

**UNIVERSITIES OCCUPATIONAL SAFETY AND HEALTH  
EDUCATION AND RESEARCH CENTER**

**Final Progress Report  
July 1, 1997 - June 30, 2000**

**Mount Sinai School of Medicine  
New York, New York, 10029**

**Philip J. Landrigan, MD  
Center Director**

**NIOSH Grant No. T42/CCT210425**

**March 15, 2001**

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**Summary of Training Accomplishments**  
**UNIVERSITIES OCCUPATIONAL SAFETY AND HEALTH**  
**EDUCATION AND RESEARCH CENTER**  
**(July 1, 1997 - June 30, 2000)**

The Universities Occupational Safety and Health Education and Research Center (UOSHERC), the NIOSH-supported Education and Research Center for Federal Region II, is a multi-institutional, interdisciplinary educational consortium dedicated to the training of professionals in the core disciplines of occupational health and safety. UOSHERC currently includes training programs in Occupational Medicine at both Mount Sinai School of Medicine (New York City) and the Universities of Medicine and Dentistry of New Jersey (UMDNJ)/Robert Wood Johnson Medical School (Piscataway); Industrial Hygiene and Hazardous Substance Academic Training (HSAT) at Hunter College (New York City); Occupational Safety Engineering at New Jersey Institute of Technology (Newark); Continuing Education and Outreach and Hazardous Substance Training (HST) at UMDNJ/Robert Wood Johnson Medical School (Piscataway) and Occupational Health Nursing at the UMDNJ School of Nursing (Newark). (NOTE: Because NIOSH support for the HSAT and HST programs is on a different cycle than that for the other ERC programs, neither is now due for a final report, and hence they are not included here.)

Between July 1, 1997 to June 30, 2000, UOSHERC programs graduated a total of 95 occupational safety and health professionals. Of these, 61 graduated with MS degrees in industrial hygiene, 17 graduated with Masters' degrees or Certificates from the two occupational medicine programs (10 from Mount Sinai School of Medicine and seven from UMDNJ/RWJMS), 11 graduated with MS degrees in occupational safety and health engineering, and six graduated with MSN degrees in occupational health nursing. In addition the Continuing Education and Outreach Program offered 556 courses during this period to 7,839 persons, most of them hazardous substances, industrial hygiene and safety courses. The majority of persons who attended the courses were from the private sector, with one-third from federal, state and local governments, and one-eighth from academia.

Meanwhile, during the period from July 1, 1997 to June 30, 2000, UOSHERC developed and Center Administration organized two new interdisciplinary courses, one a seminar on interdisciplinary approaches to problem-solving in occupational health and safety, and the other a plant visits course. Also since Fall 1998, this ERC has revived the practice of offering a student/intern research day annually. It also continues to offer an annual scientific conference. Finally early in 2000, with help from Dr. Jack Caravanos of Hunter and Mitchell Rosen of UMDNJ, UOSHERC developed its own Web page at <nynjerc.org>, which is currently on line.

**Industrial Hygiene Program  
Final Report  
July 1, 1997 - June 30, 2000**

**Hunter College (CUNY)  
New York, New York, 10010**

**David Kotelchuck, PhD, CIH  
Program Director & ERC Deputy Director**

**NIOSH Grant No. T42/CCT210425**

**March 15, 2001**

## **Abstract**

The Environmental and Occupational Sciences (EOHS) Program of the Hunter College School of Health Sciences has been a member of the Universities Occupational Safety and Health Education and Research Center (UOSHERC) since 1978. It has a strong, stable faculty and a core industrial hygiene curriculum, which has been in place for well over a decade. Between 7/1/97 and 6/30/00, sixty-one persons graduated from the EOHS program/track with an MS degree, an average of about 20 IH graduates per year, about half of whom are females and almost 40 percent persons of color. Ninety-five percent the graduates are working or studying professionally. Of those working, about half are employed primarily as industrial hygienists; most of the rest have mixed occupational and environmental responsibilities. Dr. Jack Caravanos, CIH, CSP, has directed the EOHS academic track since February 1997. Dr. David Kotelchuck, CIH, is UOSHERC Deputy Director and continues to direct the NIOSH industrial hygiene program at Hunter College. The faculty has proposed modification of the MS curriculum in preparation for ABET accreditation, and has now applied for this accreditation, with an anticipated approval time of Spring 2002.

## **I. Significant Findings**

This report summarizes the activities and accomplishments of the Industrial Hygiene program at Hunter College, a component of Hunter's Environmental and Occupational Health Sciences program, from July 1, 1997 to June 30, 2000. Our significant findings are as follows:

- Between 7/1/97 and 6/30/00, sixty-one persons graduated from the EOHS program/track with an MS degree, an average of about 20 IH graduates per year.
- A little over half (51 percent) of the MS graduates were females, and 39 percent were persons of color.
- Ninety-five percent the graduates are working or studying professionally.
- Of those who are professionally employed, 33 percent are in the private sector, 44 percent are in the public sector, 22 percent are in the non-profit sector, and two percent (one individual) are self-employed. Almost half (49 percent) are employed primarily as industrial hygienists.
- Three of the graduates are in doctoral programs, one in environmental engineering, one in industrial hygiene and one is attending osteopathy school.
- A new full-time, tenure-track faculty member, Dr. Susan Klitzman, was added to the EOHS track in September 1999, bringing the total of full-time faculty in the track to four persons.

## **II. Report:**

This report summarizes the activities and accomplishments of the Industrial Hygiene program at Hunter College, a component of Hunter's Environmental and Occupational Health Sciences program, from July 1, 1997 to June 30, 2000. The Environmental and Occupational Sciences (EOHS) Program of the Hunter College School of Health Sciences has been a member of the Universities Occupational Safety and Health Education and Research Center (UOSHERC) since 1978. It has a strong, stable faculty and a core industrial hygiene curriculum, which has been in place for well over a decade. It is also the largest industrial hygiene program in the New York City metropolitan area, and the only one in this area focused on the graduate training of industrial hygiene practitioners. Currently over half of all students in the program are African-American, Afro-Caribbean, Latino or Asian American. The program is also nationally recognized for training large numbers of graduate industrial hygienists of color.

In September 1999, the three public health programs of the Hunter College School of Health Sciences, namely the Environmental and Occupational Health Sciences, Community Health Education and Public Health Nutrition programs, merged into a single program in Urban Public Health (UPH). Each of the three components, including Environmental and Occupational Health Sciences, is now a track in the UPH Program. At the time of the merger, the EOHS track began to offer a second graduate degree, the MPH degree, with a broader, more flexible curriculum than the MS degree, which Hunter has offered since 1978. The MPH curriculum combines technical industrial hygiene, hazardous waste and environmental courses with several policy courses in urban public health. (NIOSH support was not requested for the MPH curriculum during this reporting period.)

#### A. Accomplishments

Between 7/1/97 and 6/30/00, sixty-one persons graduated from the EOHS program/track with an MS degree (Table 1), an average of about 20 IH graduates per year. There were no MPH graduates during this period. A little over half of these graduates were females (31 persons, or 51 percent). Twenty-four graduates (39 percent) were persons of color: 10 (16 percent) were African-American or Afro-Caribbean, 5 (8 percent) were Hispanic, and 9 (15 percent) were Asian-American.

Of the graduates during this three-year period, 16 (26 percent) had received NIOSH fellowship support through the UOSHERC industrial hygiene program. (names in bold on Table 1) In addition, other graduates received fellowship and internship support through the NIOSH HSAT program at Hunter. This will be detailed in the HSAT Final Report, to be submitted after the current HSAT grant expires on 6/30/01.

Almost all the graduates (58, or 95 percent) are working or studying professionally. (Table 1) Three of the 58 are in doctoral programs: Ms. Joseph in environmental engineering at City College of New York, Ms. Hsu in industrial hygiene at New York University, and Mr. Stern in osteopathy on Long Island. Of the 55 who are professionally employed, 18 or one-third are in the private sector (12 or 22 percent are in consulting firms), 24 or 44 percent are in the public sector (among these the largest number, 16 or 29 percent are in New York City agencies or schools), 12 or 22 percent are in the non-profit sector, largely hospitals, and one is self-employed. These results are tabulated below in Table 2. Almost half, 27 or 49 percent, are employed primarily as industrial hygienists. Many of the others have mixed occupational and environmental responsibilities.

**Table 2**  
**EMPLOYMENT OF EOHS GRADUATES**  
**Academic Years 7/1/97 – 6/31/00**

<b>Employment Sector</b>	<b>Number</b>	<b>Percent</b>
Private sector	18	33%
Public sector	24	44%
Non-profit sector	12	22%
Self-employed	<u>1</u>	<u>2%</u>
Total:	55	101%*

\* Does not add up to 100% due to round-off errors.

**B. Faculty/Leadership**

This is a distinguished, stable faculty. There are four core faculty members:

- Dr. Jack Caravanos, DrPH, who has been Director of the EOHS program/track since 1997, that is throughout the current grant period.
- Dr. David Kotelchuck, PhD, Director of the NIOSH industrial hygiene program, and Deputy Director of UOSHERC.
- Dr. Mark Goldberg, PhD, formerly program internship director.
- Dr. Susan Klitzman, PhD, currently program internship director.

The first three core IH faculty (Caravanos, Goldberg, and Kotelchuck) are all tenured, and each has been with this ERC component for at least a decade. Each is certified for the comprehensive practice of industrial hygiene, and teaches a wide range of industrial hygiene and occupational health and safety courses.

Dr. Klitzman is the newest faculty member in the EOHS track, having joined the faculty in September 1999, after many years as Director of the Division of the Environmental Epidemiology at the New York City Department of Health, and later Assistant Commissioner in that Department. She has experience and expertise both in occupational and environmental health and safety. She has published extensively in occupational and environmental epidemiology, and is a specialist in childhood lead poisoning.

As Director of the EOHS academic program, Dr. Caravanos has had responsibility for the day-to-day operations of the program, from the supervision of admissions to the selection of adjunct faculty and the scheduling and assignment of courses, as well as supervision of the comprehensive examination and the graduation process. He reports administratively to Dr. Nicholas Freudenberg, Director of the Urban Public Health Program.

### C. Program Developments

In an exciting new initiative by Hunter College to strengthen its public health focus, the College decided, beginning in September 1999, to combine its programs in Environmental and Occupational Health Sciences, Community Health Education and Public Health Nutrition into a single program in Urban Public Health (UPH). Under this structure the three programs maintain a significant degree of professional autonomy as specialization tracks within the UPH program. As a result the EOHS track now offers two degrees in environmental and occupational health and safety, the current MS degree and a new MPH degree.

The MS degree program has continued to maintain its professional focus on training in industrial hygiene, with the same admissions criteria and basic curriculum as in the past. The MPH degree program, with its focus on urban environmental and occupational health, combines science and policy courses, and can be an important new area of program growth and research emphasis for the EOHS track. As part of Hunter College's commitment to this new joint program, it allowed the EOHS track to add a new, tenure-track faculty line in September 1999 (Dr. Klitzman).

### D. Future Plans

In preparation for seeking ABET accreditation for the MS degree program, the EOHS faculty has reviewed and made suggestions for modification of the traditional MS curriculum. It has recommended making mandatory the current elective courses in ventilation, noise and radiation, and plant visits, and formally submitted these for approval by Hunter College in the Fall of 2000. Also the program applied in January 2001 for ABET accreditation of its MS degree program. We plan to complete an ABET self-survey in the Summer of 2001, in preparation for a site visit in the fall of 2001. The program hopes to be accredited by Spring 2002.

### **List of Publications**

No student publications were produced during this grant period.

**Table 1**  
**NIOSH TRAINING GRANT PROGRAM GRADUATES**  
**HUNTER COLLEGE: INDUSTRIAL HYGIENE**  
**Academic Years 7/1/97 – 6/31/00**

<u>Name*</u>	<u>Date Graduated</u>	<u>Job Title</u>	<u>Employer</u>
<b>Beirne, Hilary</b>	8/31/1997	Science Teacher	NYC High School Bronx, NY
Akinleye, Henry	2/1/1998	Analytical Chemist	Consumers Union Lab Yonkers, NY
Bennett, Paula	2/1/1998	Research Scientist	Brookhaven National Lab Upton, NY
<b>Bocchicchio, Richard</b>	2/1/1998	Safety & Health Inspector	NYC Board of Education Brooklyn, NY
Brady, James O.	2/1/1998	Fire Fighter	Westchester Cnty. Fire Dept. Yonkers, NY
Eastmond, Condell	2/1/1998	Industrial Hygienist	NYC Board of Education Brooklyn, NY
Lipsky, Stuart M.	2/1/1998	Science Teacher	Seward Park High School New York, NY
Lorenz, Mike	2/1/1998	Industrial Hygienist	Exxon Corporation Linden, NJ
Nugent, Gerry	2/1/1998	Project Manager	Velocity Assoc. Consultants Maspeth, NY
Ryszewski, Krystyna	2/1/1998	Industrial Hygienist	ATC Environmental Services New York, NY
Santana, Michelle	2/1/1998	Health & Safety Specialist	Malcolm Pirnie Consultants New York, NY
Sapanara-Solis, Victoria	2/1/1998	Environmental Assistant	Hackensack Water Company Haworth, NJ
<b>Sullivan, John</b>	2/1/1998	Risk Mngment/Loss Cntrl	Sodexho Marriott Services New York, NY
Vieira, Delia M.	2/1/1998	Lab Safety Officer	A. Einstein Coll. of Medicine Bronx, NY
Zalis, Scott	2/1/1998	Industrial Hygienist/Safety	MTA NYC Transit Brooklyn, NY
Zicherman, Bernard	2/1/1998	Health Sanitarian	NYC Dept of Health New York, NY
Fama, Salvatore	6/1/1998	Industrial Hygienist	Roy Weston Engineering Yonkers, NY
Adaramola, Folasaye	6/1/1998	Laboratory Technologist	NY Hosp/Cornell Med Cntr New York, NY
Boos-Singh, Brenda	6/1/1998	Compliance Officer	US DOL-OSHA Westbury, NY
Carty, Garfield	6/1/1998	Training Coordinator	NYC Dept. Env. Protection Queens, NY
Crichlow, Neil	6/1/1998	Project mgr./supervisor	self-employed New York, NY
DeAngelis, Armand	6/1/1998	Envir. Prgm Specialist	NYS Dpt. Env. Conservation Long Island City, NY
Eramo, Antonella	6/1/1998	Health & Safety Specialist	Maimonides Hospital Brooklyn, NY

**Table 1 (continued p.2 of 3)**

<u>Name</u>	<u>Date Graduated</u>	<u>Job Title</u>	<u>Employer</u>
Fenamore, Elizabeth	6/1/1998	Industrial Hygienist	AirTec Env. Services New York, NY
<b>Goon, Cherie</b>	6/1/1998	Seeking professional	Wholesale Jewelry Firm New York, NY
Karim, Kobria	6/1/1998	Health and Safety Officer	New York Univ. Hospital New York, NY
<b>Lema-Foley, Christine</b>	6/1/1998	Research Associate	Mt. Sinai Occ. Med. Clinic New York, NY
Lynch, Fenton	6/1/1998	Bus Operator	NYC Transit Authority New York, NY
Newman, David	6/1/1998	Industrial Hygienist	NYCOSH New York, NY
Porter, Valerie J.	6/1/1998	Program Specialist	NYC Dept. of Health New York, NY
<b>Shumer, Melissa</b>	6/1/1998	Research Associate	Mt. Sinai School of Medicine New York, NY
Yearwood, Simone	6/1/1998	Regl'tory Affairs Specialist	Acetone Corp. Lake Success, NY
Tiwari, Neetha	6/1/1998	Industrial Hygienist	Ambient Laboratory New York, NY
Knoph, Ryan	2/1/1999	IH Consultant	WISH (Wrkrs.Inst for S&H) Washington, DC
<b>Sullivan, Kevin</b>	2/1/1999	Industrial Hygienist	Consulting firm New York, NY
Vera, Sonia	2/1/1999	Safety Specialist	Mayor's Off. of S&H New York, NY
Zysnarski-Knowles, Ursula	2/1/1999	Environmental Manager	AIG Insurance/ Env. Mgmt. New York, NY
Bulkley, Sherry	6/1/1999	Env. Assessment / IH	PES Environmental Inc. New York, NY
<b>Barbarash, Ellie</b>	9/1/1999	Health & Safety Specialist	Comm. Workers of America New York, NY
Capune, William	9/1/1999	Environmental Specialist	Con Edison utility New York, NY
Marcellin, Verline	9/1/1999	Industrial Hygienist	OSHA Area Office US Virgin Islands
Berger, Bozena	2/1/2000	Safety Specialist	NYC Transit Authority Brooklyn, NY
Deochand, Ramesh	2/1/2000	Health Sanitarian	NYC Dept of Health New York, NY
Etienne, Jean	2/1/2000	College Lab Technician	Medgar Evers Coll. (CUNY) Brooklyn, NY
<b>Joseph, Alicia T.</b>	2/1/2000	Doctoral Candidate in Environmental Engineering	City College of New York New York, NY
<b>Kenny, Adena</b>	2/1/2000	Industrial Hygienist	Consolidated Edison utility New York, NY

**Table 1 (continued p.3 of 3)**

<b><u>Name</u></b>	<b><u>Date Graduated</u></b>	<b><u>Job Title</u></b>	<b><u>Employer</u></b>
<b>McMorrow, Martin</b>	2/1/2000	Environmental Specialist (Air Quality)	US Env. Protection Agency New York, NY
<b>Octive, Althea P.</b>	2/1/2000	Environmental Specialist	NY State Dept of Health New York, NY
Sexton, Ellen	2/1/2000	Information Splclst./ Library	John Jay College (CUNY) New York, NY
Stern, Jason	2/1/2000	Doctoral Student	School of Osteopathy Long Island, NY
Al-Mishari, Hadeel	6/1/2000	Unknown	(returned to Saudi Arabia)
Bobadilla, Allan	6/1/2000	Health and Safety Officer	Cornell Medical College New York, NY
Hsu, Shao-I	6/1/2000	Doctoral Candidate in Industrial Hygiene	New York University Sterling Forest, NY
Hussein, Salah	6/1/2000	Industrial Hygiene	Consulting firm New York, NY
<b>Luke, Persis</b>	6/1/2000	Env. Policy Analyst	Brooklyn Boro. Pres. Office Brooklyn, NY
<b>Neufeld, Katharine</b>	6/1/2000	Industrial Hygienist	Emilcott Assoc. consultants Morristown, NJ
Persaud, Tyrone	6/1/2000	Air Quality Specialist	NYC Dept of Env. Protection Queens, NY
<b>Ramdahin, Dennis</b>	6/112000	Safety Specialist	NYC Transit Authority Brooklyn, NY
<b>Saunders, Akhira</b>	6/1/2000	Industrial Hygienist	OSHA Area Office Farmingdale, NY
Schwartz, Charles	6/1/2000	Industrial Hygienist	Env. Assess. & Solns. Inc. Hartsdale, NY
Yu, Alice	6/1/2000	Industrial Hygienist	Consulting firm San Francisco, CA

\* Names in **bold** received NIOSH fellowships in Industrial Hygiene. (NOTE: This list does not designate those who received NIOSH fellowships through the HSAT program.)

**Occupational Health Nursing Program  
Final Report  
July 1, 1997 - June 30, 2000**

**UMDNJ School of Nursing  
Newark, New Jersey 07101**

**D. Anthony Forrester, PhD, RN  
Acting Program Director & Assistant Dean**

**NIOSH Grant No. T42/CCT210425**

**March 15, 2001**

## **Abstract**

The Occupational Health Nursing Program of the UMDNJ School of Nursing was established in 1992, and is the only graduate program in occupational health nursing in the New York-New Jersey metropolitan area. During the period from July 1, 1997 to June 30, 2000, six persons graduated from the program with MSN degrees. All were female, and two of the six (33 percent) were African-American. Four of the six are now professionally employed in occupational health nursing, one is Associate Head Nurse at a large public hospital, and one is seeking professional employment.

The program was headed since its inception by Gail Buckler, RN, MPH, COHN-S. However soon after the 1997-2000 grant period Ms Buckler left UMDNJ. Assistant Dean D. Anthony Patterson is now Acting Director of the program, and Norma Mann, RN, MSN, NP-C, is Acting Clinical Director. The search for a new, permanent Director for the program is ongoing and of paramount importance. Once a Director is found, the program can be expected to benefit by the establishment of the new UMDNJ School of Public Health, through a heightened level of interdisciplinary interactions.

## **I. Significant Findings**

During the time period from July 1, 1997 through June 30, 2000, the Occupational Health Nursing Program at the UMDNJ School of Nursing:

- Graduated six nurses with MSN degrees in Occupational Health Nursing.
- All of the graduates were women.
- Two of the six (33 percent) were African-American, and the rest white.
- Four of the six (67 percent) are professionally employed in occupational health and safety. Another has a responsible position as Associate Head Nurse in a large Florida public hospital, and the most recent of the graduates is currently seeking a professional position.
- The establishment of the UMDNJ School of Public Health in 1999 can be expected to improve the education of the occupational health nursing students and enhance their levels of interdisciplinary interactions.

## **II. Report:**

The Occupational Health Nursing Program of the UMDNJ School of Nursing (UMDNJ-SN) was established in 1992, and is the only graduate program in occupational health nursing in the New York-New Jersey metropolitan area. This following report covers the time period from July 1, 1997 until June 30, 2000.

### **A. Accomplishments**

Six nurses received their MSN degrees in Occupational Health Nursing during this three-year period, (Table 1) an average of two nurses per year. All the graduates are females. The program has made moderate progress toward achieving racial and ethnic heterogeneity. Two of the six graduates (33 percent) were African-American; the other graduates were white.

The program has experienced solid growth since its inception in 1992. Starting with eight students in 1994, the program grew steadily to 11 students in 1999 and then 19 by September 2000. The program's first graduate was Norma Mann, RN, MSN in 1996.

Of the six graduates listed in Table 1, three (50 percent) are employed as occupational health nurses in corporate settings, and one is responsible for occupational and employee health at a New Jersey hospital. Thus four out of six (67 percent) are employed in occupational health and safety. One has a responsible position as Associate Head Nurse in a large Florida public hospital, and one, the most recent of the graduates, is seeking a professional position.

## B. Faculty/Leadership

During 1997-2000, Gail Buckler, RN, MPH, COHN-S directed the Occupational Health Nursing Program at UMDNJ-SN, as she had since the program's inception in 1992. Assisting her in Track coordination and administration was Assistant Professor Henry Soehnlein, RN, MSN, whose involvement has helped free Ms. Buckler to pursue her doctoral studies in Environmental and Occupational Health at UMDNJ School of Public Health. (Note: Soon after the 1997-2000 period, during the Fall 2000 semester, Ms. Buckler left UMDNJ-SN for an occupational health nursing position with Aventis Pharmaceuticals. Prof. and Assistant Dean D. Anthony Patterson, RN, PhD has now become Acting Director of the program, and Norma Mann, RN, MSN, NP-C, serves as Acting Clinical Coordinator. A search for a new Director of the OHN Program is ongoing.)

## C. Program Developments

Currently students in the OHN Program benefit from taking required and elective courses both with safety engineering students at NJIT and occupational physicians at UMDNJ/RWJMS. The new UMDNJ School of Public Health, established in 1999, should enhance these interactions by offering health and safety courses which can bring together these nurses with graduate industrial hygiene students as well. Both Dr. Michael Gochfeld, Track Coordinator of the Environmental and Occupational Health Track of the public health school, and Dr. Audrey Gotsch, Director of the ERC Continuing Education Program and Acting Dean of the public health school, are committed to encouraging interdisciplinary interactions as a vital part of occupational health and safety education. These opportunities will further enhance the Occupational Health Nursing Program.

## D. Future Plans

At this time there can be no more important development for the Occupational Health Nursing program than finding a qualified new Director for this program to replace Gail Buckler, who had been with the program since its inception. Particularly in a relatively small program such as this one, the Director's position is vital, and can make or break the program. The Administration of the UMDNJ School of Nursing understands this, and thus is pursuing this search with vigor.

## **List of Publications**

No student publications were produced during this grant period.

**Table 1**  
**Occupational Health Nursing Graduates**  
**UMDNJ School of Nursing**  
**1997-2000**

<b><u>Name</u></b>	<b><u>Degree &amp; Year</u></b>	
	<b><u>Awarded*</u></b>	<b><u>Current Employment</u></b>
Kathleen Goldstein, RN	MSN-1997	Occupational Nurse Practitioner Exxon-Mobil Corporation Linden, NJ
Blondell Coleman, RN	MSN-1998	Associate Head Nurse Jackson Memorial Hospital Miami, FL
Rosanne Galle, RN	MSN-1998	Nurse Practitioner, Employee and Occupational Health Valley Hospital Ridgewood, NJ
Karen Van-Varick McGuire, RN	MSN-1998	Occupational Health Nurse Practitioner Lucent Technologies Murray Hill, NJ
Joanne Brubaker, RN	MSN-1999	Nurse Practitioner Warner Lambert Corporation Morris Plains, NJ
Lisa Lane, RN	MSN-2000	Seeking employment

**Occupational and Environmental Medicine Residency  
Final Report  
July 1, 1997 - June 30, 2000**

**Mount Sinai School of Medicine  
New York, New York, 10029**

**Jacqueline Moline, MD  
Residency Director**

**NIOSH Grant No. T42/CCT210425**

**March 15, 2001**

## Abstract

During the time period from July 1, 1997 through June 30, 2000, the two-year full-time occupational medicine residency program at Mt. Sinai School of Medicine was in its third decade of educational service. During this period, 10 residents graduated from the OEM residency program, 6 of them women and 4 men. The residency program improved its racial and ethnic heterogeneity during this period, graduating 3 African American, 2 Asian American and 5 white physicians. Eight of the graduates have their primary appointments in occupational and environmental medicine, with seven directly affiliated to occupational medicine clinics.

In February 1998 Jacqueline Moline, MD, MSc, a graduate of the Mt. Sinai Residency Program, was promoted to Residency Program Director, following the departure of Dr. Steven Markowitz. In 1999 Alan Rodgers, MD, MPH and also a graduate of the Mt. Sinai Occupational Medicine Residency program, was appointed Assistant Residency Director of the program.

The Irving Selikoff Occupational Health Clinical Center underwent yet another expansion during this period, with the establishment of new Queens occupational medicine clinic. Thus the Center, where the residents receive their clinical training in occupational medicine, now has a central facility at Mt. Sinai and four satellite facilities -- in Brooklyn, Queens, Westchester, and at the UNITE Garment Workers Health Center.

No significant changes in the structure of the residency program are planned in the coming years.

## **I. Significant Findings**

This report summarizes the activities and accomplishments of the Residency Program in Occupational and Environmental Medicine at Mt. Sinai School of Medicine from July 1, 1997 to June 30, 2000. Our significant findings are as follows:

- There were 10 residents who completed the OEM residency program at Mount Sinai from July 1, 1997 through June 30, 2000.
- The residency program improved its racial and ethnic heterogeneity during this period, graduating 3 African American, 2 Asian American and 5 white physicians, that is, 50 percent of the graduates were persons of color.
- All of the graduates are professionally employed in medicine, with eight having their primary appointments in occupational and environmental medicine. Seven (70 percent) are directly affiliated with occupational medicine clinics.
- The graduates are broadly distributed in their settings of employment: 6 graduates are in academia, 2 in hospital-based practices, and two are in clinic-based practice.
- The Occupational Medicine Residency Program underwent its periodic review by the Accreditation Council for Graduate Medical Education (ACGME) in 1996 and received full accreditation for five years.

The Mount Sinai School of Medicine continues to offer a rich clinical, research and educational environment for physicians training in occupational medicine.

## **II. Report**

This report summarizes the activities of the occupational and environmental medicine (OEM) residency program at Mt. Sinai School of Medicine from July 1, 1997 through June 30, 2000. During this time, the two-year full-time occupational medicine residency program at Mt. Sinai School of Medicine was in its third decade of educational service.

The Mount Sinai OEM Residency Program is currently the only occupational medicine residency program in New York State, which has 17,000,000 people and is the third largest state in the nation.

### A. Accomplishments

There were 10 residents who completed the OEM residency program at Mount Sinai from July 1, 1997 through June 30, 2000. The names, degrees, and dates of the degrees for these residents are provided in Table 1. The average number of graduates per year was 3.3. The total of 10 graduates included 6 women and 4 men. The residency program improved its racial and ethnic heterogeneity during this period, graduating 3 African American, 2 Asian American and 5 white physicians. That is, 50 percent of the graduates of the program during this period were persons of color. Among the various ethnicities, only Hispanic physicians were absent from this cohort.

Table 1 also shows the current employment status of the recent graduates. All graduates are professionally employed in medicine, with eight having their primary appointments in occupational and environmental medicine. There is a broad distribution in terms of settings of employment, including 6 graduates in academia, 2 in hospital-based practices, and 2 in clinic-based practice. Seven of these graduates (70 percent) are involved in practice in occupational medicine clinics.

The Mt. Sinai residency program has had ample high-quality applicants to the program during the 1997-2000 period. No funding positions have gone unfilled due to the lack of qualified applicants.

Five graduates during the 1997-2000 period attended the Mt. Sinai program for only one year, because they entered with the master's of public health degree and needed only one year to complete the training requirements for board-eligibility according to the American Board of Preventive Medicine. Two of the graduates completed the Master's in Community Medicine curriculum, which included the submission of a master's thesis. The titles of these theses are provided in Table 2.

### B. Faculty/Leadership

Steven Markowitz, MD left his position as the residency program director in February 1998 to assume directorship of the Center for the Biology of Natural Systems at Queens College, following the retirement of Dr. Barry Commoner. At that time Jacqueline Moline, MD, MSc, a graduate of the Mt. Sinai Residency Program and then Assistant Director of the program, was appointed Residency Program Director. In 1999 Alan Rodgers, MD, MPH and also a graduate of the Mt. Sinai Occupational Medicine Residency program, was appointed Assistant Residency Director of the program. Ms. Elsie Jimenez is administrative assistant to the residency program.

There has been the normal amount of turnover of the faculty in the Department of Community Medicine, which sponsors the Occupational Medicine Residency Program. However, all disciplines that are required to provide the array of courses in the Master's Program have been maintained.

The Irving Selikoff Occupational Health Clinical Center, where the residents receive their clinical training in occupational medicine, has expanded considerably in recent years, adding a clinic in Queens during the 1997-2000 period. Thus the Center now has its central facility at Mt. Sinai and four satellite facilities -- in Brooklyn, Queens, Westchester, and at the UNITE Garment Workers Health Center. Although the residents do all their clinical training at the central facility at Mt. Sinai, they have the opportunity to observe at the satellite facilities where workers from different kinds of work settings and different health problems are seen.

#### C. Program Developments

The Occupational Medicine Residency Program underwent its periodic review by the Accreditation Council for Graduate Medical Education (ACGME) in 1996 and received full accreditation for five years. In addition, the residency program underwent its periodic review by NIOSH as part of a competitive renewal in 1999 and was approved for five years of continued funding. During the 1997-2000 period, the Residency Advisory Committee met twice per year as required by the ACGME.

The residency training program continues to receive funding from New York State as part of a fellowship program, supported in conjunction with the New York State Clinic Network. Nonetheless, because NIOSH stipends are modest and cover only 57% of the resident's salary, there remained an unfilled gap for each resident. The funding from the New York State Health Department filled only part of this gap. The remainder was filled by miscellaneous funds from a variety of sources.

#### D. Future Plans

No significant changes in the structure of the residency program are planned in the coming years. The Master's program is well established. The corporate field placements at various local corporations function very well. The clinical experience of the residents is extensive and well supported by a large clinical faculty. The research environment is rich in faculty resources. The program continues to search for alternative sources of funds to continue to support the residency program.

**Table 1**  
**Occupational Medicine Residents**  
**Mount Sinai School of Medicine**  
**1997-2000**

<b><u>Name</u></b>	<b><u>Degree &amp; Year</u></b>	<b><u>Awarded*</u></b>	<b><u>Current Employment</u></b>
Nayyera Malik, MD	Cert.-1997		NYC Department of Corrections Employee Health Queens, NY
Elizabeth Kann, MD	Cert.-1998		Faculty, Div. Occ. and Env. Medicine Mt. Sinai School of Medicine New York, NY
Omowunmi Osinubi, MD	MSc-1998		Faculty and Asst. Residency Director Occupational Medicine Residency Program UMDNJ/R.W. Johnson Medical School Piscataway, NJ
Alan Rodgers, MD	Cert.-1998		Faculty and Asst. Residency Director Occupational Medicine Residency Program Mt. Sinai School of Medicine New York, NY
Jean Xiao, MD	MSc-1998		Staff, NYU-Bellevue Occ. Medicine Clinic New York, NY
Elizabeth Wilk-Rivard, MD	Cert.-1999		Staff, Mt. Sinai-IJ Selikoff Occ. Medicine Clinic New York, NY
Aboaba Afilaka, MD	Cert.-2000		Resident in Medicine Lincoln Hospital, New York, NY
Olugbenga Dawodu, MD	Cert.-2000		Instructor in Clinical Medicine, Employee Health Clinic Columbia Presbyterian Hospital New York, NY
Ekaterina Malievskaia, MD	Cert.-2000		Acting Medical Director Occ. Health and Rehab. Inc. Wilmington, MA
Manoj Moholkar, MD	Cert.-2000		Asst. Medical Director Elliot Hospital, Manchester, NH

\* Cert. = Certificate

**TABLE 2**

**Masters Theses**  
**Mt. Sinai OEM Residents, 1997-2000**

<b><u>Resident</u></b>	<b><u>Title of Thesis</u></b>	<b><u>Year</u></b>
Omowunmi Osinubi, MD, MSc	A Descriptive Study of Current Smoking Behavior Among Workers Exposed to Asbestos	1998
Jean Xiao, MD, MSc	Lead-Related Symptoms Among Iron Workers and Laborers Employed in Bridge Rehabilitation	1998

**Occupational and Environmental Medicine Residency  
Final Report  
July 1, 1997 - June 30, 2000**

**UMDNJ / Robert Wood Johnson Medical School  
Piscataway, New Jersey 08854**

**Michael Gochfeld, MD, PhD  
Residency Director**

**NIOSH Grant No. T42/CCT210425**

**March 15, 2001**

## **Abstract**

During the period from July 1, 1997 to June 30, 2000 seven residents completed their training in the Occupational Medicine Residency Program at the UMDNJ/Robert Wood Johnson Medical School in Piscataway, New Jersey. Five received their MPH degrees, and two have completed all courses and received a Certificate pending completion of their thesis research. Five were female physicians and two male physicians; one of the seven (14 percent) is a person of color. All are professionally employed in occupational health and safety, four in industrial settings, one in a clinic/consulting company, and two are employed in Occupational Medicine at UMDNJ/RWJMS.

Michael Gochfeld, MD, PhD has been Residency Director of the Occupational Medicine Program since its inception in 1985. In July 1999, following the departure of Dr. Sandra Mohr, Omowunmi Osinubi, MD, MSc, was appointed Assistant Residency Director of the program. Dr. Osinubi is a 1998 graduate of the Occupational Medicine Residency Program at Mt. Sinai. Also Dr. Glenn Greene, MD, PhD, MPH joined the faculty as Assistant Professor in 1999, after completion of his residency training at UMDNJ/RWJMS. Finally Dr. Gochfeld was appointed in 1999 to be Track Coordinator of the Environmental and Occupational Health Track in the new School of Public Health of the University of Medicine and Dentistry of New Jersey (Dr. Audrey Gotsch, Acting Dean). The establishment of this new public health school is expected to improve the education of occupational medicine residents in the program and enhance their levels of interdisciplinary interactions with graduate industrial hygiene students and occupational health nurses.

## **I. Significant Findings**

This report summarizes the activities and accomplishments of the Residency Program in Occupational and Environmental Medicine at UMDNJ/RW Johnson Medical School from July 1, 1997 to June 30, 2000. Our significant findings are as follows:

- Seven residents completed their training in the Occupational Medicine Residency Program during this three-year period. Five were awarded their MPH degree, and two received Certificates pending completion of their MPH research.
- Of the graduates, five (71 percent) were females and two were males. The residency program continues to have a limited degree of racial and ethnic heterogeneity, graduating one African- American physician (14 percent of graduates) and none of other minority groups during this time period.
- All graduates are employed in the field of occupational medicine. Four are working in industry, and one in an occupational clinic and consulting firm which serves industry. Thus 5 of the 7 (71 percent) are in occupational, largely industrial, practice. The other two graduates (29 percent) are in academic medicine, both with the Occupational Medicine Program at UMDNJ/RW Johnson.
- The establishment of a new public health school is expected improve the education of occupational medicine residents in the program and enhance their levels of interdisciplinary interactions. Dr. Gochfeld is Track Coordinator of the Environmental and Occupational Health Track of the public health school, and Dr. Audrey Gotsch, Director of the ERC Continuing Education Program, is Acting Dean.

## **II. Report:**

### **A. Accomplishments**

Seven residents completed their training in the Occupational Residency Program at the University of Medicine and Dentistry of New Jersey/ Robert Wood Johnson Medical School between July 1, 1997 and June 30, 2000. (Table 1) Five have received their MPH degree, and two received Certificates pending completion of their MPH research. Of the seven graduates, five were females and two were males. The residency program continues to have a limited degree of racial and ethnic heterogeneity, graduating one African-

American physician and none of other minority groups during this time period (14 percent of graduates).

All graduates are employed in the field of occupational medicine. (Table 1) Their work settings are varied. Four are working in industry, all with major U.S. corporations, and one, Dr. Eskin, is Associate Medical Director for Rohm & Haas Corporation. One, Dr. Heinrich, is an occupational physician with Environmental Health Associates, which provides clinical and consulting services to businesses and industries in the region. Thus 5 of the 7 (71 percent) are in occupational, largely industrial, practice. The other two graduates (29 percent) are in academic medicine, both with the Occupational Medicine Program at UMDNJ/RW Johnson.

The quality of the graduates during the 1997-2000 period has been quite high, with two (Drs. Greene and Mues) having both MD and PhD degrees before entering the program.

### B. Faculty/Leadership

Michael Gochfeld, MD, PhD has been Residency Director of the Occupational Medicine Program since its inception in 1985, and in this position is now the senior Residency Director among NIOSH OM directors nationally. Dr. Sandra Mohr was the Assistant Residency Director for the program until July 1999, when she left to assume a new position in Denver. At that time, Omowunmi Osinubi, MD, MSc, was appointed Assistant Residency Director. Dr. Osinubi joined the UMDNJ/RWJMS faculty in 1998, following completion of her Occupational Medicine residency at Mt. Sinai. Also Dr. Glenn Greene, MD, PhD, MPH joined the faculty as Assistant Professor in 1999, after completion of his residency training at UMDNJ/RWJMS. Ms. Elaine Randolph is administrative assistant to the residency program.

In addition to access to the large, varied faculty at UMDNJ/Robt. Wood Johnson Medical School, residents in this program now have access as well to the faculty and students of the School of Public Health of the University of Medicine and Dentistry of New Jersey, for which Dr. Gochfeld is Track Coordinator for Environmental and Occupational Health (see below).

### C. Program Developments

In 1999 The Graduate Program in Public Health of the University of Medicine and Dentistry of New Jersey became the School of Public Health of the University of Medicine and Dentistry of New Jersey. Dr. Audrey Gotsch, Director of Continuing Education program for UOSHERC, was appointed Acting Dean of the new public health school. Also Dr. Gochfeld was appointed Track Coordinator for Occupational and Environmental Health. The offices of the Occupational Medicine residency program and the School of Public Health are housed together on the second floor of the EOHSI (Environmental and Occupational Health Sciences Institute) building, facilitating

interaction of the OM residents with other public health students. The Environmental and Occupational Health Track includes graduate industrial hygiene students and occupational health nurses. The establishment of the public health school at UMDNJ and its growth can only serve to improve the education of occupational medicine residents in the program and enhance their levels of interdisciplinary interactions.

#### D. Future Plans

This is a mature program, and no significant changes in the structure of the residency program are planned for the coming years. The establishment of the School of Public Health at UMDNJ should strengthen the interdisciplinary training for our residents. With the continued assistance of Drs. John Thorpe and Marshall Hanley, both with long experience in industry as occupational physicians, corporate field placements are expected to continue to function very well. The research environment within UMDNJ, especially the program's close ties to EOHSI, will continue in the future to help the occupational medicine residency program attract applicants of high quality.

#### **List of Publications:**

See Table 2 below.

**Table 1**  
**Occupational Medicine Residents**  
**UMDNJ/ Robert Wood Johnson Medical School**  
**1997-2000**

<u>Name</u>	<u>Degree &amp; Year</u>	
	<u>Awarded*</u>	<u>Current Employment</u>
Art Heinrich, MD	MPH-1997	Occupational Physician Environmental Health Associates Woodbridge, NJ
Rose Coppalecchia, DO	MPH-1998	Plant Physician Schering-Plough Corporation Kenilworth, NJ
Dorothy Quail, MD	MPH-1998	Plant Physician Ford Motor Corporation Linden, NJ
Evamarie Eskin, MD	MPH-1999	Associate Medical Director Rohm & Haas Corporation Philadelphia, PA
Glenn Greene, MD, PhD	MPH-1999	Assistant Professor Occupational Medicine Program UMDNJ/ Robt. Wood Johnson Medical School Piscataway, NJ
Carrie McCoy, MD	Cert.-2000	Staff, Occupational Medicine Clinic UMDNJ/ Robt. Wood Johnson Medical School Piscataway, NJ
Bettina Mues, MD, PhD	Cert.-2000	Plant Physician Hoffman-LaRoche Nutley, NJ

\* Cert. = Certificate

**TABLE 2**

**Publications and Titles of Masters Research Projects**  
**UMDNJ/RWJMS OM Residents, 1997-2000**

**Publication**

Mohr SN, Eskin E, Kipen HM, Scardella A. Bronchial Hyperresponsiveness among Enrollees in the New Jersey Database on Acute Inhalation Injuries. Amer J Resp Critical Care Med 157:A885, 1998

<b><u>Resident</u></b>	<b><u>Title of Research Project</u></b>	<b><u>Year</u></b>
Art Heinrich, MD, MPH	Chemical Exposure during Pregnancy: Contrasting Hazards with Concerns	1997
Rose Coppalecchia, DO	Methylmercury and the Potential Exposure in Pregnant Women in New Jersey	1998
Dorothy Quail, MD	Environmental Indicators for Health Risks from Organophosphate Pesticides	1998
Evamarie Eskin, MD	Bronchial Hyperresponsiveness after Acute Inhalation Injury in the Population of NJ	1999
Glenn Greene, MD, PhD	Dusts Generated during Orthodontic Procedures: Hazards, Exposures and Implications for Patient and Practitioner	1999

**Occupational Safety and Health Engineering Program  
Final Report  
July 1, 1997 - June 30, 2000**

**New Jersey Institute of Technology  
Newark, New Jersey 07102**

**One-Jang Jeng, PhD  
Program Director**

**NIOSH Grant No. T42/CCT210425**

**March 15, 2001**

## **Abstract**

The NJIT OSHE Program is currently the only safety engineering program in New Jersey. The OSHE Program at New Jersey Institute of Technology has been one of the members of the NIOSH New York/New Jersey ERC since 1988. For the period of 1997 to 2000, eleven students have earned the M.S.O.S.H.E. degree. All graduates have secured professional positions in the field. The program is directed by Dr. One-Jang Jeng of the Department of Industrial and Manufacturing Engineering. Dr. Jeng has served as Director of the OSHE program since 1997. The Associate Program Director is Dr. Arijit Sengupta, who holds a joint appointment with the Department of Engineering Technology and the Department of Industrial and Manufacturing Engineering. Dr. Sengupta was granted tenure and promoted to Associate Professor in Fall 2000. In Fall 1998 IE 665 Applied Industrial Ergonomics was made a required course, and other elective courses have been added to the course curriculum. The program is committed to train high quality graduate students who will ultimately be the leading safety and health specialists in the field.

## **I. Significant Findings**

This report summarizes the activities of the Occupational Safety and Health Engineering (OSHE) Program at New Jersey Institute of Technology from July 1, 1997 to June 30, 2000. The NJIT OSHE Program is currently the only safety engineering program in New Jersey. The OSHE Program at New Jersey Institute of Technology has been one of the members of the NIOSH New York/New Jersey ERC since 1988.

- The program has 30% female students and 70% male students. In terms of ethnic background, there are 40% minority students (African-American and Hispanic).
- For the period of 1997 to 2000, eleven students have earned the M.S.O.S.H.E. degree. All graduates have secured professional positions in the field.
- Several courses have been added into the elective course list, and one former elective course was converted to a required course. IE 664 Advanced Ergonomics, IE 681 Occupational Health and Safety Seminars (1 credit) and IE 682 Industrial Processes and Site Visits (3 credits) are the new elective courses. IE 665 Applied Industrial Ergonomics is a required course for students admitted into the program after the Fall of 1998. IE 681 and IE 682 are handled by ERC faculty for ensuring quality interdisciplinary interactions among NIOSH trainees from different ERC programs.
- For the past three years the OSHE also had established collaborative relationships with local industries for providing summer and part-time practical work experience to students. Among them are Merck & Co., Inc., Building Contractors Association of New Jersey, and New Jersey State Safety Council. There were five students who started their summer jobs and ultimately were hired by the same companies or were hired by other companies with full time professional safety and health positions.

## **II. Report:**

This report summarizes the activities of the Occupational Safety and Health Engineering (OSHE) Program at New Jersey Institute of Technology from July 1, 1997 to June 30, 2000. The NJIT OSHE Program is currently the only safety engineering program in New Jersey. The OSHE Program at New Jersey Institute of Technology has been one of the members of the NIOSH New York/New Jersey ERC since 1988.

### **A. Accomplishments**

For the period 1997 to 2000, eleven students have earned the M.S.O.S.H.E. degree (Table 1). All graduates have successfully secured professional positions in the field. In addition to the graduates, there are two more students who have completed all their course work, but not their thesis. Six students are expected to graduate within the next academic year.

Among the students, approximately two-thirds of them had an engineering undergraduate degree and one-third obtained B.S. degrees in sciences. The engineering students include industrial engineers, manufacturing engineers and chemical engineers. The non-engineering students are from chemistry, biology, environmental sciences, and physical therapy. Students with non-engineering B.S. degrees are required to take bridge courses, with the advisement of the program faculty.

The program has 30% female students and 70% male students. In terms of ethnic background, there are 40% minority students (African-American and Hispanic). Most of the students (80%) are working full time. Therefore the courses offered by the OSHE Program, except the NIOSH ERC Interdisciplinary courses (IE 681 and IE 682), are all taught in the evenings.

Many students of the OSHE program have benefited by the ERC interdisciplinary course series. Six OSHE students took the course series in the past three years. All of them appreciated the opportunities to discuss health and safety issues from different perspectives according to the trainees' background. The industrial site visit course helped them to visualize the roles of different safety and health professionals in different facilities. The students also participate in the Trainee Research Exchange Day by presenting their projects. The Trainee Research Exchange Day was held at NJIT in the Fall of 1998 and the Spring of 2000. One student from NJIT presented his research project about scaffolding safety concerns in 1998, and three students from NJIT gave presentations in 2000.

For the past three years the OSHE program also had established collaborative relationships with several local industries for providing summer and part-time practical work experience to students. Among them are Merck & Co., Inc., Building Contractors Association of New Jersey, and New Jersey State Safety Council. There were five students

who started their summer jobs and ultimately were hired by the same companies or were hired by other companies with full time professional S/H positions.

The program faculty received an ERC pilot project grant in the summer of 2000 to direct a student (Paul Reichert) to conduct a study of assessing spinal loading and back pain risks in assisting patient transfers. Results of the study will be presented in the Fifteenth Annual International Occupational Ergonomics and Safety Conference in the Summer of 2001.

#### B. Faculty/Leadership

The program is directed by Dr. One-Jang Jeng of the Department of Industrial and Manufacturing Engineering. Dr. Jeng has served as director of the OSHE program since 1997. The Associate Program Director is Dr. Arijit Sengupta, who holds a joint appointment with the Department of Engineering Technology and the Department of Industrial and Manufacturing Engineering. Dr. Sengupta was granted tenure and promoted to Associate Professor in Fall 2000. The program is housed in the Department of Industrial and Manufacturing Engineering. Prof. Athanassios Bladikas, Chair of the Department, supports the OSHE program in collaborating departmental and institutional recruitment activities and providing necessary administrative assistance.

#### C. Program Developments

Several courses have been added into the elective course list during 1997-2000 and one former elective course was converted to a required course. IE 664 Advanced Ergonomics, IE 681 Occupational Health and Safety Seminars (1 credit) and IE 682 Industrial Processes and Site Visits (3 credits) are the new elective courses. IE 665 Applied Industrial Ergonomics is a required course for students admitted into the program after Fall 1998. IE 681 and IE 682 are handled by ERC faculty for ensuring quality interdisciplinary interactions among NIOSH trainees from different ERC programs. All NIOSH-supported students are required to take both courses. Also other OSHE students are encouraged to take the two elective courses.

The program has two laboratories for conducting research in ergonomics, safety, and environmental studies. For the past three years (1997-2000), the program had received funds for upgrading laboratory equipment. The program purchased a multi-gas monitor (Industrial Scientific ATX 612) with calibration gas and a regulator through the equipment budget of the College of Engineering in 1999. The equipment is available for student projects in IE 614 and IE 615. The program has also received software donated by the Director of the Ergonomics Analysis and Design Research Consortium at the University of Wisconsin-Madison. The Multimedia Video Task Analysis software is used in a student research project and in IE 664 and IE 665. A proposal was submitted to the institution in Fall 2000 for purchasing new equipment, and it has been approved for a total of approximately \$14,000.

#### D. Future Plans

The program faculty will continue to update the course curriculum to fulfill the needs of the safety and health challenges of current industries. The faculty will assist the ERC in the interdisciplinary courses in the spring of 2001. All students in the OSHE program will be assisted in finding professional safety and health work experience opportunities before they graduate so that can gain as much hands on experience as possible. The program is committed to train high quality graduate students who will ultimately be the leading safety and health specialists in the field.

#### **List of Publications**

A list of the theses completed by NIOSH trainee students between 1997 and 2000 is presented in Table 2.

**Table 1. List of OSHE Students Graduated between 1997 and 2000.**

<b>NAME #</b>	<b>Date Degree Awarded (MO./YR.)</b>	<b>Current Employment Status (Job title/employer)</b>	<b>Current Business Address (Or last known address)</b>
James Duru	01/98	Adjunct Faculty Essex County College	304 Woodhaven Drive Monmouth Jct., NJ 08852
David Custy #	05/98	Facility Safety Engineer/ Fisher Scientific	755 US Rt 202 Bridgewater, NJ 08807
Mark Fortin #	05/98	Plant Safety Engineer/ Merck & Co.	126 E. Lincoln Ave. Rahway, NJ 07065
Madhu Shodavaram	05/98	Safety Engineer/ Volmar Construction, Inc.	4440 Second Ave. Brooklyn, NY 11232
James E. Castellanos #	05/99	Safety Engineer/ Novartis Pharmaceuticals	556 Morris Ave Summit, NJ 07901
Shabbir Shivji #	05/99	Radiation Safety Specialist/ UMDNJ	185 South Orange Avenue Newark, NJ 07103
Daniel Martin #	08/99	Occ. & Env. Manager West Pharmaceutical	1200 Paco Way Lakewood, NJ 08701
Carlstien Lutchmedial	08/99	Director/ Enforcement D.E.P., NYC	59-17 Junction Boulevard Elmhurst, NY 11368
Francesco DiMiceli	05/00	Env., H & S Engineer Tyco Submarine Systems	100 Terminal Ave. Clark, NJ 07066
Alejandro Ruiz	05/00	Camps S & H Specialist Rutgers University	New Brunswick Campus New Brunswick, NJ 08901
Margarita Chernyshov	08/00	Safety Engineer Tropicana Products, Inc.	9 Linden Ave., E. Jersey City, NJ 07305

# = Those Program graduates that did not receive NIOSH financial support.

**Table 2. List of NJIT OSHE Students Graduated with Theses between 1997 and 2000.**

<b>NAME</b>	<b>DATE</b>	<b>THESIS TITLE</b>
Margarita Chernyshov	Fall, 2000	Performance, safety and health Concerns of employees working in a refrigerated warehouse
Alejandro Ruiz	Spring, 2000	Development of a Tactile Hazardous Material Information System (THMIS)
Carlstien Lutchmedial	Fall, 1999	Safety evaluation and engineering solutions to scaffoldings
Francesco DiMiceli	Spring, 1999	Whose turn is it anyway: The impact of job rotation on the reduction of cumulative trauma disorders
James Duru	Spring, 1998	Proactive technique for workplace chemical exposure

**Center Administration  
Final Report  
July 1, 1997 - June 30, 2000**

**Mt. Sinai School of Medicine  
New York, New York, 10029**

**Philip J. Landrigan, MD  
Center Director  
David Kotelchuck, PhD, CIH  
Deputy Director**

**NIOSH Grant No. T42/CCT210425**

**March 15, 2001**

## **Abstract**

UOSHERC is a consortium of five educational institutions offering eight programs in occupational health and safety training at five campus locations. It is administered by a core staff at Mount Sinai School of Medicine in conjunction with the ERC Management Committee, and with the advice and assistance of the ERC External Advisory Committee. Center Administration is responsible for the day-to-day operations of the ERC, serves as liaison between the programs and NIOSH, and is responsible for interdisciplinary interaction and coordination among the programs and their faculty and students. During the period July 1, 1997 to June 30, 2000 this ERC developed two new interdisciplinary courses, one a seminar on interdisciplinary approaches to problem solving in occupational health and safety, and the other a plant visits course. In Fall 1998, this ERC has revived the practice of offering a student/intern research day annually. Since then two such days have been held, both at NJIT, and were highly successful. Finally in 2000 the ERC established its own Web page at <nynjerc.org>, with downlinks to each of the programs in this ERC. In future years, this ERC intends to work more closely with the Industrial Hygiene Program at the University of Puerto Rico in San Juan, especially through the Pilot Project Research Training Program, and with the newly established undergraduate program in Environmental Health Science at Medgar Evers College in Brooklyn, an historically minority institution which is part of the City University of New York.

## **I. Significant Findings**

This report summarizes the activities and accomplishments of the UOSHERC Center Administration from July 1, 1997 to June 30, 2000. Our significant findings are as follows:

- Two new interdisciplinary courses were developed in Academic Year 1997-98, and have been offered annually since. The first is a case-study-based “NIOSH ERC Interdisciplinary Seminar,” offered every fall semester, which seeks to introduce students to the various health and safety subspecialties and to promote interdisciplinary, team-based approaches to solving health and safety problems. The second is a plant site visit course, offered every spring semester, involving walkthrough surveys of seven different worksites in the metropolitan NY/NJ region.
- In addition UOSHERC has continued to offer its regular annual scientific conferences during this time period, which it has been sponsoring annually for over 20 years. During the 1997-2000 academic years, it has conducted conferences on Occupational Cancer, Occupational Asthma and Ergonomics, respectively. Also to enhance student and faculty opportunities for interdisciplinary interactions, the UOSHERC Management Committee began in 1998 sponsoring a luncheon during the conference for all ERC students and faculty.
- In another effort to encourage interdisciplinary interactions and encourage research participation among our ERC students and interns, UOSHERC has revived the tradition of having a Student/Intern Research Day annually, rather than every other year, as in the past. On October 9, 1998 a successful NIOSH ERC Student/Trainee Day was held at NJIT in Newark, NJ. During the next academic year, the student research day was held during the Spring semester, to give students more time to develop their studies and gather data. Thus the next Student/Intern Research Day was held on Wednesday, April 5, 2000, also at NJIT. This too was highly successful, with about 30 students and faculty in attendance.
- Finally, in order to promote knowledge about this ERC and to further promote interdisciplinary interactions among its faculty and students, UOSHERC with the assistance of Dr. Jack Caravanos developed its own Web page at <nynjerc.org>, which went on line in February 2000.

## II. Report:

UOSHERC is a consortium of five educational institutions offering eight programs in occupational health and safety training at five campus locations. It currently includes training programs in:

- Occupational Medicine at Mount Sinai School of Medicine (New York City, NY);
- Occupational Medicine at the Universities of Medicine and Dentistry of New Jersey (UMDNJ)/Robert Wood Johnson Medical School (Piscataway, NJ);
- Industrial Hygiene and Hazardous Substance Academic Training at Hunter College School of Health Sciences (New York City, NY);
- Occupational Safety Engineering at New Jersey Institute of Technology (Newark, NJ);
- Continuing Education and Outreach and Hazardous Substance Training at UMDNJ/Robert Wood Johnson Medical School (Piscataway, NJ) and
- Occupational Health Nursing at the Universities of Medicine and Dentistry of New Jersey (Newark, NJ).

Center Administration is responsible for the day-to-day operations of the ERC, serves as liaison between the programs and NIOSH, and is responsible for interdisciplinary interaction and coordination among the programs and their faculty and students. UOSHERC is administered by a core staff at Mount Sinai School of Medicine in conjunction with the ERC Management Committee.

In addition the twenty-member ERC External Advisory Committee provides the ERC faculty with broad guidance on the content and type of training that is needed to prepare students for careers in the four core disciplines of occupational health, as well as helping mentor students in these disciplinary programs and helping faculty arrange for site visits at their institutions. As is its custom, the Committee met annually during the 1997-2000 period

### A. Accomplishments

Important academic changes have occurred within UOSHERC during the grant period from 7/1/97 to 6/30/00. In particular, in response to criticism by the 1996 NIOSH site visit team of the lack of interdisciplinary interactions among UOSHERC students, two new interdisciplinary courses were developed and have been offered annually since Academic Year 1997-98. Students and faculty from all UOSHERC institutions have actively participated.

The first interdisciplinary course is a case-study-based “ NIOSH ERC Interdisciplinary Seminar,” offered every Fall semester since 1997, to introduce students to the various health and safety subspecialties and to promote interdisciplinary, team-based approaches to solving health and safety problems. The second is a plant site visit course offered every spring semester since 1998, involving walkthrough surveys of seven different worksites in the metropolitan NY/NJ region. Both courses were co-directed during 1997-2000 by Drs. David Kotelchuck of Hunter College and Michael Gochfeld of UMDNJ/Robert Wood Johnson Medical School, thereby presenting students with ongoing perspectives both in industrial hygiene and occupational medicine. Each course is offered for academic credit at each of the UOSHERC participating institutions.

In addition UOSHERC has continued to have its regular annual scientific conferences, which it has been sponsoring annually for over 20 years. In recent years these conferences have attracted an audience of 70 to 100 attendees. The April 1998 conference was on Occupational Cancer; the April 1999 conference, our twentieth annual conference, on Occupational Asthma; and the highly successful April 2000 conference on Ergonomics. The keynote speaker at the ergonomics conference was Dr. Larry Fine, now Acting Director of NIOSH. All three conferences were held in Hatch Auditorium at Mt. Sinai School of Medicine. Also to enhance student and faculty opportunities for interdisciplinary interactions, the UOSHERC Management Committee began in 1998 sponsoring a luncheon during the conference for all ERC students and faculty. These have been highly successful events, and have been held annually ever since. Typically 25 to 35 UOSHERC students and faculty attend the luncheon, which is paid for by private, non-governmental school funds.

In another effort to encourage interdisciplinary interactions and encourage research participation among our ERC students and interns, UOSHERC has revived the tradition of having a Student/Intern Research Day annually, rather than every other year, as in the past. On October 9, 1998 a successful NIOSH ERC Student/Trainee Day was held at NJIT in Newark, NJ. Nineteen students and faculty attended from all UOSHERC programs, with research presentations by six students. In their evaluations students and faculty expressed great enthusiasm, both for the quality of the presentations, for the wide range of interests and skills demonstrated, and for the interdisciplinary interactions among the participants.

During the next academic year, the ERC Management Committee decided to hold this student research day during the spring semester, giving students more time to develop their studies and gather data. Thus the next academic year, Student/Intern Research Day was held on Wednesday, April 5, 2000, also at NJIT. This too was highly successful, with about 30 students and faculty in attendance. Based on the positive feedback from the Spring date, the ERC Management Committee has decided to make the Spring date for the conference an annual feature of the academic schedule.

Finally, in order to promote knowledge about this ERC and to further promote interdisciplinary interactions among its faculty and students, the Management Committee

has decided to establish a Web page for this ERC. Dr. Jack Caravanos of Hunter College developed the site and presented it to the Management Committee at its Fall 1999 meeting. The Management Committee approved, and the site went on line in February 2000 at <nynjerc.org>. The Webmasters are Dr. Caravanos and Mitchell Rosen, of the Continuing Education program at UMDNJ.

### B. Faculty/Leadership

Philip J. Landrigan, M.D., Chair of the Department of Community and Preventive Medicine and Director of the Division of Environmental and Occupational Medicine at Mount Sinai is the Center Director, a post that he assumed in 1985 when he came to Mount Sinai from NIOSH. Dr. David Kotelchuck succeeded Dr. Steven Markowitz as Deputy Director in 1998, and continues to direct the UOSHERC Industrial Hygiene program at Hunter College. Ms. Angela Lam, business manager at the Division of Environmental and Occupational Medicine of Mount Sinai, continues to serve as the principal fiscal manager for the Center, a role she has held since the inception of the ERC in 1978. Ms. Elsie Jimenez, an experienced staff person at the Mount Sinai School of Medicine, is program manager.

The decision-making body of the Center is the ERC Management Committee, comprised of the program directors from each of the constituent training programs within the ERC. Dr. Landrigan is Chairperson of the Management Committee. Other members during the 1997-2000 period were Gail Buckler, RN, MPH (UMDNJ School of Nursing), Jack Caravanos, DrPH, CSP, CIH (Hunter College), Michael Gochfeld, M.D, PhD. (UMDNJ/Robert Wood Johnson Medical School), Audrey Gotsch, DrPH (UMDNJ/Robert Wood Johnson Medical School), One-Jang Jeng, Ph.D. (New Jersey Institute of Technology), David Kotelchuck, PhD, CIH (Hunter College) and Jacqueline Moline, MD, MSc (Mt. Sinai School of Medicine. The Committee met three times per year during 1997-2000, except during 1998-1999, when it met four times.

### C. Program Developments

Philip J. Landrigan, M.D., Chair of the Department of Community and Preventive Medicine and Director of the Division of Environmental and Occupational Medicine at Mount Sinai has been Center Director since 1985, and has provided steady leadership to the Center over these years. However there have been several other changes in leadership during the period 1997-2000. In February 1998 Dr. Steven Markowitz, UOSHERC Deputy Director and Director of the Mt. Sinai Occupational Medicine Residency Program, left Mt. Sinai Medical School, and was succeeded as Deputy Director by Dr. David Kotelchuck of Hunter College, a longtime member of the ERC Management Committee.

Also, Dr. Jacqueline Moline, a board-certified occupational physician and experienced faculty member in the Occupational Medicine Program at the Mount Sinai School of Medicine, was appointed Director of the Occupational Medicine Program at

Mount Sinai in February, 1998, following Dr. Markowitz's departure. Then in February 1999, Dr. Jack Caravanos assumed the post of Director of the Hunter College Hazardous Substances Academic Training Program. This has allowed Dr. Kotelchuck to devote more of his time and attention to his responsibilities as UOSHERC Deputy Director, and co-Director of the ERC's interdisciplinary courses. Dr. Caravanos has been an ERC faculty member since 1984, and has been Director of the Environmental and Occupational Health Sciences Program since February 1997. Thus each of these three administrative changes resulted in the elevation of an experienced UOSHERC faculty member to a position of greater responsibility within this ERC.

#### D. Future Plans

No plans are being developed at this time to bring new programs into this ERC. However UOSHERC does intend to further develop its ties with other existing health and safety programs in the NY/NJ metropolitan area and in Puerto Rico. Specifically we intend to work more closely with the Industrial Hygiene Program at the University of Puerto Rico in San Juan, hopefully through the Pilot Project Research Training Program of which it is a partner, and with the newly established undergraduate program in Environmental Health Science at Medgar Evers College in Brooklyn, an historically minority institution which, like Hunter College, is part of City University of New York.

#### List of Publications

No publications were developed by the Center Administration during 1997-2000 through this ERC grant.

**Continuing Education / Outreach Program  
Final Report  
July 1, 1997 - June 30, 2000**

**UMDNJ  
Piscataway, New Jersey 08854**

**Audrey Rose Gotsch, DrPH  
Program Director & Acting Dean,  
UMDNJ School of Public Health**

**NIOSH Grant No. T42/CCT210425**

**March 15, 2001**

## **Abstract**

The Continuing Education and Outreach (CEO) Program within UOSHERC is run by the Center for Education and Training of the Environmental and Occupational Health Sciences Institute (EOHSI) of the University of Medicine and Dentistry of New Jersey, located in Piscataway, New Jersey. The primary mission of the program is to provide short-term training and continuing education courses for occupational physicians, occupational health nurses, industrial hygienists, occupational safety engineers and other occupational safety and health professionals, paraprofessionals and technicians, with emphasis on those in the New York and New Jersey region.

During the period from 1997 through 2000, the CEO program conducted a grand total of 556 courses for 7,839 persons, offering them about 11,770 person-days of training. The Program averaged one and one-half days of training per person trained per year, over this three-year period. The largest percentage of courses offered during this period, nearly one-third, were hazardous substances courses, followed closely by industrial hygiene and safety courses. The percentage of courses in occupational health nursing and occupational medicine were substantially less.

The largest numbers of trainees were safety professionals, followed closely by industrial hygiene and medical professionals. Less than five percent of the trainees were nursing professionals or were paraprofessionals in various OSH specialties. However the largest category of attendees by far were Others, who constituted about two-thirds of those trained. Specialties among those persons who were categorized as "Other" were environmental and occupational consultants, engineers and educators, who together made up about two-thirds of the Others.

The Continuing Education and Outreach Program at UMDNJ has been capably led by Dr. Audrey Gotsch since its inception over two decades ago. She was ably assisted during this grant period by an experienced staff, as well as a large number of specialty-area consultants. Needs assessments of CEO course attendees are vital to these operations. Also consultations with area experts are ongoing, and will help shape future course offerings.

## **I. Significant Findings**

This report summarizes the activities and accomplishments of the Continuing Education and Outreach Program at UMDNJ for the three academic years from 1997 to 2000. Our significant findings are as follows:

- During the period from 1997 through 2000, the CEO program conducted a grand total of 556 courses for 7,839 persons, offering them about 11,770 person-days of training. Thus the Program offered an average of about 185 courses per year, attended by an average of about 2600 persons per year, during this period.
- The Program averaged one and one-half days of training per person trained per year, over this three-year period.
- The largest percentage of courses offered during this period, nearly one-third, were in hazardous substances (32.7 percent), followed closely by industrial hygiene courses (29.5 percent) and safety courses (28.6 percent). Another 5.9 percent of the courses were in occupational health nursing, and 3.2 percent in occupational medicine courses.
- Among specific OSH specialty areas, the largest number of trainees were safety professionals, followed closely by industrial hygiene and medical professionals. Less than five percent of the trainees were nursing professionals or were paraprofessionals in various OSH specialties.
- The largest category of attendees by far were Others, who constituted about two-thirds of those trained. Specialties among those persons who were categorized as "Other" were environmental and occupational consultants, engineers and educators, who together made up about two-thirds of the Others.

## **II. Report:**

The Continuing Education and Outreach (CEO) Program within UOSHERC is run by the Center for Education and Training of the Environmental and Occupational Health Sciences Institute (EOHSI) of the University of Medicine and Dentistry of New Jersey, located in Piscataway, New Jersey. The primary mission of the program is to provide short-term training and continuing education courses for occupational physicians, occupational health nurses, industrial hygienists, occupational safety engineers and other occupational safety and health professionals, paraprofessionals and technicians, with emphasis on those in the New York and New Jersey region. Outreach efforts also include interactions with other colleges and universities in this region, labor unions, professional societies, educators in grades K-12 and vocational schools, and community groups.

## A. Accomplishments

During the period from 1997 through 2000, the CEO program conducted a grand total of 556 courses for 7,839 persons, offering them about 11,770 person-days of training. (Table 1) This results in an average of about 185 courses offered per year to about 2600 persons. The average number of person-days (one person-day consists of one person attending training for one full, eight-hour day) offered per year is about 3920 person-days, that is, about one and one-half (1.5) days of training per person trained per year, over this three-year period. (Technical note: The CEO Program offers courses throughout the year. Its data is routinely recorded based on the academic year, for example from 9/1/97 to 8/31/98, rather than by the NIOSH ERC grant year, from 7/1/97 to 6/30/98. Thus the three-year period covered in this part of the UOSHERC Final Report is from 9/1/97 to 8/31/00, rather than from 7/1/97 to 6/30/00, as in the rest of this report.)

The courses offered from 1997-2000 are also categorized in Table 1 by OSH specialty, that is occupational medicine (OM), occupational health nursing (OHN), industrial hygiene (IH), occupational safety (SAFETY) and hazardous substances (HAZ SUBST). According to these categorizations, the largest percentage of courses offered, nearly one-third of the courses, were in hazardous substances (32.7 percent), followed closely by industrial hygiene courses (29.5 percent) and safety courses (28.6 percent). Another 5.9 percent of the courses were in occupational health nursing, and 3.2 percent in occupational medicine courses.

Looking at who attends these courses by OSH specialty (Table 2), 1303 (16.6%) of the 7839 persons who attended these courses during this three-year period were safety professionals, followed by 440 (5.6%) and 436 (5.6%) who were industrial hygiene and medical professionals, respectively. Three hundred and seventy (4.7%) were paraprofessionals in various OSH specialties, and 256 (3.3%) were nursing professionals. However the largest category of attendees by far were Others, who constituted 64.2 percent of those trained. Specialties among those persons who were categorized as "Other" were environmental and occupational consultants, engineers and educators, who made up about two-thirds of the Others.

By employment sector (Table 3), the majority of attendees were from the private sector (51.6%). About one-third (35.6%) were from the various sectors of government – federal, state and local – and one eighth (12.4%) were from academia. Only twenty-seven persons (0.3%) were categorized as "Other", most of them foreign guests. Of the government sector attendees, about half were federal employees, and the rest were divided about 60-40 between state and local government employees, respectively.

Also it should be noted that the overall attendance at the various CEO courses and seminars was reasonably steady over the three-year grant period. As indicated both in Tables 1 and 2, the number of attendees in 1997-98 was 2,801, then dropped somewhat in 1998-99 to 2,001, and then jumped up to 3,033 in 1999-2000.

#### B. Faculty/Leadership

The Continuing Education and Outreach Program at UMDNJ has been capably led by Dr. Audrey Gotsch since its inception over two decades ago. She was ably assisted during this grant period by Carolyn Messina, EdM, who was Course coordinator for CEO Program; Mitchell Rosen, MS, Program coordinator for hazardous substance courses; Christine Delnevo, PhD, MPH, Data Manager; and Louise Weidner, PhD, staff evaluator. Each has served over a decade with the CEO Program. Course development was further aided by a large number of specialty-area professionals, including many in occupational medicine, occupational health nursing, industrial hygiene, safety and hazardous substances. This experienced staff, aided by the specialty consultants, and supplemented further by staff experienced in large mailing and field contact operations, makes this CEO Program a national leader in its field.

#### C. Program Developments

During the last grant period the CEO Program of EOHSI was housed in the Continuing Education and Training office in New Brunswick, NJ, where it will continue to function in future years. Much focus during the past three years has been on revising and revamping training courses better to meet the needs of potential course attendees. Thus, for example, Fundamentals of Industrial Hygiene was offered for three rather than five days, Certified Safety Professional and Comprehensive Industrial Hygiene Reviews were offered for the first time once a week for five weeks, rather than for five consecutive days. OSHA for the Construction Industry was changed to a 10-hour course to attract potential students seeking their needed OSHA card in a one-day course. Various courses were eliminated from the curriculum during this period due to low demand, among them Lead Abatement for Supervisors, Noise Measurement Workshop and Health and Safety in Health Care Environments. The process of needs assessment and course re-evaluation is a constant one for a continuing education operation of this scale.

#### D. Future Plans

Needs assessments of CEO course attendees are vital to these operations. The last comprehensive evaluation of course needs was carried out in 1996, and the program plans to update that assessment in the near future. Consultations with area experts will be ongoing, and will help shape future course offerings. Another major activity will be to continue to reach out to corporations, and ask them to adopt schools in their communities and support implementation of K-12 environmental and occupational health curricula, which have been developed in recent years by the program.

## List of Publications

Course brochures and announcements were developed for each of the continuing education and outreach courses, and sample copies of these were included in all grant applications during the three-year period. Course teaching materials were gathered from various professional sources and distributed during each course, but no new materials (other than the course curricula) were developed for the courses.

**Table 1**  
**COURSES AND TRAINEES BY GRANT YEAR**  
**CONTINUING EDUCATION/OUTREACH**  
**(1997-2000)**

<b>1997-1998</b>	<b>Course Name</b>	<b>Nr of Courses</b>	<b>Nr. of Trainees</b>	<b>Person-Days</b>
	<b>OM</b>	13	236	144
	<b>OHN</b>	9	118	264
	<b>IH</b>	61	866	1138
	<b>SAFETY</b>	50	696	1434.5
	<b>HAZ SUBST</b>	60	885	1385
	<b>Subtotal</b>	<b>(193)</b>	<b>(2801)</b>	<b>(4365.5)</b>
<b>1998-1999</b>				
	<b>OM</b>	4	73	36.5
	<b>OHN</b>	10	96	272
	<b>IH</b>	46	684	1041.5
	<b>SAFETY</b>	36	518	857.75
	<b>HAZ SUBST</b>	45	634	800
	<b>Subtotal</b>	<b>(141)</b>	<b>(2005)</b>	<b>(3007.75)</b>
<b>1999-2000</b>				
	<b>OM</b>	1	88	77
	<b>OHN</b>	14	144	402
	<b>IH</b>	57	762	874
	<b>SAFETY</b>	73	1217	1589
	<b>HAZ SUBST</b>	77	822	1454
	<b>Subtotal</b>	<b>(222)</b>	<b>(3033)</b>	<b>(4396)</b>
<b>G'D TOTAL</b>	<b>(1997-2000):</b>	<b>556</b>	<b>7839</b>	<b>11769.25</b>

**Table 2**  
**COURSES AND TRAINEES BY DISCIPLINE**  
**CONTINUING EDUCATION/OUTREACH**  
**(1997-2000)**

<b>Discipline</b>	<b>1997-1998</b>	<b>1998-1999</b>	<b>1999-2000</b>	<b>TOTALS</b>
<b>Medicine</b>	239	94	103	<b>436</b>
<b>Nursing</b>	95	58	103	<b>256</b>
<b>Ind. Hygiene</b>	208	114	118	<b>440</b>
<b>Safety</b>	400	436	467	<b>1303</b>
<b>Paraprof'l</b>	151	102	117	<b>370</b>
<b>Other</b>	1708	1201	2125	<b>5034</b>
<b>TOTALS:</b>	<b>2801</b>	<b>2005</b>	<b>3033</b>	<b>7839</b>

**Table 3**  
**COURSES AND TRAINEES BY EMPLOYER**  
**CONTINUING EDUCATION/OUTREACH**  
**(1997-2000)**

<b>Employer</b>	<b>1997-1998</b>	<b>1998-1999</b>	<b>1999-2000</b>	<b>TOTALS</b>
<b>Private Ind.</b>	1430	997	1621	<b>4048</b>
<b>Fed. Gvt.</b>	412	422	425	<b>1259</b>
<b>State Gvt.</b>	338	248	298	<b>884</b>
<b>Local Gvt.</b>	160	97	394	<b>651</b>
<b>Academic</b>	454	231	285	<b>970</b>
<b>Other</b>	7	10	10	<b>27</b>
<b>TOTALS:</b>	<b>2801</b>	<b>2005</b>	<b>3033</b>	<b>7839</b>



DEPARTMENT OF HEALTH & HUMAN SERVICES

Memorandum

Date July 23, 2002

From Principal Engineer, OEP, NIOSH

Subject Final Progress Report for entry into NIOSHTIC2/NTIS for  
NIOSH Training Grant No. T42 CCT 210425

To Vern P. Anderson, Chief, IRB, EID (C-18)

The enclosed report has been received from the Center Director to document work performed during the specified grant project period. The following information applies to the designated Education and Research Center (ERC):

Title: Universities Occupational Safety and Health Education and  
Research Center

Center Director: Philip J. Landrigan, M.D.  
Mount Sinai School of Medicine  
New York, NY 10029

Grant No.: T42 CCT 210425

Project Period: 7/1/97 - 6/30/2000

Please place the report in DIDS and I also recommend it for entry into NIOSHTIC2 and submission to NTIS.

Thanks for your assistance.

A handwritten signature in black ink that reads "John T. Talty".

John T. Talty, P.E., DEE

cc: S. Board/B. Kuchinski, OEP

Enclosure

fpr.mssm