



AgHealth News

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Agricultural Health and Safety

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Graduate student research colloquium encourages collaboration

Students and staff from the Western Center for Agricultural Health and Safety (WCAHS) met on Oct. 5 with graduate students from the UC Davis John Muir Institute for the Environment (JMIE), the UC Davis Department of Nutrition, the Chicano Studies Program, and the UC Riverside Environmental Toxicology Graduate Program to present their research projects which all included potential components for improving agricultural health and/or safety, and to begin dialogue for future areas of collaboration.

UC Riverside attendees included Toxicologist Bob Krieger and Senior Research Assistant Helen Vega from the Personal Chemical Exposure Program (PCEP), along with PCEP graduate students Melinda Bigelow, Zhenshan Chen and Yanhong Li. Additionally, WCAHS External Advisory Chair and Cal/OSHA Regional Director Bill Krycia participated.

The purpose of the colloquium was to bring together a group of diverse investigators and graduate students working in agricultural health in order to synergize efforts and to learn about new projects and research on the UC Davis campus, and beyond, that focus on issues relevant to agricultural workplace health and safety and exposure assessment.

WCAHS Director Marc Schenker, whose hope that the colloquium

(see **Colloquium** on page 2)



Victor Duraj (left) demonstrates to U.S. Congressman Mike Thompson how to use a "power cutter for woody plants," which is helpful for eliminating repetitive motion and common tendinitis among agricultural workers.

U.S. Representative Thompson visits WCAHS

The Western Center for Agricultural Health and Safety (WCAHS) received an unprecedented visit from U.S. Congressman Mike Thompson on Sept. 12 at the UC Davis Center for Health and the Environment (CHE). A small vineyard owner, Mike Thompson has been representing California's 1st Congressional District since 1998. The district includes all of Napa, Lake, Mendocino, Humboldt and Del Norte counties, as well as portions of Yolo and Sonoma counties.

His visit included a concise overview of the ag center's history and funding, milestones and ongoing projects by WCAHS Director Marc Schenker. In addition to the opportunity to personally thank the congressman for legislative support through continued funding, the visit provided time for a round-table discussion and hands-on agricultural workplace safety interventions demonstrations by UC Davis development engineer and WCAHS investigator Victor Duraj. First District representative Elly Fairclough accompanied Congressman Thompson, joining the balance of the group in the CHE Board Room.

(see **Thompson** on page 3)

Colloquium *from page 1*

would foster research ideas for ancillary and future projects, said, "It was very exciting to see the interaction of so many graduate students involved with agricultural health and safety research. The ag center has catalyzed a lot of diverse research initiatives involving graduate students, and I am certain many will continue with this work as they progress in their careers."

By sharing knowledge, learning and building consensus, groups that work collaboratively can obtain greater resources and work toward more effective outcomes. Kent Pinkerton shared his views on the colloquium. He said, "The passion the students demonstrated for their projects was exciting to see as well as their willingness to share ideas with others. It is gratifying for graduate students coming from such highly diverse graduate programs to see common themes for research collaboration in agricultural health and safety."

WCAHS investigators learned about a variety of innovative research



Brent Ulrey gave a presentation of his WCAHS project, titled, "Effect of Weight Transfer Devices on Low Back Loads in the Stooped Posture," during the colloquium.

that is happening within their own center as well as within other disciplines across campus. For example, Virginia Chaidez discussed that child feeding practices in the Latino toddler population is a new area of research. Preliminary results have shown some interesting feeding patterns about introducing solid foods and preferences of foods that will provide strategies for early preven-

tion in high-risk groups.

The colloquium provided a forum for graduate student researchers to exchange knowledge and information, as well as to network with each other. WCAHS investigators can disseminate this information by bringing it to communities through its partnerships with agricultural organizations.

Agricultural Safety Resource Alliance examines vineyard harvest safety

The importance of regional agricultural safety networks is being reinforced by the formation of alliances throughout the state.

Napa Valley's Agricultural Safety Resource Alliance (ASRA) held its annual round-table discussion titled "Vineyard Harvest Safety," at the Calistoga fairgrounds on Aug. 8.

Robin Nicola spoke to more than 50 participants in Spanish and English throughout the 2-hour presentation, demonstrating protective gear and explaining safe vineyard harvesting practices.

The program ended with a heat stress presentation by Howard

Rosenberg, UC Berkeley Cooperative Extension specialist.

The alliance is modeled after safety coalitions in the Fresno and Salinas areas. The target audience for alliance breakfast meetings are safety coordinators, managers and foremen responsible for worker safety. The main goals of the alliance are to inform and provide employers with resources to help them develop and maintain effective safety programs through regional meetings.

To investigate the potential for organizing a local ag safety alliance in your area, call or e-mail the ag center at (530) 752-4050; agcenter@ucdavis.edu.



Napa Valley's ASRA co-founder, John Garcia (above), is corporate safety manager for Beringer Blass/Foster's Americas and serves on the WCAHS' Executive Advisory Board.

Thompson from page 1

Joining Thompson were Professor and WCAHS Associate Director Kent Pinkerton and several of his graduate students; Associate Professor and WCAHS Principal Investigator Frank Mitloehner; Christian Sandrock, deputy health director for Yolo County and a UC Davis Medical Center expert in emerging infectious diseases; Marjorie Dickinson, assistant vice chancellor for UC Davis government and community relations; and Sandy Freeland, WCAHS manager.

Schenker explained to Congressman Thompson that the center has focused on health and safety issues affecting Western agriculture for the past 17 years, including diverse, labor-intensive, high-value crops, a dry (and hot) climate and an immigrant workforce.

“As a vineyard owner, you are aware of some of these issues,” said Schenker. “Strains and sprains, repetitive stress injuries, falls. Other hazards you may be aware of from the news—heat stress, tractor roll-overs. Still other hazards may be less visible, such as the stresses of low-wage work among our hired farm workers, the effects of unsafe housing conditions, or the chronic effects of dust exposure in agriculture.”

He went on to explain that the ag center’s mission includes understanding the causes of illness and injury, and translating that work into prevention measures that can be used in the field.



Congressman Thompson discusses ag safety and health issues with WCAHS Director Marc Schenker and Associate Director Kent Pinkerton.

Schenker added, “I would like to mention that this philosophy of disease and injury prevention is at the core of a current UC Davis efforts to create a new School of Public Health. UC Davis is fortunate to have a wealth of experience in core public health disciplines, and looks forward to creating a school that can apply these principles to the prevention of numerous health issues affecting society, such as obesity, vector-borne disease, cancer, and disabling injuries particularly among the elderly.”

Partnership with UC Berkeley’s LOHP to expand WCAHS programs

As a new Central Valley partner, the Western Center for Agricultural Health and Safety (WCAHS) accepted the invitation from Labor and Occupational Health Program (LOHP) Director Robin Baker to participate in the statewide Worker’s Occupational Safety and Health Training and Education Program (WOSHTEP).

WOSHTEP is a statewide initiative aimed at reducing occupational injuries and illnesses and workers’ compensation costs in California workplaces. It is coordinated by the Commission on Health and Safety and Workers’ Compensation and implemented by resource centers at the Labor Occupational Health

Program at UC Berkeley and the Labor Occupational Safety and Health Program at UCLA.

The purpose of WOSHTEP is to promote injury and illness prevention through training and dissemination of materials by a statewide network of providers. WOSHTEP serves a variety of industries, and participants come from diverse occupations and work settings. Special emphasis is placed on occupational groups with special needs, such as those who do not speak English as their first language, workers with limited literacy, young workers, and other traditionally underserved industries or groups of workers.

This collaboration will enable WCAHS to hire a bilingual health/labor educator as the WOSHTEP Central Valley coordinator to conduct outreach and training to various agricultural employers. Our collaborative efforts will involve extending the WOSHTEP specialist courses and programs to agricultural employers.

WOSHTEP includes several activities targeting employers, workers, and the workers’ compensation community, with a common goal of promoting positive, healthy employment in the state of California.

New Pesticides and Health series available via live teleconference

WCAHS representatives were pleased to be invited by the UC Davis Health System to take part in “You Ask For It,” a regularly scheduled grand rounds series live teleconference.

In collaboration with the California Environmental Protection Agency, WCAHS researcher Dr. Stephen McCurdy and doctoral student George Sellu have been developing a series of self-study modules to better equip health providers with practical tools to diagnose, treat and report pesticide illnesses.

“You Asked for It”

Regularly Scheduled Grand Rounds Series

Jan. 15, 2008, NOON-1pm PST

Pesticides & Health Series I: Recognition, Management and Reporting Pesticide Illness

Feb. 19, 2008, NOON-1pm PST

Pesticides & Health Series II: A Practical Approach to Acute Pesticide Illness

“You Ask For It” is one of many distance education series, sponsored by the UC Davis Health System’s Office of Continuing Medical Education, that strive to meet the rapidly changing needs of health care professionals to improve patient outcomes. The series is designed as an interactive remote video teleconference from which providers can get immediate answers from experts.

Health care providers can see the event live at any one of the 24 videoconferencing spoke sites or 80 telemedicine sites in California. These sites include urban and rural hospitals and medical centers throughout California. For more information visit www.ucdmc.ucdavis.edu/cme/distance_education/ on the Web.

For information about system requirements needed for accessing the live teleconference, contact Rikki Roehrich, (916) 734-3182, rlroehrich@ucdavis.edu.

For archived versions of this event, please log on to www.ucdmc.ucdavis.edu/cme/distance_education/webevents/

Study examines transport of inhaled quantum dots from nose to brain

In September, WCAHS and CHE graduate student Laurie Hopkins presented her current research project, titled “Rapid Transport of Inhaled Quantum Dots from Nose to Brain,” to the European Respiratory Society Annual Congress 2007 in Stockholm, Sweden. Below is a summary of her work.

L.E. Hopkins with K.E. Pinkerton, T. Huser

Evidence suggests particle size may be an important feature of toxicity, with the smallest particles (100 nm or less in diameter) having the greatest toxic potential.

To test the hypothesis that synthesized nanoparticles can serve as a tracer model for the fate of tiny substances inhaled into the body, adult mice were exposed to aerosolized fluorescent semi-conductor nanocrystals (quantum dots) for 2.5 hours in a nose-only inhalation chamber. These CdSe-ZnS quantum dots were encapsulated in PEG-2000 PE micelles to minimize aggregation and improve solubility. The aerosol generated by low-flow nebulization was a heterodisperse aerosol having a mass median aerodynamic diameter of 1.8 μ m – well within a range that could easily enter the respiratory system.

Mice were sacrificed at intervals ranging from 0 hours to 12 weeks post-exposure. Animals were anesthetized, then fixed by vascular perfusion. Sections of brain,

lung, and nasal tissues were visualized using standard fluorescence and confocal laser scanning microscopy methods. Rapid uptake and transport of quantum dots within the nose and lungs was observed within three hours post-exposure. A striking finding was Quantum dots were found within the olfactory epithelium, nerve fascicles and olfactory bulb (a portion of the central nervous system and brain). In general, diffuse labeling was noted throughout each of these compartments, with notable clustering of quantum dots within the basal zone of the olfactory epithelium as well as glomerular regions within the olfactory bulb as proof of rapid uptake of particles from the nose to the brain.

To our knowledge, this is the first reported use of quantum dots as a model particle in an inhalation exposure investigating uptake, transport and retention of nanoparticles in the olfactory pathway and central nervous system.

For more information, contact Laurie Hopkins, lehopkins@ucdavis.edu, at the Center for Health and the Environment, University of California, Davis.

Parlier health fair draws more than 200 community members

As part of the Latino Health Awareness Month, the city of Parlier, Calif., held a health fair on Sept. 22. Titled “Empowering Parlier Community Members to Make Positive Lifestyle Changes – Eat Better and Move More,” the health fair was sponsored by the Fresno County University of California Cooperative Extension Network for a Healthy California Latino campaign.

WCAHS graduate student Emily Meharg participated in conjunction with the WCAHS outreach pilot project titled, “Collaborative Community Outreach Project in Parlier, California.”

The educational health fair included health awareness workshops, physical activities for young and old, a farmers’ market, a raffle, numerous booths and guest speakers, including keynote speaker Juan Arambula, 31st Assembly District in the California State Legislature, and City Manager Lou Martinez.

The Western Center for Agricultural Health and Safety booth featured the WCAHS tabletop display and provided educational material. Emily Meharg’s air qual-



Emily Meharg’s (at right) air quality research booth featured material she had designed and produced for children and adults in Spanish and English.

ity research booth, an extension of Kent Pinkerton’s air quality research study conducted in Parlier the previous year, featured material she had designed and produced for children and adults in Spanish and English, in addition to several bi-lingual brochures, provided by the San Joaquin Valley Unified Air Pollution Control District, the California Air Resources Board and the Fresno Madera Medical Society.

Many of the families sought out Emily Meharg at the WCAHS and CHE booths. These families had previously met her and had been

personally invited to attend the health fair. “It was very exciting that throughout the day, numerous families and individuals visited our tables, and we had the opportunity to engage with many of them regarding air quality and other health-related issues,” said Meharg.

More than 200 participants learned about air quality and other health-related issues and gathered additional information from the 30 booths. They shopped the farmers’ market and attended awareness workshops on cancer, diabetes and nutrition.



WCAHS held its 2007 Strategic Planning Retreat on Sept. 7 at the Yolo Fliers Club in Woodland. Eleven investigators gave 10-minute “Perspectives” presentations, and the group identified ag center goals for the upcoming year. Pictured (from left) are some of the program presenters: Victor Duraj, associate development engineer, biological and ag engineering; Rick Mines (back to camera) of the California Institute for Rural Studies (CIRS) and retired WCAHS investigator; Emily Meharg, WCAHS & CHE graduate student researcher; Jonathan London, faculty assistant to the provost and director of the Center for the Study of Regional Change at JMIE; Professor Philip Martin, ag and resource economics; Charles Hess, UC Davis College of Ag dean emeritus and WCAHS’ External Advisory Board member; Ron Storchlic, executive director of CIRS.



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for Agricultural
Health and Safety**

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Join our list server!

Have puzzling questions about occupational hazards in agriculture? Wondering about resources for teaching pesticide safety? Interested in Spanish-language resources for agricultural health and safety training? Then subscribe to our list server by visiting our Web site at <http://agcenter.ucdavis.edu>, and click on "AgHealth E-mail List."

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WCAHS Seminar Series

4-5 p.m., 3201 Hart Hall, UC Davis Campus

Refreshments Provided

Monday, December 3

Robin Dewey, M.P.H., UC Berkeley School of Public Health Labor Occupational Health Program, "Extending the worker occupational safety health training and education program into agriculture"

Monday, January 7, 2008

Ria De Grassi, Director

National Affairs and Research, California Farm Bureau Federation, "Infectious diseases in agriculture: Concerns grow, numbers of veterinarians shrink"

Monday, February 4, 2008

Richard Molinar, M.S., UC Cooperative Extension, Fresno, "Regulatory impacts on Southeast Asian small farms in Fresno: Pesticide, labor, OSHA and water"

The seminar series is available via video webcast at <http://agcenter.ucdavis.edu/seminar/webcast.php>