

Upcoming Conferences and Meetings

Environmental Health Impacts of CAFOs: Anticipating Hazards- Searching for Solutions

March 29-31, 2004
Sheraton Hotel
Iowa City, IA
<http://www.ehsrc.org>

3rd International Conference on Children's Health and the Environment

March 31, April 1 & 2, 2004
London School of Hygiene and Tropical Medicine
London, United Kingdom
http://www.pinche.hvdgm.nl/pinche_conferences.html

The National Environmental Assistance Summit: An Alliance to Prevent Pollution, Achieve Compliance, and Innovate for Environmental Results

April 19-22, 2004
Wyndham Baltimore Inner Harbor Hotel
Baltimore, Maryland
<http://www.p2.org/summit2004>

Obesity and the Built Environment: Improving Public Health Through Community Design

May 24-26, 2004
Wardman Park Hotel
Washington, DC
<http://www.niehs.nih.gov/drcpt/beoconf>

3rd International PCB Workshop

June 13-15, 2004
Hawthorne Suites Hotel
Champaign/Urbana, IL
[http://www-apps.niehs.nih.gov/sbrp/conf/events.cfm?year=2004&confnum=197&view="](http://www-apps.niehs.nih.gov/sbrp/conf/events.cfm?year=2004&confnum=197&view=)



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EHSRC Update

news from the university of iowa environmental health sciences research center

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Agricultural Health Study Funding Renewed

The Agricultural Health Study, supervised in Iowa by Dr. Charles Lynch, has been approved for an additional five years of funding. This study, now in its twelfth year, is a prospective cohort study of agricultural exposures and chronic disease (especially cancer) in Iowa and North Carolina among commercial or private pesticide applicators and spouses of married private applicators. The National Cancer Institute, the U.S. Environmental Protection Agency, and the National Institute of Environmental Health Sciences are the primary sources of funding. The first five years were devoted primarily to enrolling eligible subjects; 89,658 subjects were enrolled in the two states. In Iowa, 58,564 subjects were enrolled, exceeding the goal of 50,000. Since 1997, the study has annually linked cohort members to Iowa mortality and cancer incidence databases and more recently to the National Death Index. After the 2003 linkages, 1,413 deaths and 1,916 malignant cancers have been identified after enrollment among Iowa cohort members.



Since 1998, the study's primary activity was attempting to recontact each of 51,357 eligible private applicators and spouses to conduct a 35-minute computer-assisted telephone interview to update exposure information (completed this with 38,020), obtain dietary health questionnaire data, (obtained from 24,455), and obtain buccal cells (obtained from 23,830). In December 2002, performance of these same tasks began with 4,795 eligible commercial applicators, an activity that will extend into the next 5-year contract for continuation of the Agricultural Health Study at the University of Iowa.

Over the past dozen years, there have also been several completed/ongoing special studies that involved selected subgroups of Iowa cohort members. For example, a recently published case-control study from these data revealed several risk factors for work-related falls among Iowa farmers. Significant associations were found between fall-related farm injuries and age between 40 and 64, doctor-diagnosed arthritis/rheumatism, difficulty hearing normal conversation, and taking medications regularly. Another publication showed a prostate cancer standardized incidence ratio of 1.14 (95% confidence interval: 1.05, 1.24) among 55,332 male pesticide applicators from Iowa and North Carolina with no prior history of prostate cancer. In particular, prostate cancer risk was associated with use of chlorinated pesticides among applicators over 50 years of age, and with use of methyl bromide.

Dr. Lynch feels, "The Agricultural Health Study is an excellent study for Iowa and the Environmental Health Sciences Research Center. We are just beginning to see some of the important results that will be forthcoming from this study. Since the current average age of the cohort is around 55 years, there are still many outcomes to be determined among cohort members."

North Carolina and Iowa were selected for this important study based on a nationwide competition. Both states have strong agricultural sectors with diverse production methods, commodities, and products.

Information learned from these two states will be helpful to farmers throughout the United States and other countries using modern agricultural technologies. More information about these studies, publications, and the Agricultural Health Study in general can be found at the website (www.aghealth.org).



Former EHSI Student Honored With Awards, Internship

In this issue of EHSRC update, we feature an article written by Rachael Collier, a 2001 attendee at the Environmental Health Sciences Institute for Rural Youth (EHSI). Next year she plans to attend the University of Iowa College of Engineering to pursue an undergraduate degree in chemical or environmental engineering.



A car travels down a dry gravel road creating a cloud of dust, which spreads to cover roadside plants. On the same road, a Monarch butterfly floats on a summer breeze in search of a host plant, the milkweed, to lay an egg. The female monarch deposits an egg on the viable milkweed plant before continuing on her journey. The egg hatches and the monarch larvae feeds upon the leaves and deposited limestone road dust.

My name is Rachael Collier. I am currently a senior at Mediapolis High School in Mediapolis, Iowa. In a quest to understand and address potential causes of the significant fluctuation in the monarch population, I completed an assessment evaluating the impact of limestone road dust on the monarch larvae. My study identified limestone road dust as a hazard to the monarch larvae, but further analysis of exposure and risk characterization is required for completion of a risk assessment. I shared the results of my bioassay with scientists at science competitions throughout the nation. This past spring I received numerous science awards: the Intel Foundation Achievement Award from the Intel International Science and Engineering Fair, first place at the State Science and Technology Fair of Iowa, third place at the National Junior Science and Humanities Symposium, and a semi-finalist in the Siemens Westinghouse Competition.

My success in science has opened many doors of opportunity. This past summer I was selected as a Borlaug-Ruan World Food Prize International Intern to spend 8 weeks in Lima, Peru conducting research at the International Potato Center. My dream is to become a research scientist in an environmental field with an emphasis on food security and safety.

Obesity and the Built Environment

Obesity is a chronic health problem which is widely known to be increasing in prevalence in the U.S and the world. Obesity-related morbidity is associated with increased rates of cardiovascular disease, cancer, asthma, osteoarthritis and kidney disease in addition to psychological disorders. Data from *Health Behaviors of Adults: United States, 1999-2001*, published by the Centers for Disease Control and Prevention's National Center for Health Statistics, indicate that 57% of the adult population in the United States is overweight and that 22% are obese (BMI > 25 kg/m² and 30 kg/m², respectively). Recent estimates by the CDC indicate that 15% of all children in the U.S. are overweight, and further, nearly 25% of black and Hispanic children are overweight. Nearly 4 in 10 adults are inactive during their leisure time and one-third of adults engage in any regular physical activity.

The causes of the significant increase in obesity over the past several decades are multi-factorial. Environmental contributors to obesity include community design that fosters sedentary lifestyles and elements of the built environment that make it difficult to walk, use stairways, or cycle. Changing attitudes toward these behaviors is difficult and implementing effective mechanisms for change can be even more challenging. However, according to a recent paper in *Science* (299:853, 2003), even small changes in behavior can be effective. With a daily caloric restriction of just five percent and an increase in walking of one extra mile, the current trend of weight gain could be stopped. Thoughtful community development designs, creating "walkable" communities, a range of housing and building designs and transportation options are all methods of including physical activity in our daily lives.

Attitudinal change with regard to physical activity and consumption must be pursued. Recent data from the CDC indicate that as we age, we are less likely to engage in leisure time physical activity; adults in the youngest age group in the *Health Behaviors* study were almost six times as likely as adults in the oldest age group to engage in vigorous physical activity 3-4 times per week. With proper social supports and environmental changes, Americans can remain physically fit as they age.

The National Institute of Environmental Health Sciences is attempting to identify successful strategies to reverse the trend toward increased obesity. The three directions of this effort are to: change eating behaviors, promote a more active lifestyle, and change the design of residential communities to make them more conducive to walking and cycling. A national shift toward smart growth, exercise and better nutrition will build a healthier citizenry.

For more information see: **Built Environment—Healthy Communities, Healthy Homes, Healthy People** at <http://www.niehs.nih.gov/translat/BE-final.pdf>.

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