Hertz-Picciotto Uncovers Environmental Clues to Autism

Autism rose roughly six hundred percent in California among children up to five years of age from 1990 to 2001, a seven-fold increase.¹ Scientists now estimate it affects one in 88 eight year olds in the United States, with boys up to five times more vulnerable than girls.² Diagnosis at younger ages, the inclusion of milder cases in the definition of the disorder, and improved diagnostics account for approximately a third of the growth,³ but other explanations remain elusive.⁴ Recently, however, researchers from UC Davis have successfully zeroed in on several modifiable factors that may influence autism susceptibility, namely, parental exposure to occupational chemicals, living near a freeway during late pregnancy, and folic acid intake before and during the first month of pregnancy.

These breakthrough studies come from a team of scientists led by COEH member Irva Hertz-Picciotto, the principal investigator and director of the UC Davis Center for Childhood Autism Risks from Genetics and the Environment, or CHARGE. Launched in 2003, CHARGE is the first comprehensive study of environmental causes and risk factors for autism and developmental delay.

A globally renowned scientist, Hertz-Picciotto has published over 200 papers identifying environmental exposures—metals, pesticides, air pollutants, and endocrine disruptors—and their effect on pregnancy, the newborn, and child development. In 2011, Hertz-Picciotto received the Goldsmith Lifetime Achievement Award by the International Society for Environmental Clues to Autism.
The Northern California Center for Occupational and Environmental Health (COEH) has a mandate to provide education, research, and service towards the goal of making workplaces and communities safer. Our success in fulfilling this mandate needs to be periodically assessed. This issue of Bridges highlights achievements in each of the three areas of our work.

In education, the Berkeley Center for Green Chemistry (BCGC) recently won an Integrative Graduate Education and Research Traineeship Program (IGERT) grant to promote interdisciplinary training in methods to evaluate the health and environmental hazards of chemical products and develop new products that are less hazardous and manufactured in a more sustainable way. The COEH has been one of the primary sponsors of the BCGC and two of its principal leaders, Michael Wilson and Megan Schwartzman, are graduates of our programs. In addition to his BCGC work, Wilson is Director of the Labor Occupational Health Program (LOHP), a key component of the COEH with the mission of training workers and community members about health and safety. Wilson is now working to integrate training in principles of green chemistry into programs of the LOHP.

COEH faculty continue to be highly successful in multiple avenues of research. In this issue, we turn to our UC Davis component and show how Irva Hertz-Picciotto and colleagues have learned much about potential environmental risk factors for autism and related disorders. And, because we strive to conduct studies that will have a real-world impact, the workshop organized by Robin Baker showcased how research to practice (r2p) can be achieved.

In the area of service, several COEH faculty and professional staff have recently been appointed to influential positions in state government. UCSF Occupational and Environmental Medicine (OEM) faculty member Gina Solomon was appointed to be deputy secretary for science and health at the California Environmental Protection Agency. I am also pleased to report that OEM program graduate and current clinical faculty member, Rupali Das, has been appointed executive medical director of the Division of Workers’ Compensation in the California Department of Industrial Relations. Two long-time program leaders at LOHP also received important appointments: Laura Stock as a member of the California Occupational Safety and Health Standards Board and Juliann Sum as special advisor to the Director of the California Department of Industrial Relations. Together these appointments demonstrate that the COEH continues to play a leadership role in the development of state policy in both occupational and environmental health arenas.

We would not be able to train students, conduct research, nor develop policy leaders without adequate resources. I have reported previously that a key resource of the COEH, our Education and Research Center (ERC) support from the National Institute for Occupational Safety and Health, is in danger of being eliminated. The current budget stalemate has led to a continuation of our ERC funding for the 2012-2013 academic year at last year’s level, but the long-term status of this funding is completely up in the air and will depend on how Congress addresses the deficit.

We appreciate the support of our alumni and community partners who understand the value of the COEH and have spoken out in support of continued funding. We will keep you posted as the budget battle unfolds.
Hertz-Picciotto Uncovers Environmental Clues to Autism

Epidemiology. She is a professor of Epidemiology at UC Davis and chief of the Division of Environmental and Occupational Health in addition to the director of CHARGE.

Autism spectrum disorder (ASD) is a group of developmental conditions that include full syndrome autism, Asperger’s syndrome, and pervasive developmental disorder—not otherwise specified. Children with autism or ASD exhibit repetitive behaviors as well as measurable deficits in both social interaction and communication.

We now know that twenty or more genes contribute to autism, according to David Amaral, research director of the MIND Institute at UC Davis. But only a small percent of autism cases are purely genetic. Susceptibility genes may include common polymorphisms that, in combination with an environmental insult, can cause autism risk to increase substantially.

“I think for many years people have labored under the assumption that, because there is a pretty high heritability factor, autism is primarily genetic and that is where National Institutes of Health dollars should go,” says Hertz-Picciotto. “It was clear all along there were environmental contributions, even strong ones. In the 1970’s data showed mothers who had rubella infections during pregnancy had a 50 fold higher risk that their child would develop autism. Certainly, there was reason to think that the environment could play a role 40 years ago. People are finally starting to realize that genetics doesn’t preclude environment.”

Hertz-Picciotto and her team just published one of the first studies in several decades to evaluate occupational risks and their association with ASD. Based on a pilot sample of 174 families enrolled in CHARGE, lead author Erin McCanlies found that parental exposure to toxins may have lifelong consequences for their children.

As part of the study, parents of children with ASD, and a control group of unaffected children, reported their occupational exposure to 49 chemical agents suspected or have been found to be associated with adverse pregnancy outcomes, neurologic or physical malformation, or disturbances of the central nervous system. The study’s authors discovered parents of ASD children were more likely to have had occupational exposure to lacquer, varnish, and xylene. Asphalt and solvents exposures were also strongly linked with ASD.

Hertz-Picciotto believes paternal exposures are producing genetic variants—not because they are inherited, but because of insults from the environment. “Some recent data coming out of the genetic side is related to copy number variations (CNVs),” she explains. CNVs are alterations of the DNA of a genome, which results in the cell having an abnormal number of copies of one or more sections of the DNA.

“Children with autism have more of these CNVs in certain regions of the chromosome. They are de novo, meaning they are not necessarily in the parents. They may happen during the period when the sperm is produced, a couple of months before conception. More of these de novo CNVs are coming from the father’s side, but they are not in the father meaning the damage is in the cells that give rise to sperm.”

CHARGE received funding to expand this pilot into a much larger assessment using occupational data collected from over 1,000 participants enrolled in CHARGE, reports Hertz-Picciotto.

In a separate case-control study published in the July issue of the American Journal of Clinical Nutrition, CHARGE scientists showed folic acid may reduce ASD risk in mothers with inefficient folate metabolism. Women in the study who consumed 600 micrograms of folic acid per day were afforded protection compared to women who took less than 600 micrograms a day during the first month of pregnancy. “What’s critical here—this is before many women know they are pregnant,” notes Hertz-Picciotto.

The study found elevated risks of
Hertz-Picciotto Uncovers Environmental Clues to Autism

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ASD among mothers and children with MTHFR 677 C>T variant genotype, and risk estimates decreased with increased folic acid. This gene plays a role in metabolism of folic acid. “Taking the prenatal supplements will, for those mothers or children with the high risk genotype, dramatically reduce the likelihood that their child will develop ASD,” says Hertz-Picciotto.

CHARGE scientists were also the first to report a two-fold increase in autism risk for children living within 300 meters of a freeway at birth. “We recognize living close to a freeway is usually not the most desirable neighborhood. Often these are families of lower socio-economic means. We controlled for these factors and still saw this association,” adds Hertz-Picciotto. “We want to look at the gene-environment interaction to see whether there might be certain groups that are more susceptible to air pollution with regard to child development.”

Traffic-related air pollutants induce inflammation and oxidative stress in toxicological and human studies. Emerging evidence that oxidative stress and inflammation are involved in the pathogenesis of autism supports the findings from Irva Hertz-Picciotto and her collaborators.9

After a decade of research, CHARGE scientists are producing positive scientific evidence that environmental changes—at both the individual and population level—may significantly reduce autism risk; whether it is better protection on the job, dietary education, or regulations for motor vehicle exhaust that protect vulnerable populations.

“At this point we have to keep casting a pretty wide net,” adds Hertz-Picciotto. “The good news is that there are things people can do. While the rates of autism keep going up, I would like to see them plateau and start coming down. That is what our research is aimed at,” says Hertz-Picciotto.

2 http://www.cdc.gov/NCBDDD/autism/data.html
4 PBS NEWSHOUR transcript with Dr. David Amaral, research director at the MIND Institute at the University of California, Davis, on the causes of autism.

Occupational Safety Training Prepares Workers with Special Needs

Approximately 4.5 million individuals in the United States have developmental disabilities such as autism. And an estimated 30 percent of working-age adults in this population are employed, according to a report from the Labor Occupational Health Program (LOHP) commissioned by the National Institute for Occupational Safety and Health (http://www.lohp.org/docs/projects/workerswithdisabilities/nioshfinalreport.pdf).

LOHP’s curriculum, Staying Safe at Work: Teaching Workers with Disabilities about Health and Safety on the Job, offers training uniquely designed for workers with special developmental or intellectual challenges.

Created with employment agencies, job development programs, and high school transition programs in mind, Staying Safe at Work uses fun, interactive tools to teach job safety techniques and requires no literacy skills for learning success.

LOHP also offers training for trainers and employers of individuals with disabilities. For more information contact Robin Dewey: rdewey@berkeley.edu. You can also view information about the curriculum on the following webpage: http://www.lohp.org/publications/workers_with_disabilities.html.
The National Science Foundation awarded a $3 million grant from the Integrative Graduate Education and Research Traineeship Program (IGERT) to UC Berkeley scientists. The grant will train five PhD students per year from four separate research programs in the principles of green chemistry and the design of clean energy technologies.

The primary goal of UC Berkeley’s IGERT grant is to prepare the next generation of scientists, engineers, toxicologists, policy-makers, and business leaders to shape the country’s green chemistry and clean energy economy. Using a Systems Approach to Green Energy, or SAGE, the program will foster technology innovations in solar energy, biofuel, and energy storage systems using principles of green chemistry and engineering.

Each year, ES&T associate editors nominate 100 papers of outstanding quality from among 1,500 papers published in four categories: Environmental Science, Technology, Policy Analysis, and Feature. Members of the ES&T Editorial Advisory Board then select the final top papers in each category. Editor-in-Chief Jerald L. Schnoor chose the Feature by McKone and Nazaroff, “Grand Challenges for Life-Cycle Assessment of Biofuels,” as one of the journal’s finest.

“To address energy security and climate-change, substitutes are needed for petroleum-based transportation fuels,” the authors point out. Their paper summarizes key challenges scientists must address using life-cycle assessment (LCA)—a methodology for evaluating the environmental “footprint” of biofuel alternatives. McKone and his colleagues focus on their LCA experience with crop and plant-based biofuels.

Lead author McKone is an adjunct professor in the School of Public Health at UC Berkeley and a senior staff scientist in Lawrence Berkeley National Laboratory’s Environmental Energy Technologies Division. Nazaroff, the paper’s second author, is the Daniel Tellep Distinguished Professor and Vice-Chair for Academic Affairs for UC Berkeley’s Department of Civil and Environmental Engineering. Arpad Horvath, who is last author, is a professor in the Engineering and Project Management Program as well as the Energy, Civil Infrastructure, and Climate Program in the Department of Civil and Environmental Engineering at UC Berkeley.

Their research was supported by the Energy Biosciences Institute at UC Berkeley.

The IGERT students who will extend their graduate studies into green chemistry will be recruited from UC Berkeley’s School of Public Health, the College of Chemistry, the College of Environmental Health and Engineering, and the College of Engineering.

New Guidebook Packed with Safety Advice for Homecare Workers

Home healthcare remains one of the fastest growing industries in the United States, with the U.S. Department of Labor projecting growth at almost 70% from 2010 to 2020. “It’s an exploding workforce,” reports Laura Stock from UC Berkeley’s Labor Occupational Health Program (LOHP), who says little attention is paid to the health and safety of homecare workers, even though they do many of the same tasks that occur in nursing homes and hospitals and are injured, in many instances, at a higher rate than similar workers in institutional settings.

Now, LOHP offers much needed help to these hard-to-reach workers. Their new guidebook, Caring for Yourself While Caring for Others, delivers practical and easy solutions to increase safety for both employees and consumers.

The guidebook originates from a 10 year, multi-stage project with National Institute for Occupational Safety and Health (NIOSH), the Public Authority for In-Home Supportive Services (IHSS) in Alameda County, and the Service Employees International Union—United Long Term Care Workers, or SEIU-ULTCW. NIOSH funded the project as part of an initiative to close gaps in occupational health disparities.

There is no required training for homecare workers in the state of California, unlike some other states. “These are not nursing assistants but people who do both personal care and housekeeping,” says Stock. “It has been challenging to figure out how to reach this population.”

Homecare workers employed by the Public Authority in Alameda County are paid by the state to provide services to low-income seniors and people with disabilities. “Both the healthcare workers and their clients tend to be low-income,” notes Stock, “so the guidebook was targeted to assist people with limited resources.”

Stock and her colleagues chose a participatory-based research approach to identify hazards homecare workers face. “We had a multilingual team from the beginning to represent the target population,” says Stock. A total of twelve Spanish, Cantonese, and English speaking workers and consumers helped craft the guidebook with recommendations on language, images, and overall tone.

Findings from focus groups also shaped the educational tools employed in the guidebook. For example, authors used talking points to help workers and consumers communicate and included real examples of how to implement health and safety solutions in the home.

Once draft materials were developed, team members were trained as field testers. This opened the door for community feedback. “We learned the relationship between the worker and consumer is very important,” says Stock. “Homecare workers are in a caregiving-mode where their primary concern is the health and wellbeing of their clients. Often, they don’t think about their own health and prioritize that as important.”

Stock and her community partners are now in the promotion and outreach phase of their project. They developed a two hour training workshop to accompany the handbook. Already, they have trained community college instructors and others who are, in-turn, training homecare workers in Alameda County. The Alameda County Public Authority for IHSS plans to distribute the guidebook to all newly hired homecare workers during orientation.

“There has been a tremendous interest among other national organizations that are working with homecare workers,” notes Stock. To meet demand, a national version of the booklet is in the works. Sherry Baron, Stock’s project partner from NIOSH’s Division of Surveillance, Hazard Evaluation, and Field Studies, is spearheading efforts to share the guidebook with stakeholders across the country.
Workplace Exposures Shape Smoking Rates in Building Trades

Approximately forty percent of blue collar workers smoke, more than double the rate of the U.S. adult working population. Individual risk factors such as age, income, and education account for part of the disparity. Yet new research from Dal Lae Chin, a postdoctoral scholar in the Occupational and Environmental Health Nursing Program at the UCSF School of Nursing, contributes to our understanding of how environmental risk factors may contribute to the deadly addiction.

The study, published in the May 2012 issue of American Journal of Industrial Medicine, found smoking was significantly associated with occupational risk factors including exposure to dust and chemicals. Notably, participants in the study who were concerned about their exposure to occupational hazards smoked less than their peers.

Chris Vulpe, associate professor in the Department of Nutritional Science and Toxicology, is principal investigator (P.I.) of the grant. Thomas McKone from COEH is co-P.I. He is an adjunct professor in the School of Public Health and a senior staff scientist in Lawrence Berkeley National Laboratory’s Environmental Energy Technologies Division. Other co-P.I.’s include John Arnold, a professor in the Department of Chemistry and Alastair Illies, an assistant professor of Environmental Science, Policy, and Management in the College of Natural Resources.

“I’m really concerned about the significant relationship between exposure factors and smoking,” says Chin. “The combination of exposures may increase the risk of health problems for at-risk populations and contribute to health disparities.”

The study also discovered a link between the strength of a worker’s relationship with their union and current smoking. “Union commitment was statistically significant in our multivariable model,” says Chin. “Workers may feel a sense of belonging by smoking with a cooperative group.” The finding points to the importance of union involvement in smoking cessation efforts and promotion of smoke-free workplaces.

The study, which is based on Chin’s dissertation research, analyzed baseline survey results from 1,817 building trade apprentices who participated in MassBUILT, a trial smoking cessation intervention, from 2004 to 2007. The participants apprenticed in one of seven skilled trades. They ranged from bricklayers and plumbers, to painters and electricians. All belonged to building trade unions at 10 union sites located in Massachusetts.

Chin’s findings underscore that smoking cessation programs for building trade workers should consider work-related occupational factors, not just individual level interventions, to ensure progress against the single largest preventable cause of disease in the United States, which accounts for approximately 440,000 deaths each year. One example of such an integrated approach is the pioneering work done by the California State Building and Construction Trades Council in collaboration with LOHP: http://www.sbctc.org/built.

The UCSF School of Nursing Honored Dal Lae Chin with the 2012 Barbara Resnik Writing Award.

Co-authors of the study include OiSaeng Hong, director of the Occupational and Environmental Health Nursing Program at UCSF, Marion Gillen, former deputy director of COEH, Michael Bates, adjunct professor in the Division of Environmental Health Sciences at UC Berkeley’s School of Public Health, along with Cassandra Okechukwu, an assistant professor from the Harvard School of Public Health.

The National Institute for Occupational Safety and Health funded the original intervention study. In addition, the American Nursing Foundation, the Alpha Eta Chapter of Sigma Theta Tau International, the Graduate Division of UCSF, and the School of Nursing Century Club at UCSF supported this study.


SUMMER 2012

COEH BRIDGES
Robin Baker painted a vivid picture of the health and safety disparities in the construction industry during her workshop in June 2012, *The Hard to Reach in Hard Hats: A Research to Practice Initiative*. Baker, director of Research-to-Practice for COEH and CPWR (The Center for Construction Research and Training), joined a panel of experts invited to Fort Collins by Colorado State University to accelerate research translation with vulnerable worker populations.

Construction remains the most dangerous industry in the United States. Employing only 8% of the workforce, it accounts for 22% of all work-related deaths and approximately 400,000 occupational injuries annually.\(^1\) Construction-related fatalities and injuries have declined significantly in recent years, however, partly due to the research programs of the National Institute of Safety and Health (NIOSH).\(^2\)

Beginning in 2005, NIOSH contracted the National Academies to review 15 key areas of their operation, including the Construction Research Program. The final report released by the National Academies in 2008 found “the program has made meaningful contributions to improving construction worker safety and health.” They rated the Construction Research Program five out of five for relevance and singled out the acceleration of research to practice (r2p) as a high priority for the future. It was against this backdrop that CPWR recruited Baker, one of the foremost r2p experts in the health and safety field, to develop its new r2p initiative.

“The Fort Collins conference reflects NIOSH’s commitment to translation of high quality science into practical solutions that are widely adopted in the workplace,” says Baker. “They see an opportunity in construction to explore possible models for building better dissemination pathways and better partnerships with the end-users of our health and safety research. The hope is that the approach may pave a pathway for other sectors as well.”

Despite the wealth of safer construction tools and equipment developed by CPWR’s Research Consortium and others, Baker’s presentation revealed the challenge of transferring these advances into the end-users’ hands.

“We can’t just focus on the vulnerable worker. They have the least protection and voice in the workplace and are unlikely to be the ones who can initiate change,” says Baker. “We really need to focus at the employer level, while understanding that often small contractors themselves are a hard-to-reach and vulnerable population.”

Baker highlights the national Campaign to Prevent Falls in Construction as an example where CPWR has been effective in bringing together diverse partners in the construction community to support a vital
r2p initiative. The campaign (http://stopconstructionfalls.com) is cosponsored by OSHA, NIOSH, CPWR and a host of labor and industry partners who are part of the NORA Construction Sector Council.

Falls are the leading cause of work-related injury and deaths in the construction industry. In 2010 there were more than 10,000 construction workers injured as a result of falling while working from heights on the job and another 255 workers killed, according to the Centers for Disease Control and Prevention.

“The campaign provides an opportunity to pull together the best of evidence-based solutions—the best information we have about preventing ladder falls, about working safely on scaffolds, about working on roofs and using fall-prevention devices—and to spread awareness of these resources as a model for dissemination,” reports Baker.

CPWR is hosting an International Symposium on Safety and Health in the Construction Industry at the Park Plaza Hotel in Boston, Massachusetts, from October 16-18, 2012. To register: http://www.issaboston2012.org/register.html

For more information about the Workshop on Research Translation with Vulnerable Worker Populations, visit http://www.r2p.colostate.edu. Presentations will be posted soon, including a keynote address by former Labor Occupational Health Program (LOHP) Coordinator of Public Programs, Pamela Tau Lee on the Asian workforce. The struggles facing this vulnerable population were brought to light by LOHP’s Chinatown Restaurant Worker Health and Safety Project (see also COEH Bridges, Winter 2012).


Baker moderated a panel discussion on lessons learned about technology transfer in the field of construction. David Rempel, professor of Medicine at UCSF and director of Ergonomics at the University of California, presented findings from an overhead drilling project conducted by the Ergonomics department. He was one of seven panelists in the session and is a member of CPWR’s Research Consortium. The panel presented a range of case examples of successes and barriers in moving from research to development to commercialization of safety innovations.

Spotlight on r2p Technology Transfer Symposium

CPWR hosted a Construction Industry Technology Transfer Symposium in May 2012. Initiated by Baker and colleagues, the aim of the symposium was to develop models for the diffusion of new technologies that benefit worker safety and health.3

Workers using a new device developed by the UC Berkeley Ergonomics Program for drilling into concrete structures like this bridge. The device insulates the worker from the high arms forces, hand vibration, and inhaled silica dust usually associated with drilling. This work is usually done manually with a 30 pound air-powered rock hammer.

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Spotlight on r2p
Sharing Office Ergonomics Research with Industry Leaders: The Marconi Research Conference

In June 2012, David Rempel chaired the tenth Marconi Research Conference attended by forty researchers and company representatives with an interest in office ergonomics. According to Rempel, “The goal of these meetings is to bring new office ergonomics research findings to industry so that their early adoption can improve the health and productivity of employees.” Researchers benefit by hearing about the current office health and productivity problems that industries are dealing with. This year researchers from the United States, Canada, Sweden, and Germany presented. The meeting is sponsored by the Office Ergonomics Research Committee, a collection of companies that includes Hewlett Packard, Microsoft, Apple, Steelcase, Herman-Miller, Chevron, ExxonMobil, CNA, Dell, Synaptics, Ergotron, and Genetech. The research presented at the Marconi Conferences has influenced health and safety programs at companies and product design. The designs of the currently popular split keyboards and asymmetrical mice were influenced by research presented at these meetings. Most of the Marconi Conferences have been held at the Marconi Center at Tomales Bay.

Technology Transfer Symposium
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“It was by reviewing Rempel’s work on the overhead drill that we began to think about the problem of technology transfer,” explains Baker. “Even when you have researchers inventing better, safer tools, trying to get them to market is, in most cases, very difficult. We are interested in seeing if there is any way to help facilitate the process.”

UCSF Names New Director of UCSF OEM Residency Program

UCSF’s School of Medicine appointed distinguished scientist Paul Blanc the director of its Occupational and Environmental Medicine Residency Program effective July 1, 2012. Robert Harrison, Clinical Professor of Medicine in the Division of Occupational and Environmental Medicine at UCSF, was named associate residency director.

Blanc succeeds Gina Solomon. In April, Governor Edmund G. Brown Jr. appointed Solomon as Deputy Secretary for Science and Health for the California Environmental Protection Agency.

“We wish Gina Solomon every success in her new position and welcome Paul Blanc and Robert Harrison in their new roles,” said COEH Director John Balmes.

Blanc, Chief of the Division of Occupational and Environmental Medicine, holds the Endowed Chair in Occupational and Environmental Medicine, one of the few such Medical School chairs of its kind in the United States. In addition, he is a former Fulbright Senior Research Fellow and was a previous Robert Wood Johnson Clinical Scholar at UCSF.

Share Your r2p Story

Bridges will feature examples of research with an impact. Please let us know about research that has led to changes in workplace practices, public policy, or other measures to reduce injuries and illnesses and protect workers and communities. Send your experiences with successful partnerships and dissemination strategies to: coeh@berkeley.edu.
Blanc received his MD from the Albert Einstein College of Medicine and an MS in Public Health in industrial hygiene from the Harvard School of Public Health. He is a graduate of the experimental school Goddard College in Plainfield, Vermont where he first became interested in occupational health through writing a theater piece on vinyl chloride-caused cancer.

Blanc’s research interests include the epidemiology of rhinitis, asthma, COPD, and hypersensitivity pneumonitis relative to workplace and environmental factors and occupational and environmental toxicology, focusing on pulmonary responses. In addition, he has done extensive work on quality of life and work disability.

In 2009, Blanc authored a revised edition of *How Everyday Products Make People Sick, Toxins at Home and in the Workplace* (University of California Press). The book offers a deeply researched and historical account of everyday risks posed by household toxins such as leaded toys, fire retardants in furniture and clothing, and bathroom bleaches, to name just a few.

*Psychology Today* (PT) hosts Blanc’s popular blog, *Household Hazards*, on its website. PT approached Blanc to help them cover emerging issues in the field of environmental health. “Most of their bloggers address psychological health issues, but they recognize that the environment and the person are interrelated,” explains Blanc.

“It’s important to me in the blog to remind people that if a material is toxic to workers in the workplace, but it doesn’t blatantly cause consumer health problems, that doesn’t mean that it’s o.k.,” says Blanc. His blog frequently underscores the associations between environmental health and consumer protection, while linking readers to government databases of household toxins.

Blanc’s newly co-authored study in *Chest*, “CaesarStone Silicosis: Disease Resurgence among Artificial Stone Workers,” is an example of a household product safe to consumers, but potentially lethal to production workers.¹ Researchers in Israel followed 25 patients diagnosed with silicosis. The patients had previously dry-cut a new, artificial stone product with high crystalline silica content used for counter tops in kitchens and bathrooms. Over a 14 year period, ten of the 25 patients required lung transplantation (LTX), often the only viable treatment option for patients with end-stage pulmonary disease, including pneumoconiosis. Three patients without LTX died during follow-up. Though these workers were from Israel, a similar product is also produced in the United States, and imported high-silica-containing products are also used here. The study authors caution that further cases are likely to occur unless safety practices are strictly enforced.

In October, 2012, Blanc will co-chair a UCSF Continuing Medical Education program held at the Holiday Inn Fisherman’s Wharf located in San Francisco, California, titled, “Occupational and Environmental Factors in Neurological Disease and Occupational and Environmental Medicine Update.” Use this link for more information or to register: http://www.cme.ucsf.edu/cme

Transitions and New Appointments

**Solomon Named California EPA Deputy Secretary for Science and Health**

Governor Edmund G. Brown Jr. appointed Gina Solomon the deputy secretary for science and health at the California Environmental Protection Agency in April 2012. Previously, she was a clinical professor of Medicine at UCSF and a senior scientist for the Natural Resources Defense Council.

Solomon served as the director of the Occupational and Environmental Medicine Residency Program at UCSF since 2008 and as the associate director of the University of California Pediatric Environmental Health Specialty Unit since 2003.


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**Rupali Das Appointed Executive Medical Director of Division of Workers’ Compensation**

The California Department of Industrial Relations (DIR) and the Division of Workers’ Compensation (DWC) appointed Rupali Das to the position of executive medical director for DWC.

“The medical director plays a vital role in the division’s mission to provide quality care to injured workers and return them to their jobs,” DWC Administrative Director Rosa Moran said in a prepared statement. “Dr. Das brings a wealth of knowledge and experience that will enable us to fulfill that mission and ensure the workers’ compensation system is working for all parties.”

Das was chief of the Exposure Assessment Section in the Environmental Health Investigations Branch of the California Department of Public Health (CDPH) since 2009 and led the innovative program “Biomonitoring California.” She joined CDPH in 1998 as a public health medical officer in the Occupational Health Branch. During her tenure with CDPH, she developed and directed the Occupational Pesticide Illness Prevention Program using mandated physician and workers’ compensation reports to track work-related pesticide illness; led environmental and occupational emergency preparedness efforts; and focused on tracking and reducing occupational infectious diseases. Previously, she worked on air pollution issues at the California Office of Environmental Health Hazard Assessment.

Das attended medical school at the University of Illinois, Chicago, and completed an internship and residency in internal medicine at Michael Reese Hospital. She has a master’s degree in public health from UC Berkeley and is a graduate of UCSF’s Occupational and Environmental Medicine Fellowship Program. She is board certified in both internal medicine and occupational medicine. In addition to her position at DWC, Das is an associate clinical professor of medicine in the UCSF Division of Occupational and Environmental Medicine. Das has been a lecturer and course director for several COEH continuing education programs and has been an important collaborator on numerous COEH research and outreach efforts.

Laura Stock Appointed to Cal-OSHA Standards Board

Laura Stock, the associate director of UC Berkeley’s Labor Occupational Health Program has been appointed by California Governor Edmund G. Brown Jr. to the California Occupational Safety and Health (Cal/OSHA) Standards Board effective June 2012.

Helping Community Health Centers Serve Low-Wage Workers with Job Injuries

UC Berkeley’s Labor Occupational Health Program (LOHP) partnered with the Watsonville Law Center to release a new booklet for community health centers (CHCs), Providing Medical Services to Low-Wage Workers with Job Injuries, 2012. The booklet offers a step-by-step guide designed to help CHCs implement financially viable workers’ compensation programs to ensure low-wage workers with illegally uninsured employers have access to medical treatment under workers’ compensation.

More than five million individuals are part of the low-wage and underground-economy in California. Many of these workers become injured or ill due to hazardous job environments. Regrettably, nearly two-thirds of all reports of serious work-related injuries and illnesses come from this population.

“This effort is an on-going statewide collaborative of government and non-profit agencies committed to eliminating unique barriers faced by agricultural and other low-wage immigrant workers in the workers’ compensation system,” Watsonville Law Center Executive Director Dori Rose Inda noted in a press release.

Sum Moves to DIR

LOHP Attorney and Project Director Juliann Sum, who led the collaborative project with the Watsonville Law Center, was recently appointed Special Advisor to the Director of the California Department of Industrial Relations, taking a leave-of-absence from LOHP after almost two decades. Sum previously served as a consultant to the California Commission on Health and Safety and Workers’ Compensation, the California Department of Industrial Relations, Worksafe, Inc., and Watsonville Law Center.

“Juliann has been such an important contributor to LOHP programs, with her combination of IH and legal skills, as well as her commitment to making technical information accessible to all types of audiences. We’re already missing her, but I know she is making a great contribution in her new role,” said LOHP Director Michael Wilson.


2“Model Tools and Instructions for Community Health Centers in California, Providing Medical Services to Low-Wage Workers with Job Injuries,” LOHP website, Copyright © 2012, Regents of the University of California/LOHP and Watsonville Law Center http://lohp.org/docs/projects/workerscomp/MedicalServicestoWorkers-2012.04.10.pdf.
The University of California’s Richmond Field Station (RFS) has been a hub of research and innovation for COEH members for over a quarter of a century. Though founding Director Bob Spear recognized the value of the campus early on, the announcement in January 2012 that Lawrence Berkeley National Laboratory (LBNL) and UC Berkeley picked RFS as the site of its second campus presents opportunities for new collaborations and a significant investment in services and resources.

The highly productive Ergonomics Program launched in 1992 by Director David Rempel has grown to occupy 3,000 square feet of laboratory research and meeting space at the site, located six miles northwest of the UC Berkeley Central Campus on the San Francisco Bay.

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Richmond Field Station Expansion Offers Bright Future for COEH Researchers

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Spotlight: Nina Holland and the SPH Biorepository

Nina Holland relocated her lab team to RFS two years ago. She believes the upcoming expansion, with its focus on biosciences, will establish the East Bay corridor as the Silicon Valley of biotechnology, bringing together researchers from the University of California and LBNL with other biotech enterprises in the area.

Holland is a faculty member in the Environmental Health Science Division of the School of Public Health (SPH) and director of the SPH Biorepository and the Children’s Environmental Health Laboratory. She calls her space in Richmond “a tremendous resource” with its wet lab for teaching and research, in addition to ample offices for undergraduate and graduate students.

Established in 2003, the SPH Biorepository houses over 150,000
biological and environmental samples that have been processed and archived from more than 30 projects conducted by UC Berkeley faculty in collaboration with UCSF, the Children’s Hospital Oakland Research Institute, Stanford University, the Center for Disease Control, and Kaiser Research Institute, Oakland.

“The most critical part of the Biorepository is the database, which keeps track of thousands of bar coded samples with individual locations among multiple deep freezers and nitrogen tanks,” says Holland. New samples of blood, saliva, teeth, urine and other tissues are arriving all the time, and Holland and her team have the flexibility to adapt to the changing needs of the developing portfolio of projects.

Currently, the team includes six undergraduate and graduate students along with three staff researchers. Lab interns, under Holland’s mentorship, prepare for advanced degrees in Public Health, Biology and Medicine. For example, Karen Huen, who first came to the lab as a master’s student with an undergraduate degree from Stanford, earned a MPH and PhD from UC Berkeley School of Public Health. Her paper “PON Genomics” was awarded best student or new investigator research publication of 2010 by the leading journal, *Environmental and Molecular Mutagenesis*.

Each summer, Holland delivers a Molecular Epidemiology seminar to the interns from COEH’s STEER Program (Short Term Educational Experiences for Research in Environmental Health for Undergraduate Students). The seminar, which includes hands-on lab skills, gives students a well-rounded understanding of the research conducted by the Children’s Environmental Health Laboratory and the role of the SPH Biorepository.
The Northern California Center for Occupational and Environmental Health (COEH), a multidisciplinary program of the University of California at Berkeley, Davis, and San Francisco, promotes health and safety in workplaces and communities by:

- Educating health professionals in epidemiology, ergonomics, industrial hygiene, medicine, nursing, toxicology, and related fields to be leaders in occupational and environmental health.
- Developing new knowledge through an interdisciplinary research agenda focused on preventing illness and injury.
- Responding to the needs of people affected by hazards in their workplaces or communities, with special attention to vulnerable populations.

Through these activities COEH supports federal, state, and local agencies, health and safety professionals, industry, labor, and community-based organizations in their efforts to prevent occupational and environmental disease and injury.

COEH is an Education and Research Center (ERC) of the National Institute for Occupational Safety and Health (NIOSH).