

## Pioneering Hotel Workers Study Gets Results

A study of the health and working conditions of room cleaners in four major San Francisco hotels has helped make the case for reducing the number of rooms that workers in these hotels must clean each day.

A workload reduction from 15 to 14 rooms per day—spelled out during contract negotiations between the Hotel Employees and Restaurant Employees International Union, Local 2, and the hotels, last summer—came in the wake of research findings indicating that the physical workload of the room cleaners had increased over the past five years and that their health was worse than that of the general U.S. population.

The findings also suggested that changes can be made in the structure and organization of hotel work to reduce the health risks and stress experienced by room cleaners.

The fast-growing hospitality industry is a major employer of low-wage service workers in U.S. metropolitan areas. As competition for global tourism and convention business has increased, the \$75 billion industry has added beds, services, and amenities, while cutting costs through practices such as leaner staffing and higher performance demands. The study, which was commissioned by Local 2, with additional funding from the Rockefeller Foundation, explored the impact of these changes on hotel room cleaners—the largest occupational group within the industry.

Directed by Niklas Krause, M.D., a



PHOTO COURTESY OF PAMELA PAU LEE

senior research scientist affiliated with COEH at UC Berkeley's School of Public Health, and Pam Tau Lee, labor services program coordinator for COEH's Labor Occupational Health Program at UC Berkeley, the study documented that more than three-quarters of the 258 workers surveyed had experienced work-related pain in the last year. About one-third of the workers reported experiencing high levels of job stress.

"Room cleaning jobs in the hospitality industry are characterized by

Hotel workers participated in focus groups to help researchers develop and interpret the results of a survey designed to assess the workload of hotel room cleaners.

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## Guidelines Being Written to Reduce Arsenic Risks in China



PHOTO COURTESY OF ALLAN SMITH

Multiple carcinomas are revealed on this man's back. The diffuse black spots are examples of hyperpigmentation. Both result from ingestion of arsenic in drinking water.

Occupational and environmental health officials in the People's Republic of China have teamed with COEH to draft guidelines for reducing the risk of arsenic poisoning in three major Chinese provinces. The health officials met with COEH faculty members and affiliates at UC Berkeley in October to examine the arsenic problem and learn more about research methodologies and findings. The three-day workshop culmi-

nated in a plan to write guidelines that would help provincial researchers and administrators use unified approaches and procedures for addressing arsenic hazards.

"The array of adverse health outcomes from arsenic poisoning is extensive—everything from skin cancer to cardiovascular disease—and the risk can be very high," said COEH Director Robert Spear, who participated in the workshop. "People who are exposed to high levels of arsenic in drinking water have around a one in ten chance of dying from an arsenic-caused cancer."

COEH organized the workshop as part of an international research and training program supported by a grant from the Fogarty International Center of the National Institutes of Health, in collaboration with other federal agencies. The training workshop, led by Allan Smith, professor of epidemiology at UC Berkeley and a world expert on

arsenic and cancer, involved key researchers from mainland China, the United States, and Taiwan.

Participants from the People's Republic of China opened the sessions with an overview of the arsenic problem and then described health hazards in Xinjiang and Shanxi, where arsenic occurs naturally in the groundwater, and in Guizhou Province, where arsenic is found in coal that is used for domestic heating and cooking.

Smith and others next presented highlights of Berkeley's arsenic research program in Argentina, Chile, India, and the United States. (For information about this program, visit <http://socrates.berkeley.edu/~asrg>.) David Kalman, professor of environmental health sciences at the University of Washington, described how to measure inorganic arsenic in water and in biological samples. Michael Kosnett, professor of clinical pharmacology and toxicology at the University of Colorado Health Sciences Center, explained how to diagnose the clinical effects of arsenic. Jose Centeno, chief, Biophysical Toxicology Branch, at the Armed Forces Institute of Pathology in Washington, D.C., discussed the institute's International Tissue and Tumor Repository, which gathers biological samples for study. Culminating the program, pioneering arsenic researcher Chien-Jen Chen, dean, College of Public Health, at National Taiwan University in Taipei, presented the highlights of his work studying arsenic in drinking water over the last 20 years.

The guidelines that have emerged from the workshop are intended to inform field investigators about state-of-the-art research methods, help them increase their efficiency, and improve the uniformity of their work. The guidelines include epidemiologi-

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## New Course Will Alert Students About Healthcare Work Hazards

COEH faculty and affiliates are developing a course that will alert medical and nursing students about health and safety hazards in hospital settings.

The healthcare industry has historically paid scant attention to occupational hazards in the healthcare workplace. Growing concern about the need to safeguard healthcare workers from needle stick injuries and other dangers associated with bloodborne pathogens has resulted in new laws and an improved focus on this aspect of safety; however, instruction about health and safety problems in general continues to lag.

The new course, funded by the National Institute for Occupational Safety and Health (NIOSH), will introduce beginning medical students and nursing students to the overall needs of occupational health and safety in the healthcare environment and train them to protect themselves and others. June Fisher, associate clinical professor of medicine at UC San Francisco, is developing the course, with participation from faculty in occupational medicine, nursing, and occupational health nursing at both UC and San Francisco State University.

"To the best of my knowledge, our program will be the first to address the health and safety needs of students entering healthcare professions in a comprehensive manner," Fisher said. "We anticipate that our students will become future leaders in promoting safer practices, thus improving the working environment for all healthcare workers."

The course, being prepared for next fall, will inform students about such potential problems as chemical and radiation exposure, occupational stress, musculoskeletal injuries, hazards associated with allergies, such as latex sensitivity, and bloodborne pathogens. It will unfold in two parts.



A classroom segment will present case studies, epidemiological and industrial hygiene data, and prevention strategies. An audio-visual program for independent study will supplement the classroom lectures.

In addition, hospital tours, to be conducted before the students begin their clinical rotations, will familiarize students with the institutions involved and provide general background on worker health and safety in healthcare settings.

Occupational nursing students will work with the faculty to develop the course and will receive special training so that they can participate in conducting the hospital tours. The curricular and audio-visual materials developed for the course will be made available to NIOSH Education and Research Centers (ERCs) and other medical institutions throughout the country. 🌍

Students of COEH Graduate Programs evaluating a new, safer syringe to prevent future needle stick injuries to health care workers.

## Hotel Workers Study

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**“These women are doing heavy physical labor, pushing 200-pound carts, and cleaning rooms at a demanding pace. At about 20 minutes per room, every second means a lot.”**

increasing repetitive physical workloads, low income, low skill utilization, low job control, and virtually no prospects for training and career advancement,” the researchers reported. “There is compelling evidence that such low-income jobs result in a disproportionately high burden of illness, injury, and disability.”

### Breaking New Ground

No epidemiological studies of the hospitality workforce have been conducted, and traditional occupational health and safety research has largely ignored the working conditions and health risks of hotel workers. Recognizing that they were breaking new ground and would need to incorporate the perspective and experience of their subjects, Krause, Lee, and their colleagues developed a model for collaborating with the room cleaners throughout the study (see sidebar).

Nearly 70 percent of the eligible room cleaners participated in the study, volunteering their time outside of work to take an hour-long survey. A core group of participants contributed to focus groups, helped the researchers develop the survey, and offered their insights to help the researchers refine the survey questions and interpret the results.

The research project involved workers in four different types of hotels—luxury business, business and convention, family tourist, and group tourist. Nearly the entire survey population (99 percent) was female. Most (95 percent) were immigrants who spoke a native language other than English. Nearly half (44 percent) were over age 50. More than half (58 percent) live with a dependent needing care.

To overcome language barriers, the survey was prepared in English, Spanish, and Chinese. In addition, volunteers who speak Tagalog were available to help Filipino participants who requested help in understanding and commenting on the English version.

### A Participatory Effort

Here are some of the ways in which the researchers collaborated with the room cleaners:

- Local 2 selects 25 middle and high seniority room cleaners from six San Francisco hotels to serve on a Research Advisory Council
- Council members develop an outreach plan based on personal contact with other room cleaners
- Researchers train council members in use of union roster
- Researchers conduct seven three-hour focus groups with council members to learn about job tasks and identify job stressors
- Researchers pre-test survey in an eighth, expanded focus group and refine questions
- 258 room cleaners from four hotels participate in survey
- Council members meet with researchers in three sessions to help interpret the data and suggest additional ways to break the data out
- Researchers present findings to Local 2
- Researchers present findings to Local 2 and hotel administrators at contract negotiating session

### Work More Demanding

For most of the room cleaners, the number of rooms to be cleaned per day over the past five years had not changed, yet 87 percent reported that their job had become more demanding. Participants attributed the extra work and added difficulty to upgrading of facilities (for example, larger beds and heavier bedspreads) added amenities in the rooms, such as coffee makers, more people per room, and heavier use of the rooms by hotel guests, who are bringing more food into the rooms and leaving more garbage.

“These women are doing heavy physical labor, pushing 200-pound carts, and cleaning rooms at a demanding pace,” Krause said. “At

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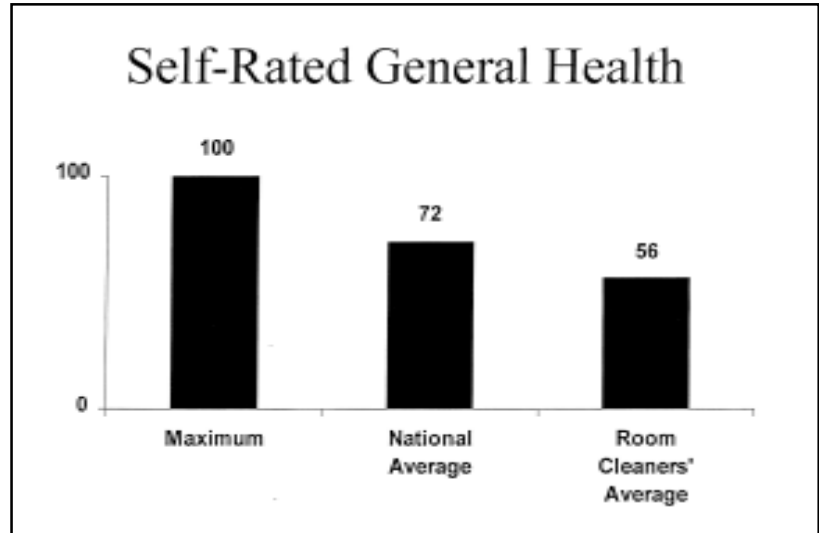
about 20 minutes per room, every second means a lot.”

### **Redesigning Work Can Help**

The researchers found that working conditions and workers’ health varied substantially among the four types of hotels studied. This variation led them to conclude that “workload and work organization in housekeeping can be designed in ways which would reduce the burden of illness and disability currently experienced in this occupation.”

Lee presented the study results at the National Conference on Workplace Safety and Health Training in St. Louis and at a conference of health and safety educators at the Highland Center in Tennessee, last fall.

“People were very interested in how we had involved the workers in the study, and they were impressed that our research had made an impact,” Lee said. “For example, our research showed that many of the workers were not reporting work-related injuries and illnesses, although they were seeking medical help. As a result, the hotels agreed to revise their health and safety programs, some of which inadvertently discouraged



reporting. We hope that our findings will help set a standard for the rest of the country.”

The researchers are now preparing a report providing a more detailed analysis of how workplace conditions relate to health outcomes among the study participants. Krause and Lee would like to monitor their study population over the next five years to determine if the workload reduction and any changes in work organization precipitated by their findings have an impact on the health of the room cleaners. They are seeking funding for a follow-up study. 🙏

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### **Arsenic Risk**

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cal principles, suggested clinical and diagnostic standards, suggested standards for analytical chemistry, and environmental and exposure-related procedures.

“We hope that the new guidelines will help occupational and environmental health officials develop a common language and common benchmarks as they seek to reduce the

high risk of arsenic poisoning in the provinces,” said Spear.

The guidelines will be disseminated in pamphlets and through a Web site operated by researchers at the Chinese Academy of Preventive Medicine (<http://www.capm.ac.cn>), which will be linked to other sites for more information. 🙏

## Lee, Fathallah Join UC Davis Faculty

**K**iyoung Lee has joined the Department of Epidemiology and Preventive Medicine at UC Davis to teach and conduct research on exposure assessment of occupational and environmental health hazards.

Lee brings a unique background to his new position. A native of Korea, he holds a bachelor's of science and a master's of public health from Seoul National University. He received a master's of science in industrial hygiene from the University of Michigan in 1990, and went on to Harvard University to obtain a doctor of science in environmental science and engineering, with a focus on air pollution and industrial hygiene. He served as an instructor in the Department of Environmental Health at Harvard's School of Public Health from 1994 to 1997, when he accepted a faculty position at Queensland University of Technology in Brisbane, Australia. In 1997, Lee became a certified industrial hygienist. He thus comes to the Davis campus with strong credentials in both public health and industrial hygiene.

Lee's many publications reflect his expertise in exposure assessment, exposure mitigation techniques, and the biological effects of exposure. His research interests include developing new methods for measuring personal exposure to environmental air pollution, assessing human exposure to environmental and occupational pollutants, and indoor air quality.

Lee is a member of the American Industrial Hygiene Association, the American Academy of Industrial Hygiene, and various professional organizations for environmental research.

An athlete as well as a scholar, Lee

holds the 1985 silver medal in downhill skiing from the Korean National Winter Games.

**F**adi Fathallah comes to UC Davis with a joint appointment as assistant professor of biomechanical engineering and ergonomics in the Department of Biological and Agricultural Engineering and as a biomechanical engineer in the Agricultural Engineering Experiment Station. He is also a member of the Biomedical Graduate Group at UC Davis.

Fathallah will focus his research on improving safety and productivity in the workplace by applying occupational biomechanics and remediating exposure to environmental hazards. His research interests include the effects of the physical work environment on the musculoskeletal system of agricultural workers, the design of mechanical systems to prevent injury, evaluation of worker exposure to climatic and chemical hazards, and development of strategies to reduce these risks.

Through his Agricultural Experiment Station appointment, Fathallah will work with the public and the agricultural community to solve engineering problems related to occupational biomechanics.

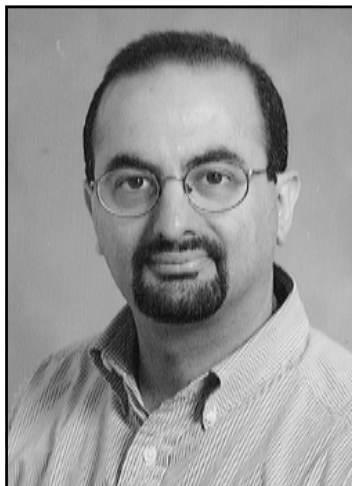
Fathallah received a bachelor's of science in industrial engineering from Texas Tech University in 1986, a master's of science in industrial engineering and operations research from Virginia Polytechnic Institute and State University in 1988, and a doctorate in industrial and systems engineering from Ohio State University in 1995. At Ohio State, he investigated the role of spinal motion and workplace factors in work-related low back disorders.

Before joining UC Davis, Fathallah was a senior research associate at the



Kiyoung Lee

PHOTO COURTESY OF KIYOUNG LEE



Fadi Fathallah

PHOTO COURTESY OF FADI FATHALLAH

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## New Look for the New Millenium

Many thanks to those of you who responded to our reader survey! We've given our newsletter a fresh look for the new century, and, based on the satisfaction you expressed with our content, we are not contemplating any major changes in the news and information we are bringing to you.

The readers who answered our call for feedback told us they especially want to hear about research developments, clinical case studies, international activities, new academic courses, new faculty members, and the impact of COEH activities on public health policy. They are least interested in the list of contracts and grants that we publish each year. (Our faculty members want this summary, and we will provide it to them separately.)

If you have further thoughts about how the newsletter can serve you better, please let us know.

Best wishes for a safe and healthy New Year!




Robert C. Spear  
Director



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Liberty Mutual Research Center for Safety and Health in Hopkinton, Massachusetts, where he investigated the risk factors involved in exiting commercial vehicles, the implications of using back belts for lifting, and hourly trends in occupational injuries.

Fathallah's work has been published in *Spine, the Journal of Biomechanics, the Journal of Spinal Disorders, Journal of Occupational Rehabilitation, The American Journal of Industrial Medicine, Human Factors, Ergonomics, and Applied Ergonomics*. He is a member of the Human Factors and Ergonomics Society, the American Society of Biomechanics, the Institute of Industrial Engineers, and the Ergonomics Society (UK). 

## Continuing Education

For a list of COEH Continuing Education courses, visit the CE website at <http://socrates.berkeley.edu/~coehce>.

Additional seminar series available include:

- *Grand Rounds: Current Topics in Occupational and Environmental Medicine*. For information on seminars in Sacramento, call 916/752-3317; for seminars in San Francisco, Santa Clara, and Berkeley, call 415/206-8950
- *Agriculture Seminar Series*. For information, visit [http://agcenter.ucdavis.edu/agcenter/announceseminar\\_series.htm](http://agcenter.ucdavis.edu/agcenter/announceseminar_series.htm)

Located on the Berkeley, San Francisco and Davis campuses of the University of California, COEH trains occupational and environmental health specialists in medicine, nursing, toxicology, epidemiology, policy, ergonomics and occupational hygiene. It also conducts research and facilitates exchange of information and experience among labor, industry, and the academic community to better serve the working population. In 1982, it was designated an Education and Research Center (ERC) of the National Institute for Occupational Safety and Health (NIOSH). *COEH Bridges* is published quarterly and made available at no charge.

### Director

Robert C. Spear

### Program Directors

John R. Balmes, Robin L. Baker  
Julia Faucett, Marc B. Schenker  
S. Katharine Hammond

### Newsletter Staff

Suzanne Llewellyn,  
Managing Editor  
Marisa Loeffen,  
Production Designer  
Vivian Auslander  
Communications,  
Editorial Services  
Nana Angelakis,  
Editorial Assistant

Phone: 510/643-4422

Fax: 510/642-5815

E-mail: [llew@uclink4.berkeley.edu](mailto:llew@uclink4.berkeley.edu)

Home Page: <http://ehs.sph.berkeley.edu/coeh/>



# Bridges

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 University of California  
 CENTER FOR OCCUPATIONAL  
 AND ENVIRONMENTAL HEALTH  
 School of Public Health  
 Berkeley, CA 94720-7360  
 ADDRESS CORRECTION  
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