

# Division of Occupational and Environmental Medicine (OEM) Annual Newsletter: Winter-Spring 2020

## CME 2020: Being an Occupational and Environmental Health "Detective", and Updates in Occupational and Environmental Medicine

REGISTER ONLINE NOW! <https://cme-reg.configio.com/pd/67/being-an-occupational-and-environmental-health-detective-updates-in-occupational-and-environmental-medicine?returncom=productlist>

Detailed course information at: <https://www.ucsfcmec.com/2020/MDM20No1/info.html>

The Division of Occupational and Environmental Medicine is gearing up for its upcoming Continuing Medical Education (CME) course in March 2020. This educational event will take place in San Francisco over two and a half days, beginning Thursday morning, March 5th and ending midday on Saturday, March 7th. There will also be a special poster abstract session and opening reception on the evening of Wednesday March 4th, before the course lectures begin the next day. This year the venue has remained at the San Francisco Marriot Fisherman's Wharf, which in addition to excellent meeting facilities, is attractively situated for out-of-town attendees.

The 2020 Occupational and Environmental Medicine CME course will include a thematic focus for the pre-course evening poster session and the first day of lecture presentations: Being an Occupational and Environmental Health "Detective". The second day and last half day will cover multiple topics on the theme: Updates in Occupational and Environmental Health.

The presentations included in Being an Occupational and Environmental Health "Detective" theme will include:

- History Lessons: Sentinel Occupational and Environmental Events
- Taking an Occupational and Environmental History
- What Lung Function Study Should I Order and Why?
- Toxicology Testing – A Guide to the Perplexed
- Workplace Safety and Health: An Investigative Reporter's Experience
- Special Senses and Special Testing
- Bibliography and Bibliometrics: How to Search
- The Nuts and Bolts of an Outbreak Investigation

The closing panel for this theme will be:

*"Being a Detective"*

The Updates in Occupational and Environmental Medicine will include expert presentations on a wide range of topics, including:

- Robotics, Co-botics, and Enhanced Mechanics [Resistance is Futile]
- Office Ergonomics 101
- Occupational Issues in Laboratory Animal Handling
- Autoimmune Disease and Occupation
- The Occupational Burden of Respiratory Disease
- Ethical Concepts and Challenges in Occupational Health
- OEM Published Research: The Year in Review
- Unexpected Radiation Exposure Scenarios
- Occupational Health Monitoring for Emergency Responders
- Use of Low Dose CT Scanning for Early Lung Cancer Detection Among High Risk Workers

The closing panel for the Updates theme will be: *What Are the Persistent or Emerging Problems in Occupational and Environmental Medicine?*

This course is designed to provide occupational and environmental health professionals and persons from other health-related disciplines with a review and update of current data in occupational and environmental medicine.

It is intended to meet the needs of primary care providers and others engaged in occupational health practice and research including physicians (family physicians, general practitioners, internists, and emergency medicine specialists), nurse practitioners and other nursing professionals, as well as physician's assistants, industrial hygienists, and health researchers and policy makers.

We are approved for a maximum of 19.00 hours of CME credit for standard certification (including medicine, nursing, and physician assistant CME) as well as for maintenance of certification (MOC Part II) credits in Occupational and Environmental Medicine, and for Qualified Medical Evaluators (QME) credits.



University of California  
San Francisco



Division of Occupational and Environmental Medicine  
Department of Medicine • University of California, San Francisco



Being an Occupational and  
Environmental Health "Detective"  
and Updates in Occupational  
and Environmental Medicine

San Francisco Marriott Fisherman's Wharf  
San Francisco, CA

THURSDAY – SATURDAY  
March 5-7, 2020

#### COURSE CHAIRS

**Paul D. Blanc, MD, MSPH**  
Professor of Medicine, Endowed Chair and Division Chief  
Occupational and Environmental Medicine  
University of California, San Francisco

**Robert Kozlik, MD, DPH**  
Professor of Medicine, Medical Director, UCSF Occupational Health Services  
Division of Occupational and Environmental Medicine  
University of California, San Francisco

**Samuel M. Goldman, MD, MPH**  
Associate Professor of Medicine and Neurology  
Division of Occupational and Environmental Medicine  
University of California, San Francisco

**ADDITIONAL EVENT WEDNESDAY, MARCH 4**  
Evening Scientific Poster Session and Opening Reception – Call for Abstracts to Follow

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## About Dr. Samuel M. Goldman, MD, MPH, Professor of Clinical Medicine, UCSF Division of Occupational and Environmental Medicine, and Department of Neurology

I've been a core faculty member of the Division of Occupational and Environmental Medicine for the past 5 years. I coordinate our Occupational and Environmental Grand Rounds and am the course director for Med180, the Occupational Toxicology course taken by OEM residents and School of Nursing Occupational and Environmental Health program nurse practitioner students. I also co-chair our annual CME course, am the OEM Residency research advisor and sit on the residency program evaluation and residency advisory committees. Based primarily at the San Francisco VA, I see patients in the Environmental Medicine clinic, but I spend most of my time on epidemiologic research of neurodegenerative disease.

My research career began nearly 30 years ago as a Preventive Medicine resident working on my MPH in Environmental Health Science at UC Berkeley. There I met long-time colleague and renowned Movement Disorders specialist Caroline (Carlie) Tanner who was a lecturer in my toxicology course. I was fascinated by her description of an outbreak of acute parkinsonism in a cluster of IV drug users in Silicon Valley. Identified just a few years before, these men and women had injected a newly synthesized meperidine (Demerol) derivative and over the course of several weeks had developed a clinical syndrome virtually identical to typical Parkinson's disease.

The debate as to whether Parkinson's was a primarily genetic or environmental disease had raged since its characterization by James Parkinson in 1817. The discovery of this cluster, caused by 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP), revived the environmental hypothesis and launched the search for other chemicals in the environment that might be causes of Parkinson's disease.

Timing is everything. Dr. Tanner was in the process of launching the largest ever epidemiologic study of Parkinson's disease in twins, and I jumped at this incredible opportunity. The Twins study of PD sought to determine whether concordance (both twins affected) for Parkinson's was higher in monozygotic (identical) than in dizygotic (fraternal) twins. A higher concordance in monozygotic twins would support a primarily genetic basis, whereas similar concordance in monozygotic and dizygotic twins would support a primarily environmental basis.

The project studied the NAS/NRC World War II Veteran Twin Cohort, which had been established from military records during the 1950s and 1960s, and consisted of 16,000 pairs of male twins. Over the next 5 years, we used a multi-stage telephone screen to identify every twin with possible Parkinson's disease, and then conducted in-person examinations of these twins and their twin brothers.

The main study findings, published in JAMA in 1999, found that concordance was very high in monozygotic twins if they had Parkinson's disease onset before age 50, but concordance was similar in mono- and dizygotic twins when their disease began at an older, more typical age. These findings, suggesting a strong genetic basis for rare young-onset disease and a strong environmental basis for typical-onset disease have held up over the subsequent 20 years, and in fact were recently confirmed by extending follow-up through 2016 using National Death Index Data.

Armed with this evidence suggesting a primarily environmental basis for Parkinson's, we continued to study environmental risk factors for Parkinson's disease in the Twins cohort, finding a dose-related inverse association with cigarette smoking, and a 3-fold increased risk of Parkinson's in twins who had sustained a head injury decades earlier. More recently, my work has taken two primary directions. First, I've continued to study environmental risk factors for Parkinson's disease, especially in combination with genetic data--investigating gene-environment interaction to uncover individual susceptibility.

Second, we are attempting to identify very early "prodromal" Parkinson's disease. Parkinson's, like most neurodegenerative diseases of aging, is thought to begin decades before the cardinal motor symptoms manifest, by which time 80% of dopaminergic neurons in the substantia nigra are dead or dying, and putative therapeutic interventions are unlikely to be effective.

In addition to associations with head injury and smoking, our work has identified and/or confirmed several key environmental risk factors for Parkinson's. In NIH-funded work in collaboration with investigators at the National Institute of Environmental Health Sciences, we used a nested case-control design in the Agricultural Health Study (AHS) to assess the risk associated with pesticide exposure in professional pesticide applicators. Most people don't know which pesticides they may have used or been exposed to during their lives.



*Dr. Sam Goldman  
Professor of Clinical  
Medicine, UCSF  
Division of  
Occupational and  
Environmental  
Medicine, and  
Department of  
Neurology*

A strength of the AHS study is the historical accuracy of the professional pesticide applicators. Of the 32 pesticides that we studied, only two were associated with increased Parkinson's risk: the insecticide rotenone and the herbicide paraquat. Remarkably, these two pesticides both generate a compelling animal model of Parkinson's disease, and they have much in common with the toxicant MPTP described above.

In subsequent work in this cohort, we studied whether a common deletion variant in a major xenobiotic metabolic gene (glutathione-S-transferase-T1, GSTT1) might modify the risk associated with exposure to paraquat. We found a striking 11-fold increased risk of Parkinson's in persons who had two GSTT1 gene deletions. Almost every subject with this deletion who had used or applied paraquat developed Parkinson's. Though banned in much of the world, paraquat usage is steadily increasing in the US, particularly in California, and approximately 20% of the population is homozygous for the GSTT1 deletion.

Another focus of our work is solvent exposure. The compound trichloroethylene (TCE) has been used in dry-cleaning, as a degreaser of metal parts in a wide variety of industries, as a coffee decaffeinating agent, and even as an obstetrical anesthetic since the 1950s. It is the most frequent organic contaminant of groundwater systems, and is found in up to a third of US water supplies.

Studying the Twins cohort, and in collaboration with OEM emeritus Patty Quinlan, we found that twins who had been occupationally exposed to TCE had a 6-fold higher risk of Parkinson's disease. Like rotenone and paraquat, TCE also induces a compelling animal model of Parkinson's disease. Following up on this work, I was recently awarded a VA Merit grant to study the association of TCE and Parkinson's disease in Camp Lejeune, North Carolina. The water supply at Camp Lejeune was contaminated with TCE and other chlorinated solvents from 1953-1987. During some years, levels were 300-fold above the EPA PEL. Based in-part on our Twins study, the VA has designated Parkinson's disease a presumptive service-connected illness for persons who were stationed at Camp Lejeune. The current work, in collaboration with the CDC, aims to quantify the risk of Parkinson's associated with TCE exposure and to determine whether a dose-response relationship exists.

A major limitation of most studies of environmental risk factors is the reliance on very imprecise measures of exposure, usually historical recall, which is subject to misclassification and reporting bias. To address this, ongoing work funded by the Michael J Fox Foundation in collaboration with investigators at Duke University, is investigating whether a quantitative assay of mitochondrial DNA damage can serve as a persistent biomarker of prior exposure to pesticides and other toxicants such as polychlorinated biphenyls.

The second focus of our work is to develop methods to identify early prodromal Parkinson's. Currently, we are working with investigators at Northern California Kaiser Permanente to develop a predictive algorithm using the electronic medical record.

We know that individual symptoms are predictive of an increased risk of Parkinson's (e.g., constipation, some sleep disturbances, impaired olfaction, depression), and we know that certain lab tests have predictive value (e.g., uric acid levels). We are hoping that combinations of diagnoses, lab tests, genetic data and risk factor data will allow us to predict who is likely to develop Parkinson's with high specificity. This would allow us to target at-risk populations with therapeutic agents currently in development.

Another predictive tool that we're developing with Fox Foundation funding utilizes the EKG. Early Parkinson's pathology affects the autonomic innervation to the heart, and we're using machine learning approaches to analyze standard 10-second resting EKGs for evidence of early disease.

Finally, some of our most exciting work is studying whether we might be able to identify changes in the microbiomes (the totality of microbial genomes) present in the colon that precede, and potentially may even cause Parkinson's.

Several lines of evidence increasingly implicate the gut as one of the earliest affected organs in Parkinson's disease. Animal and human data both suggest that infectious and/or inflammatory changes in the gut may lead to the mis-aggregation of a key protein called alpha-synuclein, which may seed the nervous system similar to a prion disease.

We're taking advantage of banked colonic polyp tissues that were collected years before Parkinson's diagnosis. We're hoping to identify microbiome and cytokine signatures associated with gut inflammation. If gut inflammation causes or contributes to Parkinson's risk, dietary or other relatively simple interventions might be able to delay or even halt the progression of prodromal disease and prevent Parkinson's in the future.



Top to Bottom:

1. Residents learning about electronic vehicles and battery production at the Tesla Gigafactory 1 in Sparks, NV with Dr. Timur Durrani.
2. Dr. David Caretto and residents at the Siemens Mobility facility.
3. Residents strike a pose after learning about agricultural related occupational hazards in a cauliflower field in Salinas with Dr. Rupali Das.
4. Residents strike a pose after exploring gold mines in Elko, NV.

## University of California, San Francisco Occupational and Environmental Medicine Residency Program

The University of California, San Francisco (UCSF) Occupational and Environmental Medicine (OEM) Residency Program, founded in 1979, is an integrated 2-year program designed to prepare physicians for occupational and environmental medicine practice and leadership roles. Graduates of the UCSF OEM Program are subject-matter experts with visibility in clinical, academic, governmental, non-governmental, consulting, and corporate settings. The program is fully accredited by the Accreditation Council for Graduate Medical Education (ACGME) for up to ten trainees, five in each class.

In the first year, trainees typically complete coursework to earn a Master of Public Health (MPH) from the University of California, Berkeley (UCB) School of Public Health while engaging in weekly clinical activities. The second year of the program is devoted to a combination of clinical, non-clinical, and research activities.

One of the programs that distinguishes UCSF OEM is the month-long industrial hygiene (IH) site visits which include a wide range of industries and environmental sites in the greater San Francisco Bay Area. In 2019, trainees completed 18 site-visits including stone manufacturing, pharmaceutical and biotechnology facilities, research laboratories, airport and port facilities, and automotive industry. The trainees observe and record occupational and environmental hazards and the corresponding control measures and engage in a post-site briefing with faculty and other trainees.

The trainees and faculty members at the UCSF OEM Program represent a highly diverse group, both culturally and professionally. The training environment is one that encourages camaraderie amongst the group with each person bringing in their experiences to enhance the educational experience of the larger group. To learn more about the residency including access to a video presentation, link to <https://oem.ucsf.edu/oem-residency-and-other-educational-programs>

### Residents Graduating in June 2020

**Dr. Robert “Nate” Clapp, MD, MPH, MS, FAAFP** is a US Navy Veteran with 14 years of clinical experience as Family Physician and Flight Surgeon, with tours in Iraq, Bahrain and on ship. He was an undergraduate at UC San Diego, obtained his MD at the Uniformed Services University of the Health Sciences in Bethesda, MD and has additional graduate training in Emergency and Disaster Management. Prior to coming to UCSF for residency, he was director over four clinics in California and Nevada, while working at the Navy’s West Coast Jet base in California’s Central Valley.

**Dr. Sarah Johnson, MD, MPH** is currently in her second year of the UCSF Occupational and Environmental Residency program. She obtained her undergraduate degree from Johns Hopkins University and attended medical school at the University of Illinois at Chicago. Prior to moving to San Francisco, she completed two years of general surgery in Chicago and has worked as a Medical Review Officer for the past four years. She plans to pursue a clinical career after graduation and transition into a corporate role where she can influence health and wellness approaches.

**Dr. Nnenna Okoye, MD, MPH** is a resident physician in her final year at the UCSF Occupational and Environmental Medicine program. She has a BS from Tufts University in Biology and Biomedical Engineering Systems. She was born in Vienna, Austria and is a dual US-Austrian citizen. She is also of Nigerian descent. She is grateful of the mentorship she has received from UCSF faculty - Drs. Blanc, Harrison, Goldman and Kosnik - and for sharing her training with wonderful resident colleagues these past two years

**Dr. Michael Shahbaz, MD, MPH** is in his final year of the UCSF Occupational and Environmental Medicine Residency program. He received his B.S. in Biochemistry and Molecular Biology from the University of California-Davis, a Masters of Public Health from San Jose State University, and his M.D. from Michigan State University. Upon graduation, Dr. Shahbaz will serve as the Medical Director for the Business Health Division at Mount Sinai Health and Hospital System and Assistant Professor in the Department of Occupational Medicine.

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## Current First Year Residents

**Dr. Chloe Chien** earned her MD and MBA from the Stanford University School of Medicine and Stanford Graduate School of Business, respectively. She completed a year of internal medicine internship at Highland Hospital in Oakland, CA. With her business background, she cofounded Homemade Cooking Inc, a healthy cooking & weight loss program. She spearheaded Homemade's employee wellness division and was a frequent speaker for corporate clients. Through her work at Homemade, she discovered the world of occupational health and aspired to become an OEM physician. She is currently studying the impact of workplace policies and interventions, such as sugar-sweetened beverage sales ban, on the health of employee population.

**Dr. Darren Hall**, DO completed his undergraduate training at UC San Diego and has his DO from the Arizona College of Osteopathic Medicine. After a transitional year internship at Naval Medical Center San Diego, Dr. Hall had been serving as a Navy medical officer prior to coming to UCSF and will be returning to Navy active duty upon completion of the residency program

**Dr. Matthew Kiok**, MD received his MD from Louisiana State University Health Sciences Center in New Orleans and completed a transitional year residency at Mountainview Medical Center in Las Vegas. He is currently a in the first year of the program and is interested in the prevention and management of occupational musculoskeletal disorders.

**Dr. Anthony Pacini**, MD received a Bachelor of Science in International Rescue and Relief from Union College, NE and holds an MD from Loma Linda University (LLU) School of Medicine. After a transitional year at Naval Medical Center San Diego, Dr. Pacini had been serving as a Navy medical officer prior to coming to UCSF and will be returning to Navy active duty upon completion of the residency program.

**Dr. Sheiphali Gandhi**, MD completed her internal medicine residency training at University of Minnesota with an additional year as a Global Health Chief Resident. She then completed her Pulmonary and Critical Care Fellowship at Northwestern University. Her fellowship included work at the University of Illinois at Chicago Black Lung Center of Excellence. Her research and clinical interests comprise of occupational and environmental lung diseases and she plans to continue her work at UCSF to further prevent and understand exposure-related lung diseases.

## Incoming July 2020 OEM Residents

**Dr. Brittany Ballen** holds a D.O. from Rocky Vista University College of Osteopathic Medicine (Parker, Colorado) and completed a surgical internship at UC Davis. Her undergraduate training was at the United States Air Force Academy in Colorado Springs. She currently holds the rank of Captain in the U.S. Air Force and is on active duty.

**Dr. Shane Lavin** holds an MD from the Pennsylvania State University College of Medicine before completing a surgical internship with the Navy Medical Center in Portsmouth, Virginia. His undergraduate training was at Gannon University in Erie Pennsylvania. He has been a flight surgeon with the U.S. Navy since 2016 and will be joining our residency one of two incoming Veterans.

**Dr. Stefano Leitner** holds an MD from the Florida State University College of Medicine - Ft. Pierce Campus and is currently a first-year resident in Internal Medicine at George Washington University in DC. He is of Peruvian background with an extend family in Florida, he is fluent in Spanish.

**Dr. James McNicholas** was an undergraduate at Drexel University in Philadelphia before obtaining a D.O. from Lake Erie College of Osteopathic Medicine (our second incoming resident with ties to Erie). He completed an Internal Medicine residency at the Naval Medical Center in San Diego, including a one-year hiatus for training as a Naval Flight Surgeon service on the remote island of Diego Garcia in the India Ocean. He currently serves as a faculty member for the Naval Aerospace Medical Institute at Pensacola Florida and will be joining the residency as a Veteran.



Top to bottom:

5. Faculty member Dr. Rick Martin with residents at the San Francisco International Airport learning about potential exposures to workers.

6. Residents learn about work hazards at tech giant, Google in Mountain View, CA.

7. Residents pose in front of giant washers at a commercial laundromat in Sacramento, CA.

8. Dr. Michael Fischman and residents at Pixar Studios in Emeryville, CA .

## Occupational and Environmental Medicine Resident Research Projects

First year resident Chloe Chien is interested in workplace policy interventions that improve population health outcomes. She is working with Drs. Jamey Schmidt (CPMC), Elissa Epel (UCSF), Laura Schmidt (UCSF), and Laurie Jacobs (UCSF) to study the impact of the Healthy Beverage Initiative (also known as a workplace sugar-sweetened beverage sales ban) on the health and wellness of employees as part of a clinical trial across multiple Sutter Health hospital campuses. She is testing whether the removal of sugar-sweetened beverages from workplaces is associated with improvements in anthropometric characteristics, and is also analyzing survey data (food frequency data, depression/anxiety scores, sugar craving score) of about 170 Sutter Health employees from one location.

First year resident Darren Hall is working with Dr. Timur Durrani and Ben Tsutaoka at the California Poison Control System to analyze national Poison Control Center data on occupational exposures to household cleaning products. Darren aims to identify high-risk disinfectants and other high-risk household chemicals in order to inform worker populations about which cleaning chemicals are associated with the highest exposures and worst outcomes. Ultimately he hopes this work will assist poison control centers and regulatory agencies in making policy changes tailored to the most vulnerable groups.

First year resident Matt Kiok's research mentor is Dr. Carissa Harris-Adamson from the UCSF Division of Occupational and Environmental Medicine. Matt is working on an ergonomics project with several public health students at UC Berkeley. The project seeks to determine if feedback-responsive electronic cuing can help office workers to break up their prolonged sedentary time and improve health outcomes. These include subjective discomfort scores, as well as objective measures such as hemoglobin A1c, lipid profiles, blood pressure, and heart rate variability. Cues consist of exercise reminders, goal-oriented tasks, and other objectives based on the wishes of the participant assessed via survey at the beginning of the study.

First year resident Tony Pacini is working with Dr. Timur Durrani and Ben Tsutaoka at the California Poison Control System. He is analyzing national Poison Control Center data from 2008-2017, focusing on accidental pediatric poisonings from household cleaners. He will be analyzing poisoning frequency, outcomes and trends over time in order to identify drivers of poisonings and poor outcomes. He will be studying characteristics such as product class, chemical structure and storage mode, as well as demographic risk factors such as gender, age, and time of day. Providing a nationally representative profile of accidental childhood exposures to household products with meaningful quantification of outcomes will aid parents and practitioners in practical decision making and aid those working at Poison Control Centers to advise callers more accurately.

First year resident Shephali Gandhi's research interest lies in occupational dust-related lung diseases, and builds on her prior work at the University of Illinois at Chicago's Black Lung Center of Excellence, under mentorship from Drs. Paul Blanc (UCSF), Robert Cohen (UIC) and Leonard Go (UIC). The federal black lung disability benefits program offers exercise testing in addition to resting spirometry to identify exercise abnormalities in coal miners. Her work seeks to determine if high dust exposure jobs and other risk factors predict abnormal gas exchange during exercise among a population of coal mine workers. She has been analyzing de-identified data from coal miners seen between 2005-2015 in one clinic specializing in Black Lung evaluations. Occupational exposure history, past medical history, spirometry, chest radiograph, and resting and exercise arterial blood gases were obtained. Among coal miners with normal spirometry, Shephali evaluated various predictors for abnormal gas exchange at exercise to determine best predictors for abnormal testing. Jobs with greater dust were associated with abnormal gas exchange, even after taking into account total years of work and abnormal chest radiograph. These data underscore the limitations of resting spirometry in dust-exposed coal miners, and also raise the specter that selected jobs carry exposures of particular risk, which may arise from coal dust or co-exposure to silica from rock neighboring the coal seam.

Second year resident Michael Shahbaz is currently working with Dr. Steve Weisner at Kaiser Permanente with its On the Job Service Line to identify vulnerable workers in high hazard jobs within the Kaiser Northern California region who filed a claim between 2018-2019. He is collecting demographic data, primary claim diagnosis, service industry, and the number of claims filed. Michael is utilizing this information to determine if differences exist across the 28 regionally diverse clinics, and whether there are differences in the injury types and primary service industry of injured workers. He hopes to use the findings to develop and eventually implement programs that will address the specific medical needs of vulnerable patients with high hazard jobs.

Second year resident Robert "Nate" Clapp has worked on several research projects. With Drs. Dennis Shusterman, Bob Harrison and Timur Durrani in the UCSF Division of Occupational and Environmental Medicine he's compiling a compendium of adverse health effects of chemical alternatives to methylene chloride. Nate anticipates that this can be utilized by industries/retailers to provide safer paint stripper alternatives. With Timur Durrani at the Poison Center, Nate has been evaluating national Poison Control Center call data regarding methylene chloride poisonings in order to identify populations at risk for injury. With Dr. Steve Weisner at Kaiser Permanente Occupational Health Care, he's evaluating claims data at Kaiser for the 10 most common diagnoses with durations greater than 90 days, and evaluating whether there is differential risk between native and non-native English speaking employees. With Dr. Rick Watts and Patrick Keller at Lawrence Livermore National Laboratory, Nate is conducting a 10-year descriptive analysis of beryllium sensitized employees at the Laboratory. He is identifying facilities, occupations, and job tasks associated with beryllium sensitization that may not be captured with the current medical surveillance program.

Second year resident Nnenna Okoye has been working with Dr. Anke Hemmerling (UC Berkeley) and Dr. Sam Goldman (UCSF) on a project to understand the perceptions held by current radiology resident physicians of ACGME-accredited radiology residency programs regarding the national B-Reader program. The B-Reader program is a medical surveillance program led by the Centers for Disease Control and Prevention since the 1970s to ensure competency of physicians to serve in national pneumoconiosis programs directed at coal miners and others who suffer from dust-related illness. The pool of qualified B-Readers has been decreasing while demand for surveillance is increasing. In August 2019, Nnenna was invited to the National Institute for Occupational Safety and Health to present the team's research findings and discuss ways to improve online B-reader training program to help increase the number of qualified raters. Nnenna's goal is to develop an online B-reader training program to help increase the number of qualified raters, which is currently extremely small. She was recently awarded 2nd place for a scientific poster highlighting her findings at 2019 WOEMA Conference in San Diego, CA.

Second year resident Sarah Johnson is working with Dr. Bob Harrison on a project developed in anticipation of changing Cal-OSHA lead standards that is intended to determine how prepared physicians are to care for lead-exposed workers if/when the standards are made more stringent. The study asks questions about how physicians are connected to lead-exposed workers, how physicians manage these workers, and how familiar physicians are with the current standards. The survey also includes questions about physician/practice characteristics including specialty, length of practice, and practice size.

# Report from the COEH

## About COEH

*The NIOSH supported Educational Resource Center (ERC) is the backbone of COEH. The ERC academic programs include: Occupational and Environmental Medicine and Occupational and Environmental Health Nursing at UCSF; Industrial Hygiene, Occupational Epidemiology, and Ergonomics at UC Berkeley; and Agricultural Health and Safety at UC Davis.*

*Graduate students from all the programs can participate in a Targeted Research Training program to assist them in completing their research. The Labor Occupational Health Program (LOHP) at UCB is the public service program of the COEH with the goal of preventing illness and injury in the workplace and raising awareness of the social and economic costs of hazardous workplace conditions for individuals, communities, businesses, and the environment. COEH's continuing education program offers a broad range of accredited courses for practicing health and safety professionals.*

### **2019:**

This past year, COEH compiled a NIOSH Education & Research Center competitive renewal grant proposal of over 2000 pages reporting on the past performance of our 9 programs (including Occupational & Environmental Medicine) and highlighting the changes to come over the next grant period. During this process, it was incredible to see the productivity and impact that these programs have had on our community. Some highlights include:

- There have been 157 students across six academic programs. These include 68 Masters Students, 63 PhD students and 26 Medical Residents.
- Continuing education (CE) has hosted 222 courses serving 8,448 learners with 49,754 total person-hours of training
- LOHP has directly reached approximately 1,500 individuals a year in a range of industries, including construction, health care, retail, schools, nail salons, hotels, janitorial, hotel and hospitality, domestic work, childcare centers, construction, recycling and food processing.
- Our faculty and students have contributed more than 400 manuscripts and book chapters to the literature over the program period and hundreds more presentations at national and international conferences. Students have contributed to more than half of these publications and presentations.
- Our faculty, including OEM, have been directly involved in the development, approval and implementation of multiple Cal/OSHA Standards including:
  - the Workplace Violence Prevention (Section 3343)
  - the Heat Illness Prevention Standard (Section 3395)
  - the Health Care Worker Back and Musculoskeletal Injury Prevention (Section 5120)
  - the Hotel Housekeeping Musculoskeletal Injury & Illness Prevention Plan (Section 3345)
  - the Emergency Wildfire Smoke standard for outdoor workers (Section 5141.1)

### **Looking ahead to 2020:**

On January 24th & 25th, COEH hosts the Lela Morris Symposium and Spring Semester Get Together at UC Davis. The first day entitled "COEH Builds Bridges: Warehouses, Wildfires, and Workplace Injuries" will discuss the emerging health problems and regulations associated with warehouse work and wildfires.

In 2020, COEH will offer over 45 courses, symposiums, webinars and workshops to provide the latest and greatest knowledge to all stakeholders engaged in occupational and environmental health.

Join us for:

- Monthly Webinar Series on a potpourri of occupational and environmental health topics on the 1st Wednesday of the month (February-December)
- Monthly Ergonomic Webinar Series hosted by participating NIOSH ERCs held on the 3rd Wednesday of the month (February-November)
- Monthly Industrial Hygiene Webinar Series hosted by participating NIOSH ERCs held on the 2nd Tuesday of the month (February-November)
- Our Fall Symposium and Pre-Holiday Get Together on November 13th, 2020

To find out more about webinars, skills workshops, continuing education courses, upcoming events and the recent accomplishments of COEH students and faculty, please visit: <http://coeh.berkeley.edu>

## Occupational and Environmental Medicine (OEM) Mount Zion Clinic Update

The UCSF OEM Clinic continues to be rooted in a faculty practice which has been operating for over 28 years. Our team of experts includes Board Certified physicians in occupational and environmental medicine, medical toxicology, occupational health nursing, physiotherapy, and industrial hygiene.

The clinic provides specialty consultation to individuals and groups of workers who have had exposures to biological, chemical, and physical agents at the workplace or in the home environment.

The OEM clinic provides leadership internally to the UCSF Health adult hospitals, the UCSF Benioff Children's Hospitals, and the ambulatory UCSF Faculty Practice Organization in the design and execution of programs available to its health care workers for immunization review when starting work, for large scale program such as immunization for influenza, tuberculosis surveillance, and medical clearance to wear a respirator, and for groups of workers with special assignments with highly infectious agents, such as Ebola.

The OEM clinic has developed protocols for discomfort intervention to the upper extremity preinjury and for a robust training intervention post injury. The OEM medical team provides immediate access to care for health care workers when they have an exposure to blood borne pathogens, and for researchers when they have exposures from laboratory materials or research animals.

The OEM clinic's work for the UCSF Health has been extended to biosafety issues in the UCSF research community. It provides immunization for infectious agents in research, monitors workers at a medical risk, and responds to exposures when they occur.

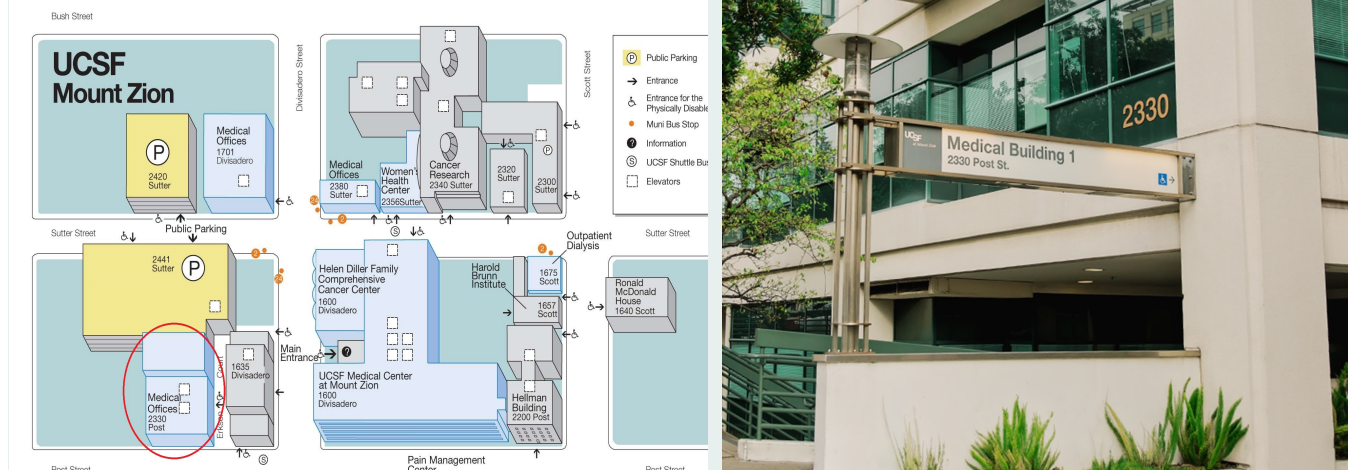
These services have already been extended to affiliated researchers and now is being extended to external groups. Workers at the California Academy of Sciences are getting medical clearance, spirometry, and fit testing for wearing respirators.

The OEM clinic evaluates individuals following a chemical exposure at the workplace or at home including a baseline assessment with recommendations for follow up medical surveillance.

It performs repeat assessments on groups of workers providing consistency in medical surveillance over time. As an example, the OEM clinic provides the Department of Transportation examinations to individuals and groups of workers.

The OEM clinic develops specific medical surveillance and assessment programs customized for hazards in a group of workers. It designed a fitness for duty surveillance program for the San Francisco marine pilots who climb on board all large ships entering the Bay, and then navigate the ship into the Bay until it is safely alongside its berth.

The program is comprised of a medical surveillance assessment, which includes an agility test, toxicology screening for over the counter and prescription medications, and comprehensive medical examinations focused on the physical demands of their work as marine pilots and identification of previously unrecognized obstructive sleep apnea.



The clinic is conveniently located within the UCSF Mount Zion campus just north of Geary and west of Divisadero at 2330 Post Street, Suite 460. The clinic can be reached by telephone at 415.885.7580. Referrals are accepted from physicians, other licensed medical practitioners, attorneys, and selected self-referrals from individuals.

For a link to the clinic go to: <https://oem.ucsf.edu/patient-care>



## ABOUT OEM

The Division of Occupational & Environmental Medicine, separately constituted at the UCSF Parnassus, Mount Zion, Zuckerberg San Francisco General Hospital, and San Francisco Veterans Affairs Health Care System campuses, is closely interlinked. It has achieved national and international recognition as a center for research, training, and clinical care in its field

The mission of the Division of Occupational & Environmental Medicine at UCSF is to advance the field of occupational and environmental health through research, education, and service to patients and the community.

## UPCOMING EVENTS

*Thursday—Saturday, March 5th- 7th, 2020:*

CME 2020: Being an Occupational and Environmental Health “Detective” and Updates in Occupational and Environmental Medicine including a poster abstract session Wednesday evening, March 4.

*Course Chairs:* Paul D. Blanc, MD, MSPH;

Samuel M. Goldman, MD, MPH; Robert Kosnik, MD, DIH;

To register: <https://www.ucsfcmecme.com/2020/MDM20No1/info.html>

*Thursday, March 12 2020:*

Alice Hamilton Lecture: "Inside/Outside: Why an Internist Should Care About Air Pollution"

*Presented by* Dr. John Balmes, MD

Professor of Medicine, University of California, San Francisco.

Director of Northern California Center for Occupational and Environmental Health.

For more information: <https://oem.ucsf.edu/about-us/alice-hamilton-lecture>



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