-8 (2006).

Pugach S, Carson A, Clarkson T, Berens P, Fowler G, Cernichiari E, Fonseca L, Ramin SM, and Mercado-Calderon F, "Prenatal Mercury Exposure And Postnatal Outcome: Clinical Case Report and Analysis", J Toxicol Clin Toxicol (in review).

Savely SM, Carson A, Delclos GL "An environmental management system implementation model for U.S. colleges and universities" J Cleaner Production, 15:660-670 (2006).

Savely SM, Carson A, Delclos GL "A survey of the implementation status of environmental management systems in U.S. colleges and universities" J Cleaner Production, 15:650-659 (2007).

## **Occupational Health for Nurses**

### **Publications**

Mackey, T. (2006) Common diagnostic and treatment challenges in primary care of acute bacterial rhinosinusitis. *Medical Advisor* (2006).

Veeseer, P., Mackey, T. Nursing center annual reports: value and content. *Journal of the American Academy of Nurse Practitioners*. (2007), 19, 6-10.

### **Presentations**

Mackey, T., Busine\$\$ Sense for Nurse Practitioner Leaders. Presented at University of Kansas leadership lecture series, Overland Park, Kansas, February, 2007.

Mackey, T., McGrath, D., Moore, J. Saving Your Center: Electronic Health Records. Presented at the 5<sup>th</sup> Annual Conference of National Nursing Centers Consortium, Delray Beach, Florida, October, 2006.

Mackey, T. Pohl, J. Findings From a National Survey of US Nurse Managed Health Centers. Presented at the International ICN Nurse Practitioner Conference, Sandton, South Africa, July, 2006.

Parnell, S., Avian Influenza: Update on Planning Strategies: Lecture given to the Houston Texas Association of Occupational Health Nurses on November 11, 2006.

Parnell, S., Basic Disaster Life Support: Taught biological disasters, chemical disasters, and mental health responses to disaster sections of this 8 hour course to a multidisciplinary group of healthcare providers.

- September 15, 2006 Twelve Oaks Hospital, Houston, Texas
- September 19, 2006 Doctor's Hospital, Houston, TX
- January 19, 2007 Harris County Psychiatric Hospital, Houston, Texas
- March 30, 2007 Clear Lake Medical Center, Houston, TX
- June 18, 2007 School of Public Health, Houston, TX
- August 18, 2007 School of Public Health, Houston, TX

Parnell, S., Post-Exposure Plan Check-up: A Review of Current Best Practice for Blood Borne Pathogen Exposures: Lecture given to the Houston Texas Association of Occupational Health Nurses (HTAOHN). September 26, 2006.

Parnell, S., Recognizing and Responding to Bioterrorism and Other Public Health Emergencies: HRSA grant funded lectures for Texas nurses at multiple sites in Texas.

- September 11, 2006 University of Texas Health Science Center Houston School of Nursing, Houston, Texas
- October 4, 2006 Doctor's Hospital, Houston, Texas
- October 18, 2006 Hermann Hospital, Houston, Texas
- November 14, 2006 University of Texas Health Science Center Houston School of Nursing, Houston, Texas

- December 19, 2006 University of Texas Health Science Center Houston School of Nursing, Houston, Texas
- January 25, 2007 Texas Children's Hospital, Houston, Texas
- February 22, 2007 American Nephrology Nurses Association, Houston, TX
- May 18, 2007 Montgomery College, The Woodlands, TX
- August 18, 2007 Hermann Hospital, Houston, TX
- August 22, 2007 Austin, TX

Parnell, S., Travel Health Issues: Expert panel presented at the National Association of Black Flight Attendants, August 18, 2007.

## **Occupational Epidemiology and Injury Prevention**

### **Publications**

Amick III Benjamin C, Bigelow Philip, Cole Donald. Workplace-Researcher Relationships: Early Research Strategy and Avoiding the "Data Dearth", in Developing Good Practices for the Economic Evaluation of Workplace Interventions. Emile Tompa, Anthony Cuyler, Roman Dolinschi (eds.), Toronto, Canada: University of Toronto Press (in press).

Amick III Benjamin C, Gimeno David. Measuring Work Outcomes with a Focus on Health-Related Productivity Loss, in Evidence, Outcomes & Quality of Life in Pain Treatment: A Handbook for Pain Treatment Professionals. Harriett Wittink and David Carr (eds.), London, UK: Elsevier (in press).

Brewer Shelley, Van Eerd Dwayne, Amick III Benjamin C, Irvin Emma, Daum Kent, Gerr Fred, Moore J Steven, Cullen Kim, Rempel Dave M. Workplace Interventions to Prevent Musculoskeletal and Visual Symptoms and Disorders among Computer Users: A Systematic Review. Journal of Occupational Rehabilitation 16(3), 2006.

Chaumont Menendez Cammie, Amick III Benjamin C, Jenkins Mark, Janowitz Ira, Rempel David M, Robertson Michelle, Dennerlein Jack T, Chang Che-Hsu (Joe), Katz Jeffrey N. A Multi-Method Study Evaluating Computing-Related Risk Factors among College Students. Work: A Journal of Prevention, Assessment, and Rehabilitation (accepted for publication).

Cuyler Anthony, Amick III Benjamin C, Laporte Audrey. What is a Little More Health and Safety Worth? in Developing Good Practices for the Economic Evaluation of Workplace Interventions. Emile Tompa, Anthony Cuyler, Roman Dolinschi (eds), Toronto, Canada: University of Toronto Press (in press).

Jenkins Mark, Chaumont Menendez Cammie, Amick III Benjamin C, Robertson Michelle M, Hupert Nathaniel, Tullar Jessica, Katz Jeffrey N. Undergraduate college students' upper extremity symptoms and functional limitations related to computer use: A replication study. Work: A Journal of Prevention, Assessment, and Rehabilitation 23(3), 2006.

Robertson Michelle M, Amick III Benjamin C, Fossel Anne H, Coley Christopher M, Hupert Nathaniel, Jenkins Mark, Tullar Jessica, Katz Jeffrey N. Undergraduate Students' Ergonomics Knowledge of Appropriate Computer Workstation Design and Work Habits: The Emerging Young Knowledge Workforce. Work: A Journal of Prevention, Assessment, and Rehabilitation (accepted for publication).

Tompa Emile, Dolinschi Roman, de Oliveira Claire, Laporte Audrey, Amick III Benjamin C. The Identification and Valuation of Consequences in Developing Good Practices for the Economic Evaluation of Workplace Interventions. Emile Tompa, Anthony Cuyler, Roman Dolinschi (eds.), Toronto, Canada: University of Toronto Press (in press).

Tullar Jessica M, Amick III Benjamin C, Robertson Michelle M, Fossel Anne H, Coley Christopher M, Hupert Nathaniel, Jenkins Mark, Katz Jeffrey N. Direct Observation of Computer Workplace Risk Factors of College Students. Work: A Journal of Prevention, Assessment, and Rehabilitation 28(1), 2006.

Williams Renee M, Westmorland Muriel G, Shannon Harry S, Amick III Benjamin C. Disability Management Practices in Ontario Health Care Workplaces. Journal of Occupational Rehabilitation Volume 1-13, 2006.

### **Presentations**

Amick III Benjamin C, Robertson Michelle, Moore Anne, DeRango Kelly, Chaumont Menendez Cammie. The impact of two ergonomic interventions on health and productivity: a quasi-experimental field study comparing results at a private sector intervention site with earlier public sector site. Eds. Pikaar RN, Koningsveld EAP and Settels PJM. Proceedings of International Ergonomics Association 2006, 16<sup>th</sup> World Congress, Maastricht, Netherlands, Elsevier.

Chang CH, Chaumont Menendez C, Amick BC, Johnson PW, Katz JN, Robertson MM, Dennerlein JT. Increased daily computer usage is associated with musculoskeletal symptoms (Pilot study on 27 graduates). Eds. Pikaar RN, Koningsveld EAP and Settels PJM. Proceedings of International Ergonomics Association 2006, 16<sup>th</sup> World Congress, Maastricht, Netherlands, Elsevier.

Cullen K. Posture modifying interventions and musculoskeletal health among computer users: a systematic review. Eds. Pikaar RN, Koningsveld EAP and Settels PJM. Proceedings of International Ergonomics Association 2006, 16<sup>th</sup> World Congress, Maastricht, Netherlands, Elsevier.

Van Eerd D, Brewer S, Amick III Benjamin C, Irvin E, Daum K, Gerr F, Moore S, Cullen K, Rempel D. Workplace interventions to prevent musculoskeletal and visual symptoms and disorders among computer users: A systematic review. Toronto: Institute for Work & Health; 2006.

### **Hazardous Substances Training**

#### **Publications**

Bible, J., Emery, R.J., Williams, T., Wang, H. "A Security Vulnerabilities Assessment Tool for Interim Storage Facilities of Low-level Radioactive Wastes". *Health Physics*, 91 (Supplement 2): S66-S73; 2006.

Cech, I., Smolensky, M.H., Afshar, M., Broyles, G., Barczyk, M., Burau, K., Emery, R.J. "Lead and Copper in the Drinking Water Fountains – Information for Physicians" *Southern Medical Journal*, 99(2): 137-142; 2006.

Emery, R.J., Charlton, M.A. "Radiation Protection Programs", chapter in *Concentration of Radionuclides in Food and the Environment: Prevention and Human Health*, Nollet, L and Poschl, M. eds. CRC Press Taylor & Francis Group, Boca Raton, FL, 2006.

Emery, R.J., Felknor, S.A., "Lessons Learned from the First "Radiation Safety Without Borders" Site Visit: The South Texas Chapter of the Health Physics Society's Journey to Costa Rica" *Health Physics*, in review.

Harper, C., Emery, R.J., Casserly, D. "An assessment of occupational exposures to ultraviolet radiation from transilluminator light boxes in the course of biomedical research procedures". *Journal of Chemical Health and Safety*, in press, 2007.

Korshukin, M., Emery, R.J., "An Analysis of Reported Events of Stolen Sources of Radioactivity in Texas from 1956 to 2000" *Health Physics*, 90(3): 266-272; 2006.

Lucas, A., Emery, R.J., "Assessing Occupational Mercury Exposures During the Onsite Processing of Spent Fluorescent Lamps" *Journal of Environmental Health*, 68 (7): 30-34; 2006.

Thommen, P.J., Emery, R.J. "An Analysis of 20 Years of Radiation-related Health Care Complaints in Texas for the Purposes of Quality Improvement", *Health Physics*, 90 (Supplement 2): S62-S66; 2006.