

# **FINAL PROGRESS REPORT**

**Institute of Occupational and Environmental Health  
West Virginia University School of Medicine  
Morgantown, WV 26506-9190**

**New Directions in Occupational Health Training  
T01/CCT310455**

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**Sponsoring Agency:  
DHHS/PHS/CDC/NIOSH**

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**LIST OF ABBREVIATIONS**

ABPM	American Board of Preventive Medicine
ACGME	Accreditation Council for Graduate Medical Education
ACOEM	American College of Occupational and Environmental Medicine
ARC	Appalachian Regional Commission
CEU	Continuing Education Units
CME	Continuing Medical Education
DRDS	Division of Respiratory Disease Studies
DSR	Division of Safety Research
IOEH	Institute of Occupational of Environmental Health
MPH	Master of Public Health
NIOSH	National Institute for Occupational Safety and Health
OM	Occupational Medicine
PGY	Post-Graduate Year
WVU	West Virginia University

## ABSTRACT

The two year Occupational Medicine (OM) training program at the Institute of Occupational and Environmental and Health of West Virginia University prepares physicians for board certification by the American Board of Preventive Medicine (ABPM) in OM. The program was fully reaccredited without citations by the ACGME in May 2002. It is unique in being the only rural-based OM training site in the country and specifically seeks to address the shortage of OM physicians in the Appalachian region.

The first year of the program consists of coursework towards completion of a Master of Public Health degree with a Special Emphasis in Occupational and Environmental Health. The curriculum has emphasized industrial hygiene, toxicology and interdisciplinary interaction. The practicum year includes a wide variety of industrial, administrative, and clinical rotations. All trainees in the program rotate either through the Division of Respiratory Disease Studies or the Division of Safety Research at NIOSH for 6 months and participate in national-level field investigations of outbreaks of occupational lung disease or workplace fatalities. An innovative program of interdisciplinary training, the Small Business Outreach, offered a unique educational experience for residents, industrial hygiene and safety students to participate in field investigations on a smaller scale in settings with a disproportionate level of occupational morbidity, as well as boost public health within the state. Additional rotations have been developed both inside and outside of the state to ensure a broad exposure and accommodate trainee career goals. Throughout both years of the program, trainees also participate in the OM clinic operated through the institute. In 2006, a dedicated Post-Graduate Year 1 will become available, making this the only OM program in the country to offer all three years of training.

The training activities of the Institute have extended well beyond the residency program and include all the three medical schools in the state, practicing physicians nationally and internationally through the American College of Occupational and Environmental Medicine's (ACOEM) Basic Curriculum in Occupational Medicine as well as a new summer course in Occupational Health, one of only two courses accredited by the ABPM for recertification requirements in OM.

Eleven trainees graduated from the program under the five year project period, seven of whom hold board certification in another area. Seven are in full time OM practice in a rural area, and seven are in full time OM practice in the Appalachian region. Trainees have been recipients of national awards for research from ACOEM consecutively from 2000 to 2005.

## **HIGHLIGHTS/SIGNIFICANT FINDINGS**

**A new two-week Appalachian Summer Course in Occupational Health.** This course is accredited for 50 hours for Continuing Medical Education (CME) for physicians and Continuing Education Units (CEU) for nurses. It is designed not only for trainees from all three NIOSH supported programs at WVU but also practicing professionals and is one of only two onsite courses in the country accredited by the American Board of Preventive Medicine for recertification requirements in Occupational Medicine. The only other accredited recertification course is offered by the University of California at San Francisco.

**IOEH Tuesday Rounds.** These are CME and CEU accredited and are carried every week using video conferencing to an OM physician in DuBois, Pennsylvania and to the Office of Medical Services of the Workers' Compensation Commission for nurses and physicians in Charleston, West Virginia.

**Basic Curriculum in Occupational Medicine.** Through his role as an Associate Course Coordinator and lecturer, Dr. Martin has been involved in the introduction of over 450 people (mostly physicians) to the field of occupational medicine through this course offered in three parts of two days each by the American College of Occupational and Environmental Medicine.

**NIOSH-approved Spirometry Course.** This course is CME and CEU accredited and is taught in conjunction with NIOSH DRDS personnel. Students can combine this course with audiology training in one week.

## **IMPACT**

This is the only training program for physicians who wish to become board certified in occupational medicine based in a rural location. The program has been successful in training occupational health to large numbers of students at many levels regionally, nationally and internationally. Seven of the eleven graduates of the program under the project period are in practice in rural settings and seven are in located in Appalachia, as defined by the Appalachian Regional Commission (ARC).

## SCIENTIFIC REPORT

### Background

The shortage of OM physicians in the United States is well-recognized. Current training programs are not only failing to meet this need, but are not replacing OM physicians lost through attrition. More alarmingly, the number of OM training sites has declined in recent years: currently there are 29 active, non-military programs. It is therefore particularly important to support high-quality, stable training programs. We are the only rural-based OM training program in the country, and have successfully placed a majority of recent graduates in full-time OM practice in the Appalachian region, an underserved area well-recognized as having an at risk population for occupational disease and injuries.

It is further recognized that the Appalachian region has an unacceptably high level of occupational injuries and disease. Based on the most recent US Department of Labor statistics for 2002, West Virginia reported 6.3 workplace injuries and illnesses per 100 full-time workers, second highest in the Southeast and above the national rate of 5.3. The rate of serious injuries and illnesses also exceeded that of the nation as a whole (3.6 versus 2.8 per 100 full-time workers). The situation is compounded by a shortage of board certified OM physicians. Excluding NIOSH Morgantown, there are a total of only ten in the entire state, of whom five are graduates of the program and seven are connected to the IOEH either as faculty or adjunct faculty. The training program is therefore essential not only in addressing the regional shortage of OM physicians, but also serving as an important focal point connecting all OM practitioners in the state.

### Aims

We perceive serious under-recognition and inadequate prevention and treatment of environmental disease, including workplace-related illnesses, statewide. The need for well-trained physicians specializing in occupational and environmental medicine, and for primary care physicians having appropriate training in the field to meet the needs of the region cannot be overstated. The aim of this program is therefore clear: To train skilled professionals who understand work places, recognize and manage occupational disease and injuries as members of a team, and who are prepared for and dedicated to mitigation and prevention in the Appalachian region.

### Procedures and Methodology

Currently, this is a two year program for physicians who wish to become candidates for board certification by the American Board of Preventive Medicine in Occupational Medicine. Applicants must obtain a minimum of one year of clinical training prior to entering the program through completion of an ACGME-approved PGY-1. The first year of the program (PGY-2) consists of coursework leading to the Master's of Public Health (MPH) degree. During the second year of the program (PGY-3), trainees engage in a variety of clinical, industrial, governmental, administrative and research experiences.

The IOEH occupies a unique position of strength with regard to physician training in occupational and environmental health. As part of the School of Medicine of the state university, it has a voice in the curriculum that medical students are required to undertake. IOEH faculty has substantial teaching commitments in public and occupational health for a year-long course provided to all second year medical students. Specific teaching in occupational health is also provided to the West Virginia School of Osteopathy by IOEH faculty in the first year of this curriculum.

As a consultant to the West Virginia Workers' Compensation Commission, the IOEH influences policy at the state level. As a state-financed neutral consultant to businesses and worker groups with health and safety needs, we have a presence that is recognized at several levels of the state economy. As the academic analyst of the state's workers' compensation fund, we have developed a thorough understanding of the population aspects of work injury in our state which has guided our research efforts. As one of the busiest in-house academic occupational medical clinics in the nation, we see the illness and injuries first-hand. The IOEH also consults to state agencies with environmental interests (Poison Control, Lead Poisoning Prevention) to whole towns with environmental problems, and to neighborhoods with concerns about proposed site facilities. Accordingly, the faculty and facilities are well adapted for instruction in occupational and environmental health. The IOEH faculty also share joint appointments with other clinical departments, including family medicine, internal medicine, pediatrics, nursing, and psychiatry, and are therefore in a position to influence teaching throughout the clinical departments of the School of Medicine.

Furthermore, the program benefits from a close relationship with NIOSH's largest facility, located on campus within walking distance from the Health Sciences Center. All trainees spend six months part-time at NIOSH and a large number of NIOSH personnel are active in numerous educational efforts through IOEH. Currently seventeen NIOSH employees hold adjunct appointments within the Institute. Collaboration extends beyond the residency and includes a NIOSH-approved Spirometry course and a new Appalachian Summer Course in Occupational Health.

All trainees have dedicated office space with individual computer work stations in the Institute. With an average of almost 400 patient visits per month, the clinical practice through the Institute is one of the busiest academic occupational medicine clinics nationally, and is an important resource in the region. A full spectrum of clinical care is offered including acute injury management, complex consultations for toxic exposures or musculoskeletal conditions as well as independent medical examinations and disability assessments. The presence of a large NIOSH facility on our campus is a unique asset of the program and allows trainees to have access to state-of-the-art library, research and numerous other educational offerings (weekly seminars, visiting speakers, B-reader syllabus).

### **Program Faculty**

Trainees benefit from a large number of WVU faculty as well as adjunct faculty from all three Divisions of NIOSH Morgantown and other external agencies. Support from NIOSH personnel is evident in a variety of capacities: Interviewing and evaluating all applicants to the program, serving on the Residency Advisory Committee supervising and teaching residents on rotation at DSR or DRDS, lecturing in weekly rounds, and through joint educational offerings (NIOSH-Approved Spirometry Course and Summer Course in Occupational Health).

Additional faculty from external to the Department of Community, the School of Medicine and WVU provide a wide breadth of expertise to the program encompassing the scope of the field.

<b>Core Faculty</b>	<b>Title</b>	<b>Specific Competency</b>
Chris Martin, MD, MSc	Assistant Professor	Program Director
Charles Wertz, DO, MPH	Assistant Professor	Associate Residency Director
Alan Ducatman, MD, MS	Professor & Chair, Department of Community Medicine	Occupational Medicine, Environmental Health
Edward Doyle, MD, MPH	Professor & Director, IOEH	Occupational Medicine, Musculoskeletal Disorders
Dawn Castillo, MPH	Chief, Field Studies Branch, DSR, NIOSH	NIOSH DSR Preceptor, Occupational Injuries and Fatalities
Richard Kanwal, MD, MPH	Medical Officer, Field Studies Branch, Division of Respiratory Disease Studies, NIOSH	NIOSH DRDS Preceptor, RAC member

<b>Supporting Faculty</b>	<b>Title</b>	<b>Specific Competency</b>
David Brown, PhD	Associate Professor	Health Policy
Cathy Coyne, PhD	Assistant Professor	Social and Behavioral Theory
Geri Dino, PhD	Assistant Professor	Health Management
Robert Gerbo, MD	Clinic Director, IOEH	Occupational Medicine
Ray Goldsteen, PhD	Associate Professor	Health Policy
Chuanfang Jin, MD, MPH	Assistant Professor	Occupational Medicine
George Kelley, DA, FACSM	Professor, Director Meta-Analytic Research Group	Biostatistics
Warren Myers, PhD, MPH, CIH	Associate Dean for Student Affairs, College of Engineering and Mineral Resources	Industrial Hygiene
Mark Reasor, PhD	Professor, Physiology and Pharmacology	Toxicology, RAC member
Ian Rockett, PhD, MPH	Professor, Associate Chair, Educational Programs	Epidemiology

<b>Adjunct Faculty</b>	<b>Title</b>	<b>Specific Competency</b>
Michael Attfield, PhD	Epidemiologist, DRDS, NIOSH	Epidemiology, Occupational Lung Disease
Marsha Lee Bailey, MD, MPH	Consultant, Occupational Medicine, Hurricane, West Virginia	Primary Care of Injured Workers, OSHA recordables
James Becker, MD	Medical Director, West Virginia Workers' Compensation Commission	Workers' Compensation
Robert Castellan, MD, MPH	Medical Officer, Office of the Director, NIOSH	Occupational Lung Disease
Jean Cox-Ganser, PhD	Statistician, Division Of Respiratory Disease Studies, NIOSH	Occupational Lung Disease, Biostatistics
Kerry Gately, MD, MPH	Medical Director, Kanawha-Charleston County Public Health Department	General Preventive Medicine
Paul Henneberger, DSc	Epidemiologist, DRDS, NIOSH	Epidemiology, Occupational Lung Disease
Richard Kennedy, MSc	Senior IT Administrator, DSR, NIOSH	US Preventive Health System
Kay Kreiss, MD, MPH	Chief, Field Studies Branch, DRDS, NIOSH	Occupational Lung Disease
John Parker, MD	Chief, Section of Pulmonary and Critical Care Medicine	Occupational Lung Disease
Kara Perritt, MPH	Supervisory Statistician, DSR, NIOSH	NIOSH DSR Preceptor, Occupational Injuries and Fatalities
Mohammed Ranavaya, MD, MS	Consultant in Occupational Medicine, Chapmanville, WV	Independent Medical Evaluations
Nancy Sahakian, MD, MPH	Medical Officer, Division of Respiratory Disease Studies, NIOSH	Occupational Lung Disease
David Weissman, MD	Medical Officer, Health Effects Laboratory Division, NIOSH	Occupationally-related Allergies

Christopher Martin, MD, MSc joined the IOEH faculty in 1999 after completing the 5-year Canadian residency program in occupational medicine at the University of Alberta in Edmonton, Alberta. He holds specialty credentials in occupational medicine in both Canada and the USA. He is an Assistant Professor in the Department of Community Medicine and, as Residency Director, devotes in essence his full time to administrative, clinical, and didactic elements of the residency program. He communicates with practicum preceptors in order to ensure appropriate resident experiences, assistance with research projects, and assurance of adequate performance on the part of residents. Dr. Martin's clinic also serves as a teaching forum for the residents. Dr. Martin has strengthened the existing resident rotation at NIOSH DRDS and developed new rotations at NIOSH DSR, Marshall University, Oasis Occupational Rehabilitation and Workers' Compensation.

He has rapidly distinguished himself as a gifted educator, at WVU and nationally. At WVU, he coordinates two second year medical school courses: CCMD 712 *Epidemiology & Biostatistics* and CCMD 713 *Health of the Public* as well as the Public Health Module of the *Summer Course in Tropical Medicine and Parasitology*, one of only seven courses in the country accredited by the American Society of Tropical Medicine and Hygiene. At the West Virginia School of Osteopathy, he provides six hours of lectures annually to first year students. He is involved in teaching activities at regional, national and international levels through the American College of Occupational and Environmental Medicine's (ACOEM) three part *Basic Curriculum in Occupational Medicine*. In 2004, he was the recipient of the Dean's Award for Excellence in Education and in 2002 was voted by the second year medical school students to receive the MacLachlan Award for excellence in teaching.

He sits on the curriculum committees of the MPH program and the School of Medicine, the Health Care Advisory Panel of the Workers' Compensation Commission and the Advisory Committee for the International Health Program of the School of Medicine. He has been a member of the Occupational Medicine Exam Subcommittee of the American Board of Preventive Medicine since 2000 and the Core Exam Committee since 2004. He was elected to Chair the Residency Directors' Committee of ACOEM in 2004.

Charles Werntz, DO, MPH graduated from the OM training program in 2002 and assumed the position of Associate Residency Director. He also completed an Internal Medicine residency at WVU. His familiarity with the institutional training programs has been applied in many ways: he coordinated the new PGY-1 rotations and increased referrals to the IOEH clinic from other clinical departments, especially the Emergency Department. He is responsible for the organization of the resident noon conferences and weekly lectures. Additionally, with Dr. Ducatman, he teaches the core course PUBH 650 *Environmental Health* in the MPH program. He provides essential support to Dr. Martin in the administrative components of the residency including baseline and periodic trainee evaluations. In addition to his clinic through the Institute, Dr. Werntz ensures that trainees visit workplaces regularly (power plants, coal mines) and participates in on site medical examinations.

Alan M. Ducatman, MD, MSc is Professor of Medicine at West Virginia University and Chair of the Department of Community Medicine in the School of Medicine. He has overall responsibility for all educational activities of the Department of Community Medicine. In addition, he helped create the state-wide MPH program, and he teaches actively in that program as well as in the medical school curriculum. As consultant to public and private concerns in the state, he has been a strong advocate for workplace public health in state government, business, and labor venues. He has served as a Trustee of the American Board of Preventive Medicine, Chairs the Residency Review Committee of the ACGME and has been the Principal Investigator on grants from NIOSH (Occupational Health and Safety for Small Business), the EPA Hazardous Substance Research Center (Hazardous Substance Management program) and the WV Department of Labor (Trend and Cluster Analysis, Evaluation of Managed Care, Vertically Integrated

Services, Point of Sale Drug Utilization Review). He provides important mentorship to trainees and junior faculty.

Edward J. Doyle, Jr. MD, MS joined the IOEH faculty in 1995 as clinical director. With Dr. Ducatman's assumption of the position of Chair of the Department of Community Medicine, Dr. Doyle became IOEH director. Dr. Doyle has a significant share of the teaching of residents in the clinic setting. He is primarily responsible for the oversight of residents in the Family Medicine and Occupational/Environmental Medicine specialty clinics. Additionally, he assists in providing a smooth interface between the Workers' Compensation Commission and the residents, and he has responsibility for training the residents in this complex facet of occupational medicine. He has served on the Institutional Review Board for the Workers' Compensation Commission, as a consultant to the Office of Medical Services and Chair of the Health Care Advisory Panel. He is on the Board of Directors of the American Lung Association of West Virginia and participates as an ALA Media Spokesperson for Clean Air. His clinical and research interests include musculoskeletal injury, cumulative trauma disorders, and the policy issues attending medical management of workers' compensation cases.

A Residency Advisory Committee (RAC) provides external oversight of the program. We believe in a smaller RAC which is actively engaged in guiding the program. The RAC consists of the following members:

Name	Title	Role/Representation
David Deeter, MD, MPH	Medical Director, General Motors	Chair, Industry
James Weeks, ScD, CIH	Senior Scientist, Advanced Technologies and Laboratories Inc and Consultant, International Union of the United Mine Workers of America	Labor
Philip Franklin, MD, MPH	Medical Director, Sanofi-Aventis Pharmaceuticals	Program Graduate, Industry
James Becker, MD	Medical Director, Workers' Compensation Commission	State Government
Stephen Guffey, PhD, CIH	Professor, College of Engineering and Mineral Resources	Industrial Hygiene Training Program
Richard Kanwal, MD, MPH	Medical Officer, DRDS, NIOSH	Federal Government
Mark Reasor, PhD	Professor, Physiology and Pharmacology	Toxicology, Training of residents external to department

## Results

During the five years of the project period (July 1, 2000 – June 30, 2005):

- Eleven trainees graduated from the program.
- Seven are in OM practice in rural areas
- Seven are in OM practice in the Appalachian region
- The five most recent graduates passed the certification exams in OM by the ABPM on the first attempt.

In a recent anonymous survey of ten graduates, all reported a high level of satisfaction with their training and felt they were well prepared for the practice of Occupational Medicine. All of these graduates are now board certified in Occupational Medicine. Comments conveyed included: “clinic activities were excellent”; “well rounded experience” and “wonderful research opportunities at NIOSH”.

In each of the past five years (2000-2005), an abstract submitted by a current trainee has been selected through a national competition for presentation at the Resident and Recent Graduates Section, Frontiers in Occupational Session at the American Occupational Health Conference. The only other program with similar active record is Harvard University.

**TRAINEE SUMMARY JUNE 2000 – 2005**

<b>Name</b>	<b>Date of Graduation</b>	<b>Training Obtained</b>	<b>Publications/Presentations During Training</b>	<b>Current Position</b>
Ghazala Kazi (Afaq) MD, MPH	June 2000	Practicum Year	Cocalis J, Burton N, Hearl FJ, Afaq G, Trout D, Hintz P, Pickett-Harner M. <i>Workers Exposed to Class B Biosolids During and After Field Application</i> . NIOSH Hazard ID; August, 2000. Publication No. 2000-158.	TriState Occupational Medicine, Martinsburg, WV
Gregory Park, MD	Withdrew February 2000, citing personal reasons.			
Maurice Baker, MD, MPH	December 2000	MPH, Practicum Year		VA Hospital, Clarksburg, WV
Hongfei Li, MD, PhD, MPH	June 2001	MPH, Practicum Year	Li H, Wang ML, Seizas N, Ducatman, A, et al. <i>Respiratory Protection: Associated Factors &amp; Effectiveness of Respirator Use Among Underground Coal Miners</i> . Am J of Preventive Medicine July, 2002 42: 1, pp 55-62.	Concentra Medical Center Elkridge, MD.
Ibrahim Heiba, MD, MTM&H	June 2001	Practicum Year	Heiba I, Schumpert J, Hoffman C, and Kreiss K. <i>Benzylkonium Chloride as the Cause of Occupational Asthma in a Health Care Worker</i> . American Occupational Health Conference, San Francisco, 2000.	Staff Physician, Eastman Chemical, Kingsport, TN
Charles Werntz, DO, MPH	June 2002	MPH, Practicum Year	Werntz C, Casini V, and Mardis A. <i>Fourteen-Year-Old Rental Equipment Worker Dies from Asphyxiation After Becoming Entangled in an Electric Chain Hoist – Colorado</i> . NIOSH FACE Report #2001-13.  Werntz C and Martin C. <i>Zinc Protoporphyrin Changes Following Acute Lead Intoxication</i> . American Occupational Health Conference, Chicago, 2002.	Assistant Professor, IOEH, WVU Morgantown, WV

			<p>Martin CJ, Werntz III CL, and Ducatman AM. <i>The interpretation of zinc protoporphyrin changes in lead intoxication: A case report and review of the literature.</i> Occup Med 54(8):587-91; 2004.</p> <p>Martin CJ, Werntz III CL, and Ducatman AM. Letter of Reply Re: <i>The interpretation of zinc protoporphyrin changes in lead intoxication: A case report and review of the literature.</i> Occup Med 55(5):406; 2005.</p>	
William Hoh, MD, MPH	June 2002	MPH, Practicum Year		Medical Advisor, Office of Medical Management, Workers' Compensation Commission, Charleston, WV.
Chuanfang Jin, MD, MPH	June 2003	MPH, Practicum Year	<p>Jin C and Higgins D. <i>Hispanic Carpenter Dies After Being Crushed Between the Loader Bucket of a Backhoe/Loader and a Concrete Building - North Carolina.</i> NIOSH FACE Report #2003-06.</p> <p><a href="http://www.cdc.gov/NIOSH/FACE/in-house/full200306.html">http://www.cdc.gov/NIOSH/FACE/in-house/full200306.html</a></p> <p>Jin C, Haut M, Ducatman A. <i>Industrial Solvents and Psychological Effects.</i> Clin Occup Environ Med. 2004 Nov;4(4):597-620</p>	Assistant Professor, IOEH, WVU Morgantown, WV
Matthew Caddell, DO, MPH	June 2003	Practicum Year	<p>Caddell M, Downey B, and Petsonk E. <i>Does the Quality of an Establishment's Respiratory Protection Program Affect the Occurrence of Occupational Disease Outcomes? A BLS Study.</i> American Occupational Health Conference. Atlanta 2003.</p>	Assistant Professor, Department of Preventive Medicine, SUNY, Stony Brook, NY
Joseph Ascue, MD, MPH	Withdrew December 2003, citing unspecified personal reasons.			

Syed Sohail, MD, MPH	June 2004	MPH, Practicum Year	<b>Sohail S.</b> <i>Evaluation of "Other Symbols" Abnormalities in the National Coal Workers X-Ray Surveillance Program.</i> Poster Presentation, American Occupational Health Conference, Kansas City, 2004.	Adams County Memorial Hospital, Decatur, IN
William Cutlip, MD, MPH	Withdrew January 2005 to accept non-occupational medicine position.	MPH, Practicum Year	<b>Cutlip W, and Martin CJ.</b> <i>Hand-arm vibration syndrome: Are we left out in the cold?</i> OEM Report February, 2004. <b>Cutlip W and Martin C.</b> <i>Evaluation of Workers Diagnosed with Hand-Arm Vibration Syndrome.</i> American Occupational Health Conference, Kansas City, 2004.	Chestnut Ridge Counseling Services, Uniontown, PA
Gerard deGuzman, MD	June 2005	MPH, Practicum Year	<b>Higgins D and deGuzman G.</b> <i>Chain Saw Operator Dies After Being Struck by Excavator Bucket During Site Clearing - North Carolina.</i> NIOSH FACE Report #2004-07. <a href="http://www.cdc.gov/NIOSH/FACE/In-house/full200407.html">http://www.cdc.gov/NIOSH/FACE/In-house/full200407.html</a> <b>deGuzman G and Higgins D.</b> <i>Hispanic Sawmill Worker Dies Inside Storage Silo After Being Engulfed In Sawdust - North Carolina.</i> NIOSH FACE Report #2004-07. <a href="http://www.cdc.gov/NIOSH/FACE/In-house/full200409.html">http://www.cdc.gov/NIOSH/FACE/In-house/full200409.html</a>	Dr. Powledge Occupational Medicine, PC. Roanoke, VA
Kristin Cummings, MD, MPH	June 2005	Practicum Year	<b>Cummings K.</b> <i>A preventive program for decreasing sensitization in beryllium workers.</i> American Occupational Health Conference. Washington DC, 2005.	Epidemic Intelligence Service, NIOSH DRDS, Morgantown, WV
Joseph Chesky, MD, MPH	June 2005	Practicum Year	<b>Chesky JF and Higgins D.</b> <i>Hispanic Youth Dies in Densifier at a Plastics Recycling Plant - Tennessee.</i> NIOSH FACE Report # 2005-05. <a href="http://www.cdc.gov/NIOSH/FACE/In-house/full200505.html">http://www.cdc.gov/NIOSH/FACE/In-house/full200505.html</a>	Medical Director, Occupational Medicine Division, Ephrata PA.

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## DISCUSSION AND CONCLUSION

The Institute of Occupational and Environmental and Health (IOEH) at West Virginia University training program in occupational medicine produces skilled professionals who understand workplaces, diagnose and treat injured workers, and who are prepared for and dedicated to the public health aspects of mitigation and prevention in the region.

The residency program underwent a review by the Accreditation Council for Graduate Medical Education in 2002 and full 5-year re-accreditation was achieved under new competency-based requirements. During the project period, eleven trainees graduated from the program, similar to programs based at much larger centers. Most trainees are board certified in another specialty and all have post-graduate training or experience beyond the minimum requirement of one year.

Our program has a reputation for high quality graduates with strong clinical skills. The practice through the Institute is one of the busiest academic occupational medicine clinics in the country, and is a unique resource in the region. A full spectrum of care is offered including acute injury management, surveillance examinations, complex consultations for exposures or musculoskeletal conditions as well as independent medical examinations and disability assessments. Our graduates have assumed a variety positions in industry, private or hospital-based practice with a significant component of clinical care. Recruitment efforts are directed at physicians who express a desire to remain in the area. Accordingly, seven of the most recent graduates of the program are in practice in the Appalachian region and seven in rural settings.

In addition to clinical work, our program offers an in-depth research experience. The presence of NIOSH's largest facility in the country on our campus is a unique asset of the program. Working through IOEH faculty, NIOSH personnel are actively engaged in training efforts at many levels: medical school, Master of Public Health, residency, and continuing medical education. All trainees in the program rotate through either the Division of Respiratory Disease Studies or the Division of Safety Research on a part-time basis for 6 months. They participate in national field investigations, data analysis, and project presentation. Because of an extensive experience at both NIOSH and WVU, trainees have been recipients of national awards for research in each of the past three years.

With respect to outreach, the Institute serves as a consultant to the Workers' Compensation Commission of the State of West Virginia, and has effected major changes in the way in which work-related injuries and illnesses are managed. A health and safety outreach service to small businesses in West Virginia offered a unique educational experience for residents, industrial hygiene and safety students to participate in field investigations on a small scale in settings with a disproportionate level of occupational morbidity, as well as to promote public health within the state. With the addition of a new clinical and industrial rotation based at Marshall University in Huntington, the IOEH has educational activities in occupational health at all three medical schools in the state.