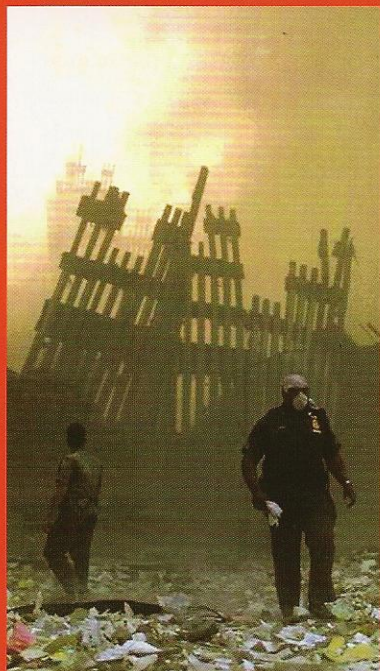


YOUR HEALTH & THE ENVIRONMENT



NEWS FROM THE UNIVERSITY OF ROCHESTER
ENVIRONMENTAL HEALTH SCIENCES CENTER • SUMMER ISSUE 2002



World Trade Center Dust—Health Issues?

“Health Issues Related to the World Trade Center Disaster” is the title of a National Institute of Environmental Health Sciences (NIEHS) Center grant that was recently awarded to researchers at New York University in the amount of \$1,240,139. A supplement to this grant, entitled “Toxicological Assessment of World Trade Center Dust” has also been awarded to Drs. Günter Oberdörster and Jack Finkelstein at the University of Rochester Environmental Health Sciences Center.

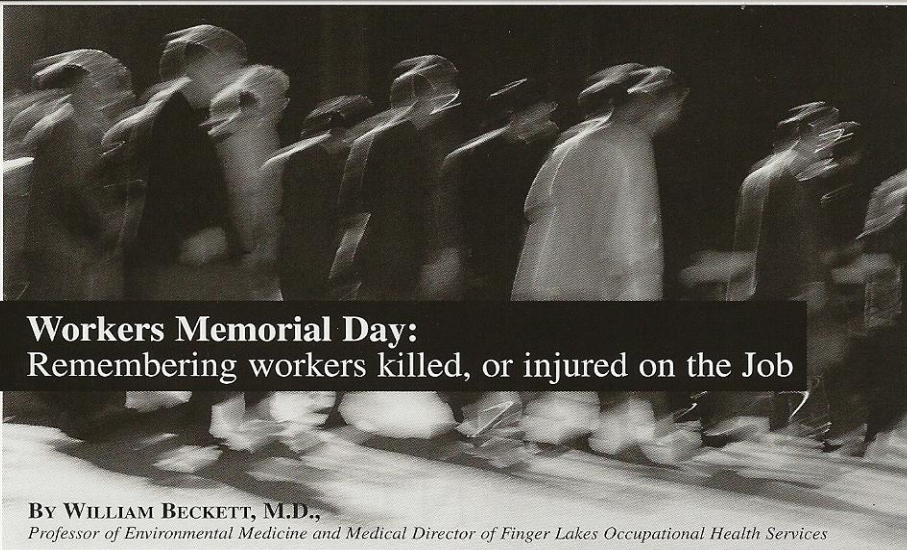
The overall objective of these studies is to provide information about the potential acute and long term toxicity of the different World Trade Center (WTC) dust samples following a very high short-term exposure. The project includes chemical, physical and morphological characterization as well as toxicological assessment of the settled dusts and airborne particulate matter.

These studies can provide objective information to communicate to the public regarding public health concerns related to air quality. This research will help identify acute or chronic adverse health effects in the workers and residents and to characterize the exposure environment that existed immediately after the collapse of the buildings and also to examine the current air quality around the WTC area. By relating adverse health effects to specific components of WTC dusts, future exposure assessment, monitoring programs and control procedures can be implemented more effectively and efficiently.

In addition to scientific research, this grant also has a community outreach component. Drs. Dina Markowitz (Univ. of Rochester) and George Thurston (NYU) will work together to develop a community outreach program to provide information and resources to address the environmental health fears and concerns of the residents and workers that were potentially affected by the environmental consequences of the WTC disaster. Specific goals of the outreach effort will be to conduct public forums in Lower Manhattan, create and distribute a newsletter containing information regarding research plans, develop a video presentation of each forum, develop web pages specifically presenting forum results, and participate in TV, radio and press interviews about WTC-related outreach and research efforts.



The University of Rochester Environmental Health Sciences Center is housed in the Department of Environmental Medicine, and is one of 25 such centers sponsored by the National Institute of Environmental Health Sciences, a component of the National Institutes of Health. Its research programs are designed to expand our knowledge about those environmental factors that influence our health. Some of the work undertaken and reported on in this publication is supported by NIEHS Center Grant ES01247. For more information go to: www2.envmed.rochester.edu/envmed/



Workers Memorial Day: Remembering workers killed, or injured on the Job

By WILLIAM BECKETT, M.D.,
Professor of Environmental Medicine and Medical Director of Finger Lakes Occupational Health Services

Each year on Workers Memorial Day (April 29th), we remember those who have died as a result of conditions in their workplaces.

Some people went off to work one morning and never returned, while others died more slowly from the effects of workplace toxins and carcinogens. These workplace deaths occurred not only on construction sites and shop floors from electrocutions, but from falls and machinery injuries, and also on the highway. Each year more than 30 deaths in New York state occur on farms, one of the most dangerous workplaces.

In New York state in the year 2000, there were 233 fatal occupational injuries reported by the Bureau of Labor Statistics. This figure does not include many other deaths that were not reported because the association with work was not obvious.

For many years, the number of workplace deaths and serious injuries has been declining both nationally and in New York state. There are two messages to be taken from these statistics. The first is that there is still much to be done. We have the know-how to prevent virtually all workplace deaths that still occur, and we need to apply our knowledge more successfully. The second message is that prevention works. The declining death and injury rate we see is in part a direct effect of ongoing efforts to make the workplace safer and healthier. The heroes of this success story are the many safety professionals and industrial hygienists whose careers are devoted to making and keeping the workplace safe. Without the ongoing efforts of these committed individuals, the death and injury rate would probably start to climb again. They deserve our support and they need the back up of strong workplace health and safety regulations.

The statistics for the year 2001 will show one striking reversal in the general downward trend in workplace deaths, since most of the victims of the World Trade Center were at work when they died. This was a year when public awareness of the daily hazards of firefighting and public safety services was stirred by a single, terrible event.

Every year, here in Rochester, there is a formal ceremony of remembrance for those in the Rochester area whose lives were cut short because of a work-related illness or injury and this year was no exception.

Hundreds gathered on April 29th at the Vietnam Veterans Memorial in Highland Park to pay homage to those workers and to remind us that there is still more work to be done.

News from the Toxicology Training Program

■ The first annual Toxicology Training Program retreat entitled "Careers in Academia" was held on May 16, 2002. Our Training Program students attended workshops on preparing a seminar, manuscript writing, preparing a poster, writing a grant. They also participated in a discussion on what to do after receiving a Ph.D. All students presented a poster on their research, and several did short presentations about their posters. The culmination of the day was our annual awards dinner. Carissa Filbrandt was named the recipient of the Neuman Award (an award given to the student who best exemplifies academic, scientific and personal qualities which were characteristic of the life of Dr. William F. Neuman) and Christopher Helt received the Infurna Award (an award given to a student who is the first author on a paper in a peer-reviewed journal).

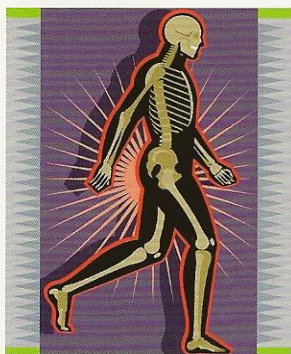
■ Dave Lehmann is the recipient of a fellowship from the American Liver Foundation.

■ Kyung Hong received a travel award to attend the annual meeting of the American Thoracic Society.

■ Our recruitment this year was a great success, we will have 12 new students joining us for classes in fall 2002. One of our new students, Tara Arndt, is the recipient of the Sproull Award (one of the most prestigious awards the University gives).

Please visit our web site and meet our students and faculty - it is updated on a regular basis.

www2.envmed.rochester.edu/envmed



Does lead exposure in childhood, lead to osteoporosis in adulthood?

Drs. Randy Rosier and Edward Puzas are part of a research team who are looking into the role that lead may play in the development of osteoporosis.

Significant levels of lead are toxic to the human body and lead exposure can create a lifetime of physical and behavioral problems. Even at low levels, lead can damage the nervous system, interfere with growth, lower

IQ scores and cause learning difficulties. Recent findings also suggest that lead is a culprit in osteoporosis. Exposure to lead has been determined to cause low bone density in lab animals. Mice with lead-induced osteoporosis develop fractures that do not heal properly. Research has found that lead alters the pathways bone cells use to transmit or regulate actions by interfering with a specific gene called TRIP that directs osteoblasts, cells that play a major role in the building of bone. This could explain limited bone growth in children and adolescents exposed to lead.

Despite a ban that removed lead from house paint in 1978 and from gasoline in the mid-1980s, lead remains to be a problem in the air, soil, walls and woodwork of many older houses.

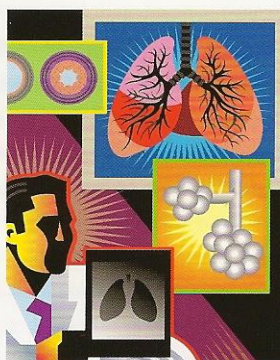
Dr. Edward Puzas was recently elected as the new president of the National Orthopaedic Research Society,

The mysteries of the lung

A new program at the University of Rochester will investigate the biology and diseases of the lung. Research projects will include asthma and other chronic lung ailments, the effects of exposures to pollution and chemicals, and respiratory infections and lung cancer.

The work will be conducted in a collaborative manner with at least a dozen scientists and physicians in recently dedicated new building. Dr. Richard Phipps, the director the new Lung Biology and Disease Program says that "while we have worked together in the past, this will be the first time that we have collectively worked on investigating the role of the environment and exposure to outdoor and indoor pollution." Other areas that the research will include are: gene therapy for lung scarring from exposure to asbestos, industrial gases, or radiation from cancer treatment; and link's between chronic inflammatory conditions in the lung and a predisposition to developing cancer.

This program will combine research at the cellular level, development of treatments, clinical trials and patient care.



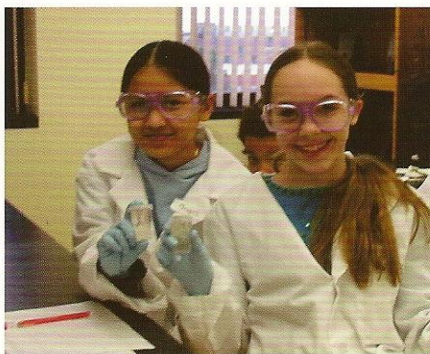
News from the Environmental Health Sciences Center

- Pilot projects were awarded to Dr. Mike McCabe ("Mechanisms of arsenite-mediated cell cycle dysregulation") and to Dr. Al Silverstone ("Conditional ablation of the aryl hydrocarbon receptor in the mouse").
- Dr. Andrew Brooks received an STS NIH Small Business grant for his research on biopolymers.
- Dr. Lisa Opanashuk received a 3 year NIH TIP award.
- Jane Boyd, RN, COHN-S received an award from Cornell University to continue her investigations of farming accidents that occur in 17 counties surrounding the Rochester area. Ms. Boyd gets referrals from the 37 trauma centers and rural hospitals in the area as well as from law enforcement, coroners, and farmers.
- The AOEC (Association of Emergency Clinics) awarded Dr. William Beckett a grant for curriculum development of a program to help in the training of emergency clinicians.

Life Sciences Learning Center reaches out to Rochester City Schools

The Life Sciences Learning Center (LSLC) is devoted to enhancing educational opportunities for middle and high school students and offering professional development opportunities for teachers throughout Western New York. As one of only a handful of intensive pre-collegiate biological science learning centers in the entire nation, the LSLC is a rare and innovative resource utilizing the assets of an academic medical center, area school districts, and community groups to forge a unique educational partnership for students and teachers. Since opening the new laboratory in February 2002, the LSLC has hosted over 40 classes (almost 700 students) and held five teacher workshops.

One of the LSLC goals is to reach students from urban schools who lack many of the advantages and resources found in more affluent school districts. Students and teachers in urban school districts often face major financial roadblocks to providing high-level science investigations. In 2001, the Rochester City School District realized an unprecedented, multi-million dollar budget deficit that resulted in massive cuts across the board, including teacher layoffs. Under-equipped science classes



must work in lab space that is inadequate and antiquated and are now in many cases understaffed as well. As a result, students often graduate with rudimentary science backgrounds that inhibit their future success in learning scientific concepts. These students, many of which have never even seen a centrifuge before stepping into the LSLC lab, face obstacles in their science education that automatically preclude them from pursuing advanced science education or a career in the field. Their schools simply cannot afford resources for more in-depth investigations within their own curriculum.

LSLC is hoping to reduce some of these barriers for Rochester City students. Funding from a variety of sources has allowed us to help these financially-strapped schools bring their

students to the LSLC. Since opening in February 2002, twenty-eight classes from the Rochester City School District have attended LSLC programs free of charge. These classes have also been provided with bus transportation, substitute teacher costs and materials to take back to school for follow-up activities.

Support from Rochester City science teachers has been enormous. As one teacher who brought her students to the LSLC said, "The worst thing about education for these children is that they think their options are so limited – and no one tells them differently. One of the most valuable aspects of our visit was for the students to see themselves as scientists, and all the possibilities that that entails."

LSLC's unique combination of collaborative partners invested in improving education, a "real world" science laboratory classroom, and the innovative approach to reaching schools in need is creating a program with great potential for long-term success. It will also provide a national model to address some of the systemic issues in today's science curriculum.

For more information on the LSLC, please visit our web page at www2.envmed.rochester.edu/lifesciences/

University of Rochester
Environmental Health Sciences Center
575 Elmwood Avenue, Box EHSC
Rochester, NY 14642