

National Institute for Occupational Safety and Health Education and Research Center (ERC)



SCHOOL OF PUBLIC HEALTH

The Harvard ERC
David C. Christiani, MD, MPH, Director

- ❖ Educating high-quality safety, health, and medical professionals through rigorous degree programs – MS, MPH, PhD – and continuing professional education.

Our ERC trainees land professional health and safety positions in a wide-range of corporate and government sectors. Similarly, participants in our Continuing Professional Education Programs come to us for training from a variety sectors. Examples include:

Domestic Government Agencies: NIOSH, CDC, EPA, FEMA, National Cancer Institute, World Bank, US Navy, US Coast Guard, US Air Force.

Large and small Corporations: Apple, AT&T, GE, GE Aviation, IBM, ExxonMobil, Turner Construction, McKinsey, Colden Corp, Travelers Insurance, Proctor and Gamble, Partners Healthcare.

Health Care: Harvard-affiliated hospitals, Brigham and Womens Hospital, Mt Sinai, VA Hospital-PA.

Academia: Harvard, MIT, UCLA, CAL State, UCONN, University of Illinois-Chicago (UIC), University of Cincinnati, Kettering University, Mt. Sinai Medical Center, University of Michigan, Johns Hopkins, etc.

ERC Executive Continuing Professional Education Program

We have educated over 2560 Health and Safety Professionals from over 55 countries since 2013. Government, academic and corporate employees attend. Current offerings include:

- Management and Leadership Skills for Environmental Health and Safety Professionals
- Comprehensive Industrial Hygiene
- Work, Health and Well-being: Achieving Worker Health
- * Radiological Emergency Planning: Terrorism, Security, and Communication
- In-Place Filter Testing Workshop
- Benefit Cost Analysis: Valuing Life and Health
- Guidelines for Laboratory Design



www.hsph.harvard.edu/erc

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Dedicated to ensuring the safety and health of workers throughout their lifespans.

❖ Developing knowledge and innovative practices.

Academic training and trainee research advance knowledge

Occupational Hygiene Core: This core confers the MS and PhD degrees. The two-year Master of Science in Occupational Hygiene program trains students to **assess and control chemical, physical, and microbiological hazards in the workplace** that may cause illness, injury, discomfort, or inefficiency among workers. Courses are structured to provide training at both the master and doctoral levels in evaluating occupational exposures, effectiveness of intervention strategies, controls, risk assessment, work processes, risk communication, leadership, workplace environment redesign.



The PhD Program gives students training in study design and implementation, exposure assessment and statistical analysis and research presentation and translation.

“The ERC can help launch a career where you can make a difference in the lives of millions of people through making workplaces healthy.” Joe Allen, ScD.

Occupational Epidemiology Core: This academic core confers PhD and MS degrees in population aspects of Occupational Safety and Health (OSH). Epidemiology is the fundamental science of public health and is central to understanding the health consequences of occupational exposures. Our understanding of occupational disease and injury risk and the means to **reduce the impact of disease and injury from work exposures depend on both descriptive and analytic epidemiologic studies**. People well-trained in this discipline are in limited supply and high demand. ERC occupational health funding is a testament to the quality and relevance of our ongoing work. Sound epidemiologic investigations achieve the dual goals of **identifying disease determinants** and **evaluating preventive interventions**. Currently, creative **new methods and approaches** are being developed and applied common illnesses such as Alzheimer's disease and other neurodegenerative disorders, osteoarthritis, chronic obstructive lung disease, asthma, lung injury, cardiovascular and metabolic disorders, cancer, and reproductive disorders. Graduates of this program are qualified to **conduct independent research projects** in occupational epidemiology, incorporating the latest statistical methods as well as biomarker, exposure assessment technologies, and “big data” analyses. They are qualified to participate in **development of policy** and **standard setting** for the work environment and to **teach occupational epidemiology** at the graduate or undergraduate level.

Occupational Medicine Core: The Harvard Chan OEMR is an ACGME-accredited 2-year training program for physicians leading to board-eligibility in Occupational and Environmental Medicine, one of the three specialties of Preventive Medicine. It was **among the first such programs** in the United States and is recognized **as one of the best** Occupational and Environmental Medicine (OEM) residencies worldwide. We emphasize rigorous training, excellence in clinical OEM, cutting-edge research, and a diverse balance of **unique OEM opportunities**. Supervision comes from an outstanding nationally- and internationally-renowned faculty with a history of producing specialists who have become **leaders devoted to improving environmental and occupational health** in academia, government, industry, health care, and non-governmental organizations.

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❖ Adding to knowledge and best practice.

Sample Publications

Lan FY, Scheibler C, Hershey MS, Romero-Cabrera JL, Gaviola GC, Yiannakou I, Fernandez-Montero A, Christophi CA, Christiani DC, Sotos-Prieto M, Kales SN. Effects of a healthy lifestyle intervention and COVID-19-adjusted training curriculum on firefighter recruits. *Sci Rep.* 2022 June 23;12(1):10607. doi:10.1038/s41598-022-10797-2. PMID:35739126; PMCID: PMC9226180

Specht AJ, Zhang X, Young A, Nguyen VT, Christiani DC, Ceballos DM, Allen JG, Weuve J, Nie LH, Weisskopf MG. Validation of in vivo toenail measurements of manganese and mercury using a portable X-ray fluorescence device. *J Expo Sci Environ Epidemiol.* 2022 May;32(3):427-433. doi: 10.1038/s41370-02100358-w. EPUB2021 Jul1. PMID: 34211112; PMCID: PMC8720103.

Christodoulou A, Christophi CA, Sotos-Prieto M, Moffatt S, Kales SN. Eating Habits among US Firefighters and Association with Cardiometabolic Outcomes. *Nutrients.* 2022 Jul 4;14(13):2762. doi: 10.3390/nu14132762. PMID: 35807942; PMCID: PMC9268786.

Lan FY, Sidossis A, Iliaki E, Buley J, Nathan N, Bruno-Murtha LA, Kales SN. Continued effectiveness of COVID-19 vaccination among urban healthcare workers during delta variant predominance. *BMC Infect Dis.* 2022 May 12;22(1):457. doi:10.1186/s12879-022-07434-y. PMID: 35549891; PMCID: PMC9097140.

Book: *Healthy Buildings: How Indoor Spaces Drive Performance and Productivity.* Allen, JG and Macomber, JD. Harvard University Press. 2020. ISBN 978064237971,0674237978.



www.hsph.harvard.edu/healthybuildings

www.ForHealth.org/

WEBSITES: www.hsph.harvard.edu/erc, www.hsph.harvard.edu/oemr,

VIDEO: <https://youtu.be/ZvW2Ba2NiOU>

SOCIAL MEDIA: <https://twitter.com/HarvardChanERC>

❖ Exploring emerging issues to create safer workplaces.

Pilot Project Program: Our pilot project program offers early investigators, doctoral students, and post-doctoral students the opportunity to explore emerging issues. We welcome applications from young investigators **throughout the New England region** and from investigators in New England-based Total Worker Health Programs. Pilot project grants have been awarded recently for

- Endocrine disruption in hair salon workers
- Identifying factors that influence fire fighters' exposure reduction practices and wellbeing
- Environmental and occupational health in carceral facilities
- 2-cycle lawn and garden equipment emissions testing

Dedicated to ensuring the safety and health of workers throughout their lifespans

❖ Applying new knowledge and practices to create safer workplaces.

Outreach through Connection to Occupational Safety and Health Professionals: Our Monday ERC Seminars – roughly 14 in 2022-2023 – brought in professionals from NIOSH, the Massachusetts Department of Public Health, the Massachusetts Coalition for Safety and Health, labor unions, and faculty from Harvard Kennedy School of Government, MIT, the University of Southern Maine, and the University of Illinois Chicago. We collaborate with the Harvard Total Worker Health Program to co-sponsor several of these seminars per year.

Outreach to Communities of Practice: Our Grand Rounds sessions – roughly 16 in 2022-2023 – are organized by our occupational medicine residents. The format includes case presentations by the residents and case discussions by practicing physicians across multiple communities of medical practice from dermatology to urology. We also support the New England College of Occupational and Environmental Medicine by participating as planning committee members, presenters, and vendors.

We have developed and delivered a new OSH curriculum to Community Health Workers in collaboration with MassCOSH staff and a certified industrial hygienist formerly with the Massachusetts Department of Public Health. (See below for additional information.)

Outreach in the New England Region

Maine: New England Indoor Air Quality and Energy Conference – extensive educational programs on state-of-the-art construction practices. Outreach to the fishing community that has reduced fatalities through research; 22 years of FISH SAFE articles in the trade journal, Commercial Fisheries News; active participation in the annual Fishermen’s Forum; and health screenings on remote islands. Ann Backus, Director of Outreach, has been a gubernatorial appointee to the Maine Commercial Fishing Safety Council for over a decade.

New Hampshire: Study of public trust in science/technology; training in Occupational Safety and Health for Community Health Workers-Manchester (NH) Health Department including an additional training session for CHWs shared between the Manchester Police and Health Departments.

Vermont: Establishment of FarmFirst, a novel mental health counseling programming for Vermont farmers; Department of Agriculture grants to support stress counseling programs for farmers; development and implementation of stress counseling programs for emergency first responders including VT state police and those with PTSD.

Massachusetts: Outreach to lobstermen; RESCUES manual to address community stress in coastal communities; training for CHWs and Lead Inspectors in the Childhood Lead Poisoning Prevention Program of the Massachusetts Department of Health. This training covers CHWs in Pittsfield, Springfield, Lawrence, Boston and New Bedford.

Connecticut: Pilot project funding for UCONN trainee. Interface with the Occupational Medicine Residency Program of Yale University; HSPH faculty presentations at UCONN.

Rhode Island: Sea trial of innovative Active Pressure-Sensitive Winch Shut-off created for Harvard researchers by Rhode Island Engine, Inc. to improve winch safety on fishing trawlers.

