California’s recent decision to phase out carcinogenic chlorinated solvents used in the automotive repair industry may inadvertently expose more workers in that industry to another solvent, hexane, that causes peripheral neuropathy, a debilitating nerve disease, a UC Berkeley graduate student has found.

To protect people who live and work near auto repair shops from potential cancer risks, the California Air Resources Board (ARB) last April initiated a two-year phase-out of chlorinated solvents used for brake cleaning and other degreasing purposes in automotive repair shops.

One alternative available to California’s more than 5,000 auto repair shops that use chlorinated solvents is to switch to water-wash cleaning systems—an option that Cal/EPA and the California Department of Health Services (CDHS) are promoting. Another potential substitute, however, is the use of non-chlorinated solvents containing hexane, a neurotoxin, which are now used in nearly 3,000 shops. Solvents containing hexane are cheap and readily available. CDHS is working to determine the extent of hexane use in California automotive repair facilities, provide notification of the potential hazards associated with hexane-containing solvents in this industry, and recommend control measures.

Mike Wilson, doctoral student in Environmental Health Sciences at UC Berkeley’s School of Public Health and a graduate student assistant at the Occupational Health Branch (OHB) of CDHS, has found that eliminating chlorinated solvents may lead to a substantial increase in the number of brake jobs performed annually in California using hexane—from 1 million to more than 1.5 million—even if 20 percent of auto repair shops change to water-based cleaning systems.

Wilson presented his research at the recent meeting of the American Public Health Association in Boston and at the U.S. EPA Region 9 Pollution Prevention Conference in San Diego.

“ARB followed its mandate to protect the public from exposure to a carcinogen, and it addressed water and soil contamination,” Wilson said, “but ARB is not responsible for assessing the impact on the workplace. I hope that these findings encourage the state to create a more integrated approach to health policy.”

Hexane was first identified as a neurotoxin in 1964. Workers with hexane-related peripheral neuropathy have been reported in such workplaces as printing plants, sandal shops, and furniture factories throughout the world—but, until recently, no case had been reported in California. Wilson’s research predicts that more than 3,000 California auto repair shops use aerosol brake cleaners.
DETECTING WORK-RELATED PERIPHERAL NEUROPATHY

When the young auto mechanic arrived at the emergency room, he couldn’t feel his arms or legs and had lost so much motor control that he collapsed on the waiting room floor. For most of 1996, he had been the highest producer in a Bay Area automobile dealership, using six to ten cans a day of a hexane-based aerosol brake cleaner—a product you can buy off the shelf at your corner store. By fall, he had begun to feel fatigued, and, by January of 1997, his hands and feet were getting numb—symptoms that he attributed to overwork. His doctor referred him to a neurologist, but, before he could get in to see the specialist, his condition became so severe that he landed in the hospital.

After a week of testing with no conclusive diagnosis, the neurologist at the hospital, suspecting that the young man’s condition might be related to his passion for cars and trucks, turned to COEH faculty member Robert Harrison, associate clinical professor of Medicine in the Division of Occupational and Environmental Medicine at UC San Francisco and public health medical officer with the Occupational Health Branch, California Department of Health Services.

Harrison examined the man, took an occupational exposure history, tracked down the ingredients of the solvent the young mechanic had been using on the job, and concluded that his patient was exhibiting classic signs of hexane-induced peripheral neuropathy, symptoms typically found among workers in other industries—like shoemaking, printing, and furniture making—in countries throughout the world.

Harrison’s findings—the first reported case of peripheral neuropathy in the automotive repair industry—signaled a new occupational hazard that would require further investigation. Three years have passed since Harrison placed his patient on total temporary disability. While not completely recovered, the young mechanic has recently recently returned to work in a different job in the trade. Working through the International Association of Machinists (IAM) DHS has since identified more workers with similar symptoms.

HEALTH HAZARD from cover

the automotive repair industry. OHB identified the first case of peripheral neuropathy associated with occupational exposure to hexane in automotive repair facilities (see sidebar) and has since identified other automotive mechanics with the disease, all of whom have used products containing hexane.

Peripheral neuropathy causes numbness and tingling in the fingers and toes followed by progressive weakness and loss of feeling in the arms and legs. In severe cases, total loss of sensory perception in the hands and feet occurs, followed by muscle wasting. The disease progresses even after a person is no longer exposed to hexane, and it may take two or more years to recover, with no assurance of complete recovery.

Working with COEH faculty member Katharine Hammond, professor of Environmental Health Sciences, in coordination with James Cone, chief of OHB, Wilson is continuing his research on solvents in the auto repair industry by conducting air sampling in the field, developing exposure models, identifying cases, and exploring the policy implications of his findings. Wilson’s work illustrates the partnerships that COEH seeks to form with government agencies to give students the opportunity to grapple with real-world problems.

“California is the first state in the nation to ban chlorinated solvents,” Hammond said. “It is possible that other states will look at our model and follow suit. Mike Wilson’s findings and his on-going research are vital not only to the welfare of California auto repair workers but also to people in other states, who stand to benefit from what we have learned here.”
Researchers Identify Genes that Cause Lung Fibrosis

Researchers at UC San Francisco’s Lung Biology Center have identified genes that play a central role in causing lung tissue to scar and lose its elasticity, leading to pulmonary fibrosis.

Pulmonary fibrosis, a disease that impairs breathing, affects people who have been exposed to inorganic dusts, such as asbestos and silica. Insulators, sandblasters, and other workers in dusty trades are at risk for pulmonary fibrosis. Even after workers are no longer exposed, they may still develop pulmonary fibrosis because of chronic retention of dust in the lungs.

By identifying the group of 66 genes involved in pulmonary fibrosis, the researchers have paved the way for treating this heretofore untreatable, irreversible disease.

To learn more about which genes are responsible for producing fibrosis, researchers in the laboratory of COEH faculty member Dean Sheppard studied two strains of mice, one of which had been genetically altered so that the mice in the strain do not get fibrosis.

The researchers simulated the effects of inorganic dust in the lungs of the mice by administering bleomycin, a cancer drug that is known to cause lung inflammation and fibrosis. Using a special technique for tracking and measuring RNA—the molecular “messenger” that genes use to direct cell behavior—the team compared how the two strains of mice responded to the drug.

In collaboration with scientists at Roche Molecular Biochemical, the UC team used glass slides embedded with pieces of DNA that can detect up to 6,500 kinds of RNA in a cell. The researchers purified the RNA taken from the lungs of the experimental mice, tagged it so that it was fluorescent, and, using the special slides, a fluorescent microscope, a scanner, and a computer, counted the amount and various kinds of RNA.

Using the information from the RNA, they identified two different groups of genes, one that is specifically involved in the fibrotic response and an equally large group that is involved in inflammation.

“These results are particularly interesting, because it has long been thought that fibrosis is a product of inflammation,” Sheppard said. “The scientific community believed that, when the lung tissue is injured, it becomes inflamed, and the products of inflammation cause the lungs to scar and become inelastic. Our research shows that inflammation and fibrosis have different molecular mechanisms. By identifying what genes are responsible for producing fibrosis, we have a basis for figuring out ways to block the fibrosis.”

Sheppard said the researchers also found that their technique of analyzing the whole lung was easier to interpret and more consistent than the more common experimental approach of studying a single cultured cell.

Postdoctoral fellow Naftali Kaminski, now director of the Institute of Respiratory Medicine and Physiology at the Sheba Medical Center in Tel Hashomar, Israel, headed the study, which has been published in the Proceedings of the National Academy of Sciences 2000 97:1778-1783.

New Textbook Takes Integrated Approach to Environmental Engineering

COEH faculty member William Nazaroff and colleague Lisa Alvarez-Cohen, both professors in the Department of Civil and Environmental Engineering at UC Berkeley, have written Environmental Engineering Science, a new textbook that takes a broad-based, integrated approach to introducing the fundamentals of environmental engineering. Environmental Engineering Science is published by Wiley, New York.

“Traditionally, the individual topics within environmental engineering have been taught as isolated subjects in a compartmentalized fashion,” Nazaroff said. “We believe that students should be introduced to fundamental principles in a manner that is tailored to the needs of environmental engineers, without being too closely tied to any specific application. With this foundation, students gain a more thorough, more adaptable understanding of the field.”
Government standards for burning waste may not adequately protect workers involved in waste incineration nor adequately address the regional impact of certain pollutants that “have a long reach,” two COEH faculty members have warned.

The nation is burning more waste and focusing more attention on protecting the public from emissions than it has in the past. Waste burning technology has improved, and standards are more stringent. Still, government health studies need to consider problems that have not been adequately addressed, say Professors Thomas McKone and Katharine Hammond of the School of Public Health, UC Berkeley.

Describing the unexplored risks of “Managing the Health Impacts of Waste Incineration” in the September 2000 issue of Environmental Science & Technology, Hammond and McKone argued that more must be done to protect incineration workers from exposure to harmful compounds in the workplace.

“We know technically how to protect our workers,” Hammond says. “It’s just that workers are not generally part of the risk equation. Municipal incineration workers have been reported with high levels of dioxins and lead in their blood. The technology exists to protect them. We just need the will.”

We also need to learn more about the health effects of pollutants like dioxin and mercury that may enter the food chain and travel far away from the incineration plant that emitted them, they say.

Traditional impact studies of waste burning are “site specific,” that is, they look at one incinerator at a time, with a focus on the surrounding community. McKone, who studies persistent pollutants and where they go, explains that this approach doesn’t tell the whole story: “Your exposure to very persistent toxic chemicals such as the dioxin compounds may have more to do with how many incinerators there are in a region than where you are relative to one of them.”

Another flaw that Hammond and McKone see in current regulatory practice is that assessments are based on optimal operating conditions, although incinerators, like automobiles, are less efficient when they start up, and don’t always operate smoothly, particularly the older ones. They support efforts to collect data that takes real-world operating conditions into account.

Hammond and McKone last year served on a multidisciplinary team of experts gathered by the National Research Council (NRC) to examine the relationship between waste incineration and human health. The NRC’s recently published final report of the study, Waste Incineration and Public Health, calls for more research, better data, and attention to concerns such as those expressed by Hammond and McKone.
LO HP to Establish Statewide Network for Protecting Young Workers

With $150,000 in state funding provided with the passage of AB 1599 (Tom Torlakson, D-Antioch), COEH’s Labor Occupational Health Program is establishing a statewide resource network to protect the health and safety of young workers by helping young people and their communities identify and prevent hazards in the workplace.

The network will coordinate and augment outreach and educational efforts already underway and will provide technical assistance for schools, job training programs, employers, and other organizations involved in preventing young workers from becoming injured or ill on the job.

The legislation and the new resource network culminate four years of work by the California Study Group on Young Workers’ Health and Safety, organized and coordinated by LOHP to address the need for better education and intervention to protect the health and safety of young workers.

Every year, 70 teenagers die from work injuries in the U.S. and 200,000 are injured. Studies suggest that teen job injury rates are higher than those of adults, despite precautions such as prohibiting teens from working in the most hazardous occupations. LOHP has been coordinating efforts to make communities more aware of this problem and to provide training and recommendations for protecting teen workers in California.

New Grants to Help Protect Young Workers

LOHP has also received a five-year grant from the Occupational Safety and Health Administration (OSHA) to establish a national Young Worker Training and Resource Center in collaboration with the Education Development Center, Inc. (EDC) of Newton, Massachusetts. The center, which will be housed at LOHP and EDC, will provide health and safety training programs, materials, and technical assistance to professionals who reach youth in school- and community-based job readiness and placement programs, and to the employers who participate in these programs. LOHP and EDC will also work with state-level departments of education and job training programs to integrate occupational safety and health training into their existing programs for youth.

In addition, the Centers for Disease Control (CDC) has awarded LOHP a grant to evaluate the effectiveness of teaching teen farm workers about agricultural health and safety through school-based English as a Second Language classes. The study will also explore whether adding community-based educational activities will help to increase the teenagers’ knowledge.
LOHP Offers Workplace Safety Training in Jakarta

Health educators Betty Szudy and Diane Bush of COEH’s Labor Occupational Health Program recently joined other occupational health and safety specialists to conduct a four-day workplace safety training course in Jakarta, Indonesia.

The course was designed to help participants increase their ability to identify, evaluate, and develop plans to correct workplace hazards. The training included a site visit to evaluate hazards and controls at a 7,800-worker shoe factory in Tangerang, Indonesia.

Garrett Brown, MPH ’91, an industrial hygienist for Cal/OSHA and coordinator of the Maquiladora Health and Safety Support Network, and Dara O’Rourke, assistant professor of Environmental Policy at the Massachusetts Institute of Technology, invited LOHP to provide health educators for the course. Melody Kemp, an Australian occupational health specialist who speaks Indonesian and lived in Indonesia for 10 years, also taught in the course.

The training program was funded by the MacArthur Foundation in an effort to build health and safety knowledge and skills among workers and community groups in Indonesia and southern China. LOHP has contributed in-kind staff support and other resources for the project.

A substantial part of Indonesia’s workforce is employed in large factories run by international companies. Labor and human rights groups have expressed concern about working conditions in such companies, which account for two-thirds of industrial growth in the developing world.

Trainees for the course were drawn from six Indonesian trade unions and several non-governmental organizations (NGOs) active in protecting human, women’s, and workers’ rights.

“You hear a lot nowadays about companies having various ‘code of conduct’ proposals for evaluating working conditions in factories around the world,” Szudy says. “Local groups like unions and NGOs can play a key role in evaluating the effectiveness of these monitoring plans and verifying the results of audits conducted in these plants. Our training participants were eager to learn how to evaluate health and safety conditions, and we were impressed with their ability to learn new technical information, use workplace monitoring equipment, and conduct the interviews they needed to identify and evaluate hazards effectively.”

LOHP has conducted other training sessions for workers in Malaysia and along the U.S.-Mexico border.

“As work becomes more global, there is an increasing need to share knowledge and resources about health and safety with other countries,” Szudy said. “This kind of exchange can inspire our work here in the United States as well as help to improve working conditions internationally.”

Trainers Garrett Brown, Dara O’Rourke, Diane Bush, and Betty Szudy (left to right in the back row, center), surrounded by health and safety workshop participants.
Reaching Out to Occupational Health Nurses Abroad

Occupational health nursing receives less attention and fewer resources abroad than it does in the United States, despite the need for professionals trained in this field.

Faculty members in COEH’s Occupational and Environmental Health Nursing program at UC San Francisco are collaborating with their counterparts in other countries to develop training programs and encourage research.

Julia Faucett, Barbara Burgel, and Marion Gillen, all members of the Scientific Committee on Occupational Health Nursing of the International Commission on Occupational Health (ICOH), recently attended the ICOH 2000 conference in Singapore as part of an effort to build linkages among occupational health nurses around the world. Gillen and Faucett presented their research on injury prevention, and Burgel presented her research on the use of clinical guidelines in practice.

“Identifying the occupational health nursing (OHN) leadership in each of the countries and developing adequate training programs are the cornerstone of building collaborative relationships for research, prevention, and other needs,” Faucett said.

As part of their ICOH committee work, Burgel is collecting data using an international survey about OHN practices, and Faucett is part of a group surveying OHN leaders about their research initiatives throughout the world. Gillen consults on training programs in Thailand, and all three faculty members have helped Thai nurses design training programs.

Agricultural Ergonomics Research Center Honored

The UC Agricultural Ergonomics Research Center at UC Davis has received the 2000 Distinguished Service Award for outstanding and creative teamwork from the UC Continuing Education Assembly Council. The award is accompanied by a check for $100 from the California Farm Bureau Federation.

The Center was honored for seminal contributions to agricultural safety, innovative research to reduce musculoskeletal injuries in California’s nurseries and vineyards, invention of new ergonomic tools for workers, and programs that have established back injury prevention as an important, feasible goal in an industry that once considered such problems largely unpreventable.

The interdisciplinary UC Agricultural Ergonomics Research Center team, which has been working together since 1994, includes COEH faculty members John Miles and Fadi Fathallah of Biological and Agricultural Engineering at UC Davis, Extension Specialist James Meyers and Professor Michael Tarter of Berkeley’s School of Public Health, Associate Professor Julia Faucett of COEH’s Occupational and Environmental Health Nursing program at UC San Francisco, ergonomist Ira Janowitz of UC San Francisco, developmental engineers Diana Tejada and Victor Duraj of UC Davis, and research associate Sally Suriano of UC Davis.
Expert in Waterborne Infectious Disease Joins COEH

Jack Colford, assistant professor of Epidemiology in the School of Public Health at UC Berkeley, has joined COEH, becoming part of a network of over 50 UC faculty members interested in collaborating on occupational and environmental health problems. Membership in COEH also enables him to direct interdisciplinary student research funded through COEH.

Colford’s principal research interest is the risk of infectious diseases from drinking water. He is leading three studies known collectively as the Berkeley WET (Water Evaluation Trials) trials to learn whether or not water treatment devices in the home provide any health benefits and whether or not current drinking water treatment standards are adequate. The studies are funded by the Centers for Disease Control (CDC), the Environmental Protection Agency (EPA) and the National Institutes of Health (NIH).

“Millions of people use home drinking water treatment devices, but we have very little data about the health benefits of these devices or the risks from tap water consumption,” Colford explained.

Earlier studies in Canada suggest that 25-35 percent of gastrointestinal illness may be linked to drinking water.

Colford has PhD and MPH degrees from UC Berkeley. He received his MD from the Johns Hopkins School of Medicine in 1985. He completed a residency in Internal Medicine at UC San Francisco in 1988 and later served as chief medical resident at Stanford Hospital.

Colford has served as an expert on numerous federal panels dealing with drinking water safety. He began studying waterborne diseases in the early ‘90s as a fellow in Infectious Diseases at UC San Francisco, where many of his patients had immune systems that were susceptible to waterborne diseases like cryptosporidiosis. He has since broadened his research to include the relationship of drinking water to all types of water-borne infectious gastrointestinal illnesses in the general population.

In 1996, the Safe Drinking Water Act mandated the CDC and the EPA to evaluate the risk of water-borne disease in the United States. Colford and his colleagues subsequently received funding to conduct a pilot trial (250 participants) in Walnut Creek, California, followed by larger trials now underway in Davenport, Iowa (1,200 participants) and soon to begin in Sonoma, California (800 participants).

Davenport is considered to be a typical American city. Its tap water, supplied by a modern treatment plant, is of high quality and meets all federal standards; however the source of the water, the Mississippi River is “challenged” by dumping and industrial wastes. Half the 400 homes in the Davenport study will be equipped with tap water filters and UV chambers designed to kill organisms. The other half will have look-alike “placebo” devices with inactive filters and UV chambers. Colford and his research team will analyze the differences in the rates of gastrointestinal illnesses among the two Davenport study groups during the one year trial.

Neither the families who volunteer for the study, the regulators, nor the researchers will know which devices are active and which are inactive. Using a triple-blinded, placebo-controlled, randomized approach to the study is key to ensuring methodological rigor and accurate results, Colford explained. The Davenport study will continue through 2001.

Colford’s collaborators for the Berkeley WET trials and other studies include COEH faculty members, physicians, engineers, statisticians, doctoral students in epidemiology, and federal officials. Among them are Catherine Wright, program manager for the Berkeley WET program; UC Berkeley researcher and adjunct professor Joseph Eisenberg; doctoral students Judy Rees, Tim Wade and Asheena Khalakdina; UC Berkeley faculty members Ira Tager, Steve Selvin, and Mark Van der Laan; Deborah Levy of the CDC; and Rebecca Calderon of the EPA.
Scientists gathered at the International Conference on Environmental and Occupational Respiratory Diseases in Lucknow, India, last month, called for immediate action in developing countries to reduce exposures to pollutants.

“Environmental and occupational respiratory diseases account for a significant portion of preventable illness and premature death in the world,” conference participants noted. “These respiratory diseases result from regrettably common exposures to contaminated conditions in households, workplaces, and outdoor environments. All countries share these problems, but the burden is greatest in developing countries....”

Preventing hazardous environmental exposures can reduce the incidence of diseases that have major environmental risk factors, such as pneumonia, chronic obstructive lung disease, tuberculosis, asthma, lung cancer, and various occupational lung diseases, the scientists said.

Conference participants argued that enough is known right now to warrant immediate action that will reduce exposures to specific pollutants, since the health effects of pollutant exposures don’t vary significantly from one country to the next.

The scientists identified the following unranked “global priorities” —

- Agricultural dusts
- Dusts from mining and rock quarrying
- Asbestos fibers
- Polluted conditions involving dusts, chemicals, and smoke in small industries
- Traditional household fuels, such as cow dung
- Urban outdoor air pollution
- Active and passive tobacco smoke

Research to learn more about how pollution affects health in developing countries should focus on “exposures and health impacts affecting vulnerable groups such as young children, pregnant women, and those with poor nutrition, for whom available research may not be adequate to assess risk,” conference participants said.

Commenting on the recommendations, Conference Co-Chair Kirk Smith, COEH faculty member and professor of Environmental Health at UC Berkeley, said, “The argument is often made that controlling environmental pollution is an expensive way to improve health. In fact, basic improvements, such as cleaning up household fuels, reducing outdoor air pollution, and improving workplace conditions can have a major impact at low cost.”

In addition to Smith, the Lucknow Conference was co-chaired by Paul Nettesheim, scientific director of the National Institute of Environmental Health Sciences (NIEHS), and by Qamar Rahman and P.K. Seth of the Industrial Toxicology Research Centre at Lucknow. Marc Schenker, program director of COEH’s Occupational and Environmental Health Medicine Program at UC Davis, served on the conference organizing committee.

Some 175 scientists attended the conference from 21 countries. Conference proceedings and plenary papers will be published in the journal, *Environmental Health Perspectives*. 

*In India, higher pollution is found inside homes than outdoors due to the fuels used for cooking and heating.*
It’s time to refocus our national environmental policy, research agenda, and resources to address environmental hazards that have the greatest impact on public health, an environmental expert argues in a newly published memorandum to the incoming president.

Discussing “Environment and Health,” in *US Policy and the Global Environment: Memos to the President*, published by the Aspen Institute as part of its 50th Anniversary Environmental Policy Forum in July, COEH faculty member Kirk Smith argues, “Study after study has shown in the last 20 years that environmental hazards truly affecting health status in the country are not those receiving highest attention….Indoor air pollution, in its various forms, receives relatively little attention compared with outdoor sources and yet probably accounts for as much if not more poor health. Hazardous waste dumps, on the other hand, which are difficult to associate with any measurable ill health, garner much attention and resources. Tshe same chemicals in the form of common consumer products, such as household cleaners, pesticides, and fuel (gasoline), account for much more exposure and ill health and yet are comparatively of little concern to the public.”

The developed countries have focused political and economic clout on industrial and urban pollution, says Smith, “However, from the perspective of actual ill health, the real environmental health risks lie elsewhere.”

On the world scene, more than 15 percent of the burden of disease comes from three conditions—diarrhea, respiratory infections, and malaria, he says. These three diseases, attributable to poor food, air, and water quality, disproportionately affect children under the age of five.

“Although rich countries are not directly threatened by the acute respiratory infections and diarrhea rampant in poor countries, globalization processes do make rich countries increasingly susceptible to other environmentally related infectious diseases. High on this list is tuberculosis,” he says.

Given our finite resources, Smith says, “there is a real health cost in focusing attention on risks that have little measurable health impact and, at least by default, thus result in poorer funding of interventions that address significant risks.”

Domestically, Smith calls for more attention to:

- Controlling household pollution exposures
- Controlling outdoor air pollution where doing so is more effective than controlling indoor or localized exposure sources of the same pollutants
- Applying stringent criteria in judging any proposed new product or activity that will affect large numbers of people
- Applying stronger and more uniform restrictions on occupational hazards

At the same time, he says, the United States should consider policy options that reduce environmental health risks imposed on other countries—most importantly, by finding ways to reduce our greenhouse-gas emissions. We should also consider protecting our population from possible future health threats by directing more research and development toward global environmental health problems that today mainly affect developing countries.

The new president has a unique opportunity to rebalance the nation’s research and policy agenda, Smith said, elaborating on his written recommendations: “The nation has made a bipartisan commitment to doubling the budget of the National Institutes of Health (NIH) over the next few years. Since money for research and development will increase, the nation has an unusual opportunity to
Course to Explore How to Prevent Workplace Injuries and Accommodate Disabled Workers

CEOH faculty members at UC Berkeley and UC San Francisco will join colleagues from other universities, industry, and health care organizations, to discuss how to prevent workplace injuries and how to accommodate injured workers at a continuing education course, December 14-15, in Burlingame, California.

The two-day continuing education program, “Musculoskeletal Disorders and Disabilities in the Workplace: Ergonomic Prevention and Accommodation,” is co-sponsored by COEH and the University of Michigan Center for Occupational Health and Safety Engineering and Rehabilitation Engineering Research Center.

The course is intended for those involved in job placement or rehabilitation of people with musculoskeletal disabilities. Continuing education credits are approved for physicians, qualified medical evaluators, nurses, industrial hygienists, safety professionals, and those seeking CEUs.

Tuition is $525, and pre-registration is required.
For information, call 510/231-5645.

Honors to COEH Faculty and Affiliates

Julia Faucett, associate professor at the UCSF School of Nursing and director of COEH’s Occupational and Environmental Health Nursing Program, has been inducted into the American Academy of Nursing as a Fellow, in recognition of her outstanding contributions to nursing and health care.

The Occupational Health section of the American Public Health Association (APHA) has awarded Mike Wilson, doctoral student in Environmental Health Sciences at UC Berkeley’s School of Public Health, the James Keogh Memorial Award for his contributions to occupational health.
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