



DEPARTMENT OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH SCIENCES

# ENVIRONMENTAL HEALTH *News*

SCHOOL OF PUBLIC HEALTH AND COMMUNITY MEDICINE ■ UNIVERSITY OF WASHINGTON ■ SPRING-SUMMER

## RESPIRATORY DISEASES

*For decades, departmental researchers have sampled, measured, and extrapolated pollutants from the air. New techniques are bringing them closer to understanding how air pollution causes serious—sometimes fatal—effects in people with lung disease.*

*This issue of Environmental Health News describes several projects affiliated with the Northwest Center for Particulate Air Pollution and Health (NW PM Center), funded by the Environmental Protection Agency and housed in our department. We also describe findings related to Parkinson's disease, and celebrate the accomplishments of our faculty, staff, and students as the 2002–2003 academic year comes to a close.*

*Air pollution is implicated in 50,000 premature deaths and costs an estimated \$40 to \$50 billion in health-related costs annually in the United States. Lung disease is the nation's number-three killer, responsible for one in seven deaths.*

*While air pollution extracts costs from everyone, certain groups are more susceptible than others.*

*Research in the department has focused on asthmatic adults and children, adults with chronic obstructive pulmonary disease (COPD), and children with cystic fibrosis.*



## VULNERABLE POPULATIONS

It has long been accepted that people with respiratory disease are more at risk from air pollution than others, but a recent study of cystic fibrosis patients provides the first specific evidence of this, according to department Chair Dave Kalman. Dr. Joel Kaufman of the Occupational and Environmental Medicine Program was principal investigator. His study represents the first time that a genetic disease has been shown to be significantly affected by environmental pollutants, Kalman said.

Cystic fibrosis is a genetic disease affecting about 30,000 children and adults in the United States. A defective gene causes the body to produce an abnormally thick, sticky mucus that clogs the lungs and leads to life-threatening infections. The disease worsens over time and, even with advances in testing and research, limits life expectancy to about 30 years.

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Dr. Kaufman's study began with a premise that levels of air pollution—even those that fall within current air quality standards—can cause adverse health effects for people with chronic respiratory diseases. Cystic fibrosis interested him because no previous research had been done and because a national registry provides data on pulmonary exacerbations (times when the lung disease requires hospitalization or intervention with antibiotics), pulmonary function, and mortality.

Dr. Kaufman's team included Stacey Newsom, a physician who received her Master of Public Health degree from our department last year, and Chris Goss, assistant professor in pulmonary and critical care medicine.

Their epidemiologic study examined the association between ambient air pollution, collected in the Environmental Protection Agency's Aerometric Information Retrieval System (AIRS) database, and pulmonary-specific outcomes recorded in the National Cystic Fibrosis Patient Registry. They were able to match 19,000 subjects, by ZIP code, with air pollution data for particulate matter, ozone, nitrogen dioxide, sulfur dioxide, and carbon monoxide.

This first study shows an association between particulate matter and worsening of cystic fibrosis, said Dr. Goss, who presented a paper on the study at the North American Cystic Fibrosis meeting.

## FOR FURTHER READING

American Lung Association

[http://www.lungusa.org/diseases/cf\\_factsheet.html](http://www.lungusa.org/diseases/cf_factsheet.html)

Cystic Fibrosis Foundation

<http://www.cff.org/>

Medline (National Library of Medicine)

<http://www.nlm.nih.gov/medlineplus/>

## HIPPOCRATES & ASTHMA

Hippocrates, the “father of medicine,” first used the medical term “asthma,” which means to breathe hard or to pant.

Records of asthma-like conditions go back to the dawn of writing itself. A condition like asthma was described in the Ebers papyrus from ancient Egypt in 1550 BC, the time of the building of the pyramids. It contains prescriptions written in hieroglyphics, including a remedy prepared as a mixture of herbs heated on a brick so that the sufferer could inhale their fumes.

Hippocrates (460–357 BC) described the disease and recognized its spasmodic nature. He believed its onset to be caused by moisture, occupation, and climate. His recommended treatments included induced vomiting, purging, and bleeding.

A few centuries later, Galen, the famous Roman physician, determined that asthma was due to an obstruction of the bronchial tubes. One of his prescribed treatments was owl's blood in wine.

In his book *De Morbis Artificum Diatriba*, published in 1700, Ramazzini described occupational asthma in gilders, tinsmiths, glassworkers, tanners, bakers, millers, stonecutters, wool carders, and other workers. He recommended butter, milk, emulsions of almonds and of melon seeds, and avoidance of anything that might dry the air passages.

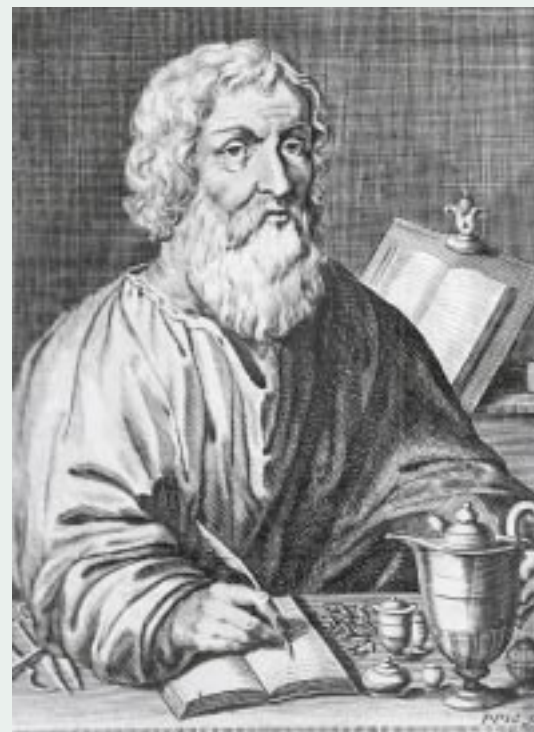
Tobacco was, amazingly, recommended in the 16<sup>th</sup> century for asthma. Until the 20<sup>th</sup> century, smoke remained an accepted way to deliver asthma medications to the lungs.

Sir Henry Salter, a Victorian doctor, recommended strong black coffee. This may have had some scientific basis: caffeine is related to theophylline, recognized today as an effective asthma medicine.

## FOR FURTHER READING

Breath of Life exhibit, National Library of Medicine

<http://www.nlm.nih.gov/bmd/breath/breathhome.html>



National Library of Medicine

# A NONINVASIVE TEST

A noninvasive test for respiratory distress could be as simple as blowing up a child's party balloon.

The balloons—the common Mylar type sold in wholesale florist supply stores—provide a novel way of collecting exhaled nitric oxide. The body creates nitric oxide as an immune response when airway linings are exposed to an allergen or toxin—for example, during an asthma attack, said Jane Koenig, director of the EPA Northwest Center for Particulate Air Pollution and Health based in our department. Exhaled breath is a better indicator of airway inflammation than a blood or urine test, which could pick up inflammation from elsewhere in the body.

Koenig's team, which included graduate student Carrie Fields, applied a biomarker (a biochemical response that indicates changes in a biological system) to air pollution for the first time. "Exhaled nitric oxide is a good, noninvasive measurement, one that a doctor or clinician could be equipped to use," Fields said.

Mylar doesn't react chemically, which makes balloons an ideal vehicle for transporting

exhaled air from the field to the laboratory for analysis.

The balloons were just one of many tools; Fields also measured pulse rate, blood pressure, and lung function. Her 16 subjects—older people with asthma or chronic obstructive pulmonary disease—were asked to wear nearly five pounds of monitoring equipment for almost two weeks.

Observations involved a daily visit to the subjects' homes to collect health data and indoor, outdoor, and personal air pollution measurements. Subjects kept diaries of symptoms and smoky activities such as cooking, which were correlated with other data. The study period—the winter of 2002–2003—had an unusual number of burn bans. "This happened to be a bad year for the health of folks with respiratory disease, but a good year for us," Fields said.

Her study found a correlation between outdoor air and personal air pollution (the dust cloud that surrounds everybody) and exhaled nitric oxide. That finding didn't correlate with indoor air, though analysis is continuing. The next phase of the study will look at sources of air pollution.

The association between pollutant levels and exhaled nitric oxide turned out to be stronger than those found with blood pressure, oxygen saturation, or pulse rate, giving Koenig encouragement for the future. "I've used a lot of tools in my time to explore airway inflammation," she said, "and this certainly has been the easiest. It also seems like one of the most promising."

## FOR FURTHER READING

EPA Northwest Center for Particulate Air Pollution and Health

<http://depts.washington.edu/pmcenter>

American Lung Association

<http://www.lungusa.org>

Medline (National Library of Medicine)

<http://www.nlm.nih.gov/medlineplus>

*Karen Jansen  
blows up a Mylar  
balloon  
to collect exhaled  
nitric oxide;  
Jane Koenig  
assists.*



UW Photography

## THORACIC SOCIETY

The American Thoracic Society (ATS) met in Seattle in May, giving researchers from the EPA-funded Northwest Center for Particulate Air Pollution and Health (NW PM Center) an opportunity to meet with colleagues from around the world. Jane Koenig, Joel Kaufman, Jeff Sullivan, Dan Luchtel, Tim Takaro, Carol Trenga, Karen Jansen, Therese Mar, and Coralie Baker attended. Mar's poster on stagnant air and mortality in Seattle was highlighted in the ATS Daily Bulletin.

An afternoon session, hosted by the NW PM Center, discussed differences in findings between studies done in Boston and Seattle. The Boston study found a strong association between onset of myocardial infarction (heart attacks) and small particulate matter (PM<sub>2.5</sub>), while the Seattle study found no association. It's possible the chemical composition of particles differs in the two cities, Koenig said. The joint working group developed a list of collaborative analyses that may shed light on these discrepancies.

At the meeting, Joel Kaufman chaired a scientific session on occupational lung disease.

## DEOHS PRESENTATIONS AT ATS

**Jansen K, Simpson C, Harb K, Fields C, Kaufman JD, Sullivan J,**

**Koenig JQ.** The use of breath condensate as a noninvasive measure of airway inflammation in field studies

**Koenig JQ, Jansen K, Mar TF, Kaufman JD, Sullivan J, Liu L-JS,**

**Larson TV, Shapiro GG.** Exhaled nitric oxide is associated with outdoor, indoor, and personal PM<sub>2.5</sub> in children with asthma in a panel study

**Luchtel DL.** Heart rate variability in a mouse model after exposure to particulate matter (PM)

**Mar TF, Larson TV, Koenig JQ.** An association between stagnant air and mortality in Seattle, WA, 1968-1995

**Nga NN, Chai SK, Redding GJ, Binh TT, Takaro TK, Son PH, Checkoway H, Van DK, Keifer MC, Trung LV, Barnhart S.** Exercise-induced bronchoconstriction and ISAAC in Vietnam

**Sullivan J, Ishikawa N, Sheppard L, Kaufman JD.** Relation between short-term fine PM exposure and onset of myocardial infarction in a community-based myocardial infarction treatment trial

**Takaro TK, Griffith WC, Omri K, Checkoway H, Faustman EM.** Asbestos and radiation as combined exposures in pulmonary fibrosis

**Trenga CA, Schildcrout JS, Sullivan JH, Goldman B, Allen R, Kaufman JD, Sheppard L, Liu L-JS, Shapiro GG, Koenig JQ.** The effect of fine particulate (PM<sub>2.5</sub>) air pollution exposure on pulmonary function in pediatric subjects with asthma.

## CLEAN AIR PRIORITIES

Departmental staff and faculty joined others in the region at the Northwest Air Pollution Summit in early June. The three-day collaborative exercise produced a list of proposed projects, including retrofitting old diesel engines, working toward reducing residential wood burning and agricultural burning, writing curricula on air quality for elementary schools, reducing asthma triggers in tribal communities, and tackling air toxics. These projects are a step toward selecting five air quality priorities.

Tim Larson, Tim Gould, Joellen Lewtas, and Jane Koenig of the NW PM Center participated in the summit, sponsored by the Environmental Protection Agency's Northwest Collaborative Air Priorities Project (NW-CAPP).

The summit brought about 200 stakeholders together for three days to devise a list of priorities to improve air quality in the Pacific Northwest over the next five to ten years.

"This type of collaboration is unprecedented in addressing air pollution concerns," said Jon Iani, Administrator of EPA's regional office in Seattle. "This event moves us toward a shared vision. It's encouraging to see so many groups coming together to recognize common goals and work towards sustainable solutions."



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*Presentations by departmental researchers (in bold-face) were:*

- Abel EL, Opp SM, Velinde CL, Bammler TK, Eaton DL.** Characterization of atrazine metabolism by human glutathione S-transferases (GSTs)
- Barrus H, Srinouanprachanh S, Hooper MJ, McMurtry ST, Cobb GP, Kavanagh TJ.** Metallothionein and glutamate-cysteine ligase gene expression in metal-exposed small mammals
- Bekris LM, Shephard C, Zarghami M, Farin F, Griffith W, Kavanagh T, Lernmark A.** Glutamate cysteine ligase catalytic subunit trinucleotide repeat polymorphism and type I diabetes
- Bradley K, Gross-Steinmeyer K, Eaton DL.** Effects of phytochemicals on aflatoxin B<sub>1</sub>-mediated genotoxicity in HEPG2 cells
- Cole TB, Walter BJ, Costa LG, Richter RJ, Pettan-Brewer C, Shih DM, Tward A, Lusis AJ, Furlong CE.** Contribution of paraoxonase (PON1) levels and *Q192R* genotype to organophosphate detoxication: Evidence from humans and "humanized" transgenic mice
- Dieguez-Acuña FJ, Woods JS, Ellis ME, Simmonds PL, Kushleika JV.** Inhibition of nuclear factor  $\kappa$ B (NF- $\kappa$ B) promotes apoptosis of kidney epithelial cells via mitochondrial cytochrome *c* release and caspase 3 activation
- Echeverria D, Woods JS, Heyer N, Garabedian C.** Determinants of urinary porphyrins and mercury among dental personnel
- Faustman EM, Yu X, Hong S, Sidhu JS.** An improved primary sertoli cell-gonocyte co-culture system from neonate rat: *in vitro* model for the assessment of male reproductive toxicity
- Furlong CE, Rieder MJ, Carlson CS, Nickerson DA, Jampsa RL, Costa LG, Jarvik GP.** New polymorphisms in the human paraoxonase (*PON1*) gene
- Garry MR, Sidhu JS, Kavanagh TJ, Faustman EM.** Differential modulation of stress and ubiquitination signaling pathways by cadmium, H<sub>2</sub>O<sub>2</sub>, and serum withdrawal in cultured mouse fibroblasts
- Gilbert SG, Burke W, Faustman EM, Botkin JR, Gilman P.** Toxicology: Ethical, legal, and social issues
- Gohlke JM, Griffith WC, Faustman EM.** Evaluation of interspecies variability during neocortical neurogenesis using biologically based computational models
- Gribble EJ, Mendoza A, Hong S, Sidhu J, Faustman EM.** Evaluation of cell cycle kinetics in p53 mouse embryonal fibroblasts: Effects of methylmercury
- Griffith WC, Gohlke JM, Lewandowski TA, Mendoza MC, Ponce RA, Faustman EM.** Building BBDR models for cell signaling pathways using transgenic animal models
- Guo Y, Jing L, Xie H, Sidorova J, Breeden LL, Zarbl H, Eaton DL.** Investigation of DNA repair and cell cycle arrest following aflatoxin B<sub>1</sub> treatment in yeast expressing human cytochrome p450 1A2
- Heyer N, Echeverria D, Woods JS, Garabedian C.** Association between urinary porphyrins, mercury, symptoms, and mood
- Hong S, Sidhu JS, Kim E, Faustman EM.** Refinement of a high-throughput 2D-page technique for the evaluation of ubiquitin-conjugated protein status induced by developmental toxicants
- Judd NL, Griffith WC, Takaro TK, Faustman EM.** Quantitative disease prevention and cost utility considerations for a suite of biomarkers for chronic beryllium disease
- Kavanagh T, Shi S, Botta D, White C, Dabrowski M, Shephard C, Quigley S, Farin F, Beyer R, Pierce R, Franklin C, Zarbl H, Bammler T.** Using toxicogenomic analysis to assess the protective effects of enhanced glutathione synthesis in glutamate-cysteine ligase transgenic mice
- Kelada S, Costa-Mallen P, Checkoway H, Costa LG.** Exploration of alternative splicing of monoamine oxidase-B transcripts by the intron 13 polymorphism
- Kim AS, Xie H, Mikheev AM, Sullivan RC, Zarbl H.** Gene expression profiling of normal mammary tissues from rat strains sensitive and resistant to mammary carcinogenesis. Sponsor: **T. Kavanagh**
- Luo W, Xie H, Vouros P, Zarbl H.** Toxicogenomics of human carcinogens
- Newhouse KM, Caughlan A, Persinger R, Chang S, Xia Z.** Rotenone and/or chlorpyrifos exposure of human dopaminergic neuroblastoma cells (SH-SY5Y) and cortical neurons induces activation of C-Jun N-terminal kinase (JNK) and p38 MAPK, mitochondrial translocation of Bax, cytochrome *c* release, and apoptosis
- Shao J, Mckone EF, Keener CL, Shephard CA, Farin FM, Aitken ML, Kavanagh TJ.** The modification of cystic fibrosis lung disease by a polymorphism in a glutamate cysteine ligase gene
- Shi S, Hendsch MB, Ogburn CE, Rabinovitch PS, Martin GM, Kavanagh T.** Female mice transgenic for mitochondrial-directed catalase have altered glutathione redox cycle enzyme activities coincident with tissue specific catalase expression
- Sidhu JS, Hong S, Erickson A, Baker A, Robinson J, Vliet P, Faustman EM.** Methyl mercury induces differential ubiquitin-conjugated protein levels in p53 variant mouse embryonal fibroblasts
- Takaro TK, Griffith WC, Omri K, Checkoway H, Faustman EM.** Asbestos and radiation as combined exposures in pulmonary fibrosis
- Tin CC, Sidhu JS, Hong S, Kim E, Faustman EM.** Examination of the role of p53-associated cell cycle gene expression induced by methylmercury in mouse embryonal fibroblasts
- Tsuji R, Guizzetti M, Costa LG.** *In vivo* ethanol decreases phosphorylated MAPK and p70S6 kinase in the developing rat brain
- Woods JS, Echeverria D, Heyer N.** A comparative reliability study of three test batteries: the Behavioral Evaluation for Epidemiology Studies (BEES), the Neuro-behavioral Evaluation System2 (NES2), and the Behavioral Assessment and Research System (BARS)
- Yu X, Faustman EM, Hong S, Sidhu JS.** Effects of methylmercury and cadmium on stress signaling and ubiquitination pathways in a primary sertoli cell-gonocyte co-culture system

# STUDENT RESEARCH DAY, MAY 22, 2003

*In a seminar session, selected graduating master's students from each of the academic programs presented summaries of their thesis research. The remainder of the graduating master's students showed posters of their work in the lobby of the Health Sciences Building. Thesis abstracts are online at <http://depts.washington.edu/envhlth/news/researchday03.html>. Faculty preceptors are listed in parentheses.*

## WOOD SMOKE IN THE AIR

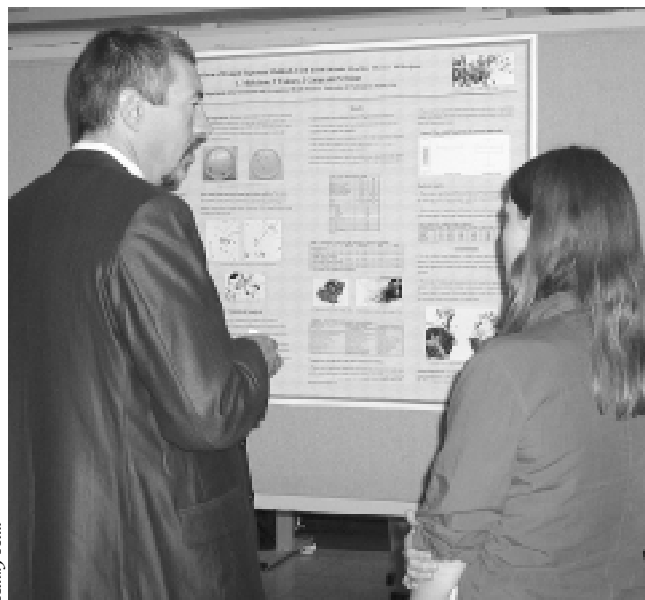
Bethany Katz, MS, Environmental Health (*Kalman*), measured the proportion of atmospheric fine particulate matter attributable to the combustion of wood. Since 1997, the National Ambient Air Quality Standard has required determination of the sources of fine (less than 2.5 microns in diameter) particulate matter. Previous interpretations of Seattle's ambient air quality data offered varying proportions for diesel emissions and wood smoke. This discrepancy can affect risk assessments, epidemiologic studies, and control strategies, which rely on an accurate assessment of the sources and composition of particulate matter. Katz incorporated source-specific chemical tracers for wood smoke, specifically levoglucosan, a polar organic compound produced by biomass combustion, to better determine the proportions.

## A NEW TEST FOR HEARING LOSS

Thomas Olenchock, MS, Industrial Hygiene (*Seixas*), worked with a new tool for measuring preclinical hearing loss from occupational noise exposure. This new method measures tiny sound distortions generated within the ear's cochlea. This study was designed to further evaluate the relationship between work-shift noise exposure and hearing damage. Olenchock tested 22 construction workers from six trades before and after a work shift. He found a greater loss in hearing function with higher noise exposure as measured by both audiometry and the new method. Using the new test, Olenchock found that the two hours of noise exposure immediately before testing was the most predictive of changes in hearing function.

## PREDICTING INJURY OUTCOMES

Marilyn Nayan, MD, MPH candidate, Occupational and Environmental Medicine (*Franklin*), developed predictors of outcome for surgically and nonsurgically treated work-related cubital tunnel syndrome. Cubital tunnel syndrome, also called ulnar neuropathy at the elbow (UNE), causes numbness and tingling of the ring and small fingers, and pain in the elbow or forearm. Despite its frequent occurrence, several



Kathy Hall

*Leah Mickelson (right) discusses her research with alumnus Brad Prezant*

aspects of its diagnosis and treatment remain controversial. Dr. Nayan studied demographic, socioeconomic, clinical, and diagnostic characteristics of workers within Washington state's workers' compensation system diagnosed with cubital tunnel syndrome; determined the association of these characteristics to surgical and nonsurgical outcomes; and assessed clinical predictors of outcome. The data analysis is in progress.

## MERCURY AFFECTS THE BRAIN

Craig Tin, MS candidate, Toxicology (*Faustman*), explored how methylmercury exposure can induce toxicity by inhibiting cell cycle progression. Using cell cultures of p53 transgenic mouse embryonal fibroblasts, Tin examined the effect of p53 status on gene expression, with a focus on genes associated with the cell cycle. Accumulation of cells in the G2M phase of the cell cycle in response to methylmercury was associated with a p53-dependence. In addition to the expected changes in gene expression, he identified several unknown effectors downstream of p53 for possible roles in differential sensitivity.

## STUDENT POSTER SESSION

### *Environmental Health\**

**Katherine Himes** (*Fenske*) Organophosphorus pesticide exposures of children of agricultural workers in Central Washington

**Nicola Josephs** (*Meschke*) An evaluation of the usefulness of F+RNA coliphage for source tracking pathogens in the environment

**Iyad Kheirbek** (*Liu*) Development of a personal passive sampler to detect six aldehydes

**Lindsay Smith** (*Kissel*) Plausibility of direct exposure to parathion in the Chicago methyl parathion sprayings case

**Christopher Wilkerson** (*Samadpour*) Antibiotic resistance prevalence in *Escherichia coli* isolated from humans, animals and the environment

**Amanda Zych** (*Treser*) Identifying mosquito vector species in stormwater drainage ponds in King County, Washington

### *Industrial Hygiene and Safety*

**Anca Bejan** (*Morgan*) Passive monitor performance under fluctuating solvent concentration and multiple solvent presence

**Fabiola Estrada** (*Keifer*) An exploratory study of the incentives and disincentives for Latino farmworkers in the state of Washington to participate in the workers' compensation system

**Leah Mickelson** (*Takaro*) Comparison of fungal exposure methods used in the Seattle Healthy Homes Project

**Thomas Sultze** (*Seixas*) Work on the edge: An investigation of factors influencing dust exposures during concrete grinding tasks

### *Occupational & Environmental Medicine*

**James Terrio** (*Daniell*) The effectiveness of the preplacement examination in identifying Army officers at risk for disability

### *Toxicology*

**Hélène Barrus** (*Kavanagh*) Gene expression biomarkers in metal-exposed deer mice from Anaconda Smelter, Montana

**Carrie Fields** (*Koenig*) Measurement of PM<sub>2.5</sub> concentrations and cardiorespiratory health effects in adult subjects

**Kathleen Newhouse** (*Xia*) Signaling mechanisms of rotenone toxicity in human, dopaminergic SH-SY5Y cells

**Kelly Schumacher** (*Faustman*) Toxicokinetic and dynamic factors affecting chlorpyrifos developmental toxicity

\* This program has changed its name from Environmental Health Technology



## 2002-2003 DEGREES

*The Department of Environmental and Occupational Health Sciences awarded four Bachelor of Science degrees, 11 Master of Science degrees, three Master of Public Health degrees, and one Doctor of Philosophy degree this year.*

### Summer 2002

Katia Harb, MS  
Stacey Newsom, MPH

### Autumn 2002

Stephen Cherne, MS  
John Olson, MS

### Winter 2003

Francisco Dieguez, PhD  
Jenna Fisher, MS  
Carolyn Salazar, MS

### Spring 2003

Anca Bejan, MS  
Brien Brown, BS  
Paul Darby, MPH  
Carrie Fields, MS  
Brent French, BS  
Bethany Katz, MS  
Eva Miller, BS  
Thomas Olenchock, MS  
Thomas Sultze, MS  
James Terrio, MPH  
Joshua Witt, BS  
Amanda Zych, MS



Joel Levin

*Kelly Schumacher (left) and Marilyn Nayan celebrate their accomplishments. Both anticipate receiving their master's degrees this summer.*

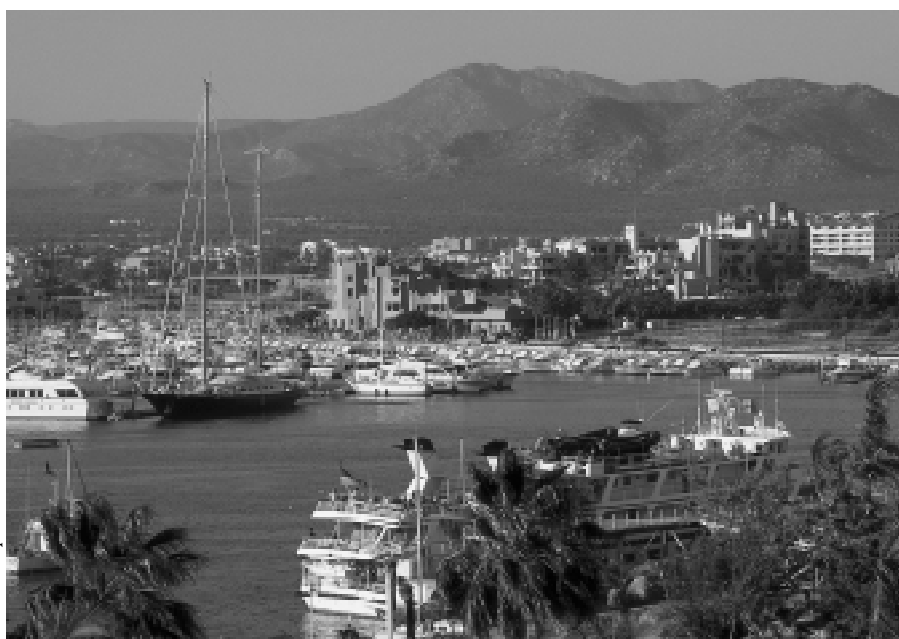


## CONTINUING EDUCATION

To confirm this schedule or find more information about these courses, call 206-543-1069 or visit the Continuing Education Web site at <http://depts.washington.edu/ehce>. Courses are in Seattle unless noted.

### OSHA TRAINING INSTITUTE EDUCATION CENTER

<b>Jul 15-18</b>	OSHA 501: Trainer Course for General Industry	<b>Aug 26-29</b>	OSHA 510: OSHA Standards for Construction ( <i>Portland</i> )	<b>Oct 17</b>	OSHA 845: OSHA Recordkeeping Rule
<b>Jul 22-25</b>	OSHA 311: Fall Arrest Systems ( <i>Portland</i> )	<b>Sep 8-10</b>	OSHA 502: Construction Industry Trainer Update	<b>Oct 19-26</b>	OSHA 501: Mexico Cruise-Trainer Course for General Industry ( <i>departs from Los Angeles</i> )*
<b>Jul 29-Aug 1</b>	OSHA 500: Trainer Course for Construction Industry	<b>Sep 16-19</b>	OSHA 500: Trainer Course for Construction Industry ( <i>Portland</i> )	<b>Oct 20-23</b>	OSHA 510: OSHA Standards for Construction ( <i>Spokane</i> )
<b>Aug 5-7</b>	OSHA 222A: Respiratory Protection ( <i>Portland</i> )	<b>Sep 23-25</b>	OSHA 503: General Industry Trainer Update	<b>Oct 22-24</b>	OSHA 225: Principles of Ergonomics ( <i>Boise</i> )
<b>Aug 12-14</b>	OSHA 225: Principles of Ergonomics ( <i>Portland</i> )	<b>Oct 6-9</b>	OSHA 510: OSHA Standards for Construction	<b>Oct 27-30</b>	OSHA 511: OSHA Standards for General Industry ( <i>Portland</i> )
<b>Aug 19-22</b>	OSHA 521: OSHA Guide to Industrial Hygiene	<b>Oct 9</b>	OSHA 845: OSHA Recordkeeping Rule ( <i>Portland</i> )	<b>Oct 29-31</b>	OSHA 226: Permit-Required Confined Space Entry
<b>Aug 19-22</b>	OSHA 521: OSHA Guide to Industrial Hygiene ( <i>Anchorage</i> )	<b>Oct 13-16</b>	OSHA 600: Collateral Duty for Other Federal Agencies	<b>Nov 3-6</b>	OSHA 511: OSHA Standards for General Industry
				<b>Nov 4-7</b>	OSHA 309A: Electrical Standards ( <i>Anchorage</i> )
				<b>Nov 17-20</b>	OSHA 501: Trainer Course for General Industry ( <i>Portland</i> )
				<b>Nov 18-21</b>	OSHA 204A: Machinery and Machine Guarding
				<b>Dec 1-4</b>	OSHA 500: Trainer Course for Construction Industry
				<b>Dec 3-5</b>	OSHA 225: Principles of Ergonomics ( <i>Spokane</i> )
				<b>Dec 8-11</b>	OSHA 201A: Hazardous Materials ( <i>Portland</i> )
				<b>Dec 8-11</b>	OSHA 301: Excavation, Trenching, and Soil Mechanics



\* This 501 course is being taught aboard the Royal Caribbean Cruise Line ship Vision of the Seas, sailing to Mexico



## NW CENTER FOR OCCUPATIONAL HEALTH & SAFETY

<b>Jul 21</b>	Focus on Safety Seminar: Developing and Implementing Safety Programs
<b>Aug 4–8</b>	Public Health Preparedness: Tools for the Frontline
<b>Aug 11</b>	Focus on Safety Seminar: Homeland Defense
<b>Aug 18–22</b>	Comprehensive Industrial Hygiene Review
<b>Sep 15</b>	Focus on Safety Seminar: Ergonomics for Industry
<b>Sep 16</b>	Creating a Safety Culture in Your Workplace ( <i>Governor's Safety and Health Conference</i> )
<b>Oct 1–3</b>	Hazardous Materials Incidents: Improving Interagency Response
<b>Oct 9</b>	Puget Sound Occupational and Environmental Medicine Grand Rounds
<b>Oct 15</b>	State-of-the-Art Concepts in Noise and Hearing Loss ( <i>Northwest Occupational Health Conference</i> )
<b>Oct 27</b>	Focus on Safety Seminar: Hazard Communication and Emergency Procedures
<b>Oct 28–29</b>	Applied Laboratory Ergonomics
<b>Nov 13</b>	Puget Sound Occupational and Environmental Medicine Grand Rounds
<b>Nov 17</b>	Focus on Safety Seminar: Hearing Conservation
<b>Dec 2</b>	Ethical and Policy Implications in Public Health Genomics
<b>Dec 11</b>	Puget Sound Occupational and Environmental Medicine Grand Rounds

## FOCUS ON SAFETY SEMINARS

*A new series of monthly seminars exploring practical approaches to important safety topics will be offered in Seattle. The 4- to 8-hour seminars, taught by leading experts, will include the most current information on WISHA and OSHA regulations and guidelines.*

### SUMMER 2003 SCHEDULE

#### July 21

##### **Developing and Implementing Safety Programs**

This 4-hour seminar will review required OSHA/WISHA program rules, provide online safety and health resources for developing programs and training materials, and discuss how to administer a program that is “effective in practice.”

#### August 11

##### **Homeland Defense: Bioterrorism—An Industrial Workshop**

This introductory seminar will help you plan for homeland defense as it affects your facility. Using a risk management approach, you will learn how to protect your company's personnel and assets from a terrorist attack and how to conduct a vulnerability assessment to determine your facility's weak points in structure and personnel.

#### September 15

##### **Practical Ergonomics for Industry**

The first step in solving ergonomic problems is to develop a sound, practical process for evaluating job tasks. This 4-hour seminar will cover methods for addressing these problems in office and manufacturing environments, with an emphasis on non-office areas. It will include a comparison of evaluation methods, development of practical solutions, and hands-on use of methods and guidelines.

### UPCOMING SEMINARS

<b>October 27</b>	Hazard Communication and Emergency Procedures
<b>November 17</b>	Hearing Conservation
<b>December 15</b>	Lockout/Tagout and Electrical Safety
<b>January 23, 2004</b>	Competent Person
<b>February 17, 2004</b>	Steel Erection
<b>March 9, 2004</b>	Scaffolding Clearance

[http://depts.washington.edu/ehce/OSHA/course/Focus\\_on\\_Safety.html](http://depts.washington.edu/ehce/OSHA/course/Focus_on_Safety.html)



**Gail Gilliland**, manager of the Superfund program, received the department's staff service award this year. Other nominees were **Keli Bort**, **Barb Brooner**, **Susan Brower**, **Mark Fenn**, **Kathy Hall**, **Neil Horike**, **Rory Murphy**, **Scott MacKay**, **Cathy Schwartz**, **Jeff Shirai**, and **Stephanie Timm**.

**Susan Brower** was the department's nominee for the University of Washington's distinguished staff award. She is study coordinator with the team studying noise-induced hearing loss in construction apprentices.

**Kai Elgethun** received the department's outstanding student award. A PhD student in Industrial Hygiene, his focus is on how behavior affects exposure to pollutants in the workplace and community. Faculty members predict that "Kai shows great potential as an independent researcher who will make important contributions to environmental health."

**Samir Kelada**, a Toxicology PhD student, was this year's School of Public Health & Community Medicine recipient of the Magnuson Scholars Award. Every year six graduate students, one from each of the UW's health sciences schools, receive a \$25,000 award to support graduate studies and research. The scholars are selected on the basis of their academic performance and potential contributions to research. The program is part of the Warren G. Magnuson Institute for Biomedical Research and Health Professional training.

This year's faculty outreach award went to **Sharon Morris**, assistant chair for outreach, and the staff outreach award to **Rolf Hahne**, director of the environmental health laboratory. Each was awarded a \$1,000 stipend.

**Amanda Zych** was one of two graduate students to win a national student research award sponsored by the Association of Environmental Health Academic Programs. Her paper, based

on her thesis research on mosquitos, won her a plaque, a cash award of \$500 and a travel stipend to the Reno conference.

**Harvey Checkoway** taught a short course on environmental epidemiology in the Mediterranean School of Epidemiology and Statistical Methods in Biomedical Research in Siracusa, Italy in June.

**Jennifer Young**, a first-year MS student in Industrial Hygiene, won a \$5,000 scholarship from 3M. Jennifer competed for this award with other IH graduate students in a national competition.

**Lee Monteith**, **Rolf Hahne**, **Jianbo Yu**, and **Marie Martin** made presentations at the American Industrial Hygiene convention in Dallas in May.

**Sally Liu** won the 2003 Joan Daisey Award recognizing "outstanding contributions to the science of human exposure analysis by a young scientist" from the International Society of Exposure Analysis. In the spring, Liu was invited to brief the Washington state Department of Ecology on health effects of agricultural burning and to offer advice on a proposed change in PM<sub>2.5</sub> regulations in the State of Washington.

**Rick Gleason** taught four separate 8-hour classes to individuals of Labor Ready in Bakersfield and Ontario, California, in June. He has worked with Labor Ready in April and May to develop the curriculum and safety and health program to present to the supervisors and managers. Once developed, Labor Ready hopes to use the program throughout the US.



*Susan Brower  
(left) and  
Samir Kelada  
(right)*

*Devon DeLapp*

**Rick Gleason and Scott MacKay**

assisted two universities in Costa Rica in occupational safety and health training through the Fogarty international scholars program. Gleason's sessions focused on technical tools for the analysis of safety and health problems.

**Mike Yost and Rolf Hahne**

visited Burapha University in Chonburi Thailand May 30 to June 6. They presented a two-day short course on exposure assessment methods for about 20 faculty and students, and visited with the department's Fogarty Center colleagues at Burapha.

**Kate Stewart** developed a training program for the Shipbuilders Council of America (SCA) and presented it at a "Shipyard Ergonomics" conference in May. She also presented a three-day ergonomics training for OSHA consultants from throughout the US at the OSHA Training Institute in Arlington Heights, IL.

**Tim Takaro** presented results from the first Seattle Healthy Homes project at the National Asthma meeting in Washington, DC. The title was "Impact of community health workers on indoor asthma triggers and asthma morbidity: Exposure reduction component of the Seattle-King County Healthy Homes Project." His group partnered with Public Health Seattle King County and others in the local asthma coalition to develop intervention projects in low-income communities around the county.

**Scott Meschke** convened a session and gave a talk at the general meeting of the American Society of Microbiology in

Joel Levin, DEOHS Graduate Program Office



*left to right: Gail Gilliland, Amanda Zych, Kai Elgethun*

Washington, DC. The title of the session was "(Re)emerging biothreats and protection of public health: State of the art sampling, detection and remediation of pathogens in the environment." Meschke's talk was titled "Special considerations for environmental sampling (media-related, organismal, methodological)."

**Matt Keifer** gave a presentation on cholinesterase at the Agricultural Worker Protection Program National Assessment and Pesticide Worker Safety Workshop in Arlington, VA in March.

**Karen Snyder** presented a paper, "Multiple perspectives on injuries among orchard workers" at the 2003 Society for Applied Anthropology Meeting in Portland in March.

**Cynthia Curl, Richard Fenske, and Kai Elgethun's** study on pesticide exposures among children who consume organic versus conventional foods was featured in the March 25 *New York Times*, the PCC Natural Markets Resources Newsletter, and the March issue of *Environmental Health Perspectives*.

**Elaine Faustman** presented two papers at the World Congress on Risk, Society for Risk Analysis in Brussels, Belgium, in June. Her presentations were titled, "Windows of vulnerability and other toxicodynamic considerations of fetal and children's environmental health hazards" and "Harmonization of cancer and noncancer risk assessment methods using mode of action understanding." **Christie Drew** also participated in the conference. **Faustman** also presented papers at the 9th Meeting of the International Neurotoxicology Association (INA-9) in Dresden, Germany, the Northwest Hazardous Waste Conference in Pasco, and the Hazardous Waste Conference in Lacey in June.

**Dr. Sherwin Shinn**, a retired dentist and a 1969 graduate of our undergraduate program, and his wife, Jerri, have been awarded the 2003 Jacqueline Kennedy Onassis Award for public service, one of the nation's highest honors for humanitarian work. They founded the nonprofit International Smile Power Foundation and have built clinics in Nepal, Bolivia, and Papua New Guinea.

## IRON, MANGANESE & PARKINSON'S

Departmental researchers have found that high consumption of iron and manganese can increase the risk of getting Parkinson's disease. The study, which appeared in the June 10 issue of *Neurology*, found that people whose diets are high in both manganese and iron are 1.9 times more likely to be Parkinson's patients than those with lower levels. People with diets high in iron who take one or more multivitamins a day are 2.1 times more likely to develop Parkinson's disease.

Researchers aren't suggesting that people change their diets, but that they should follow the labeled directions on dietary supplements. "We had people in this study taking more than one multivitamin a day," said co-author Karen Powers. "That's not a good idea. If the directions say 'take one vitamin a day,' that really means, 'take one vitamin a day.'"

Authors include Powers, Harvey Checkoway, Gary Franklin, and Terri Smith-Weller of the DEOHS, and W. T. Longstreth Jr. and Phillip D. Swanson of the UW School of Medicine. The research was supported by grants from the National Institute of Environmental Health Sciences.



University of Washington  
**School of Public Health**  
and Community Medicine

Department of Environmental and Occupational Health Sciences  
Box 354695  
Seattle, Washington 98195-4695

## THE FINE PRINT

MANAGING  
EDITOR  
*Sharon L. Morris*

SENIOR WRITER  
& EDITOR  
*Kathy Hall*

EDITORIAL  
ASSISTANT  
*Kipling West*

DESIGNER &  
ILLUSTRATOR  
*Cathy Schwartz*

DEPARTMENT  
CHAIR  
*David A. Kalman*

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Phone: (206) 543-1564

E-mail: [kjhall@u.washington.edu](mailto:kjhall@u.washington.edu).

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