



**CENTER FOR  
HEALTH EFFECTS  
OF ENVIRONMENTAL CONTAMINATION**

## **THE INCREASING PREVALENCE OF EMERGING INFECTIOUS DISEASES**

has become an important issue in public health. The scope of concerns is broad . . . SARS, avian flu, bacterial resistance to common antibiotics and cyanobacteria are some of the areas where surveillance and research activities are focusing on identification of pathogen reservoirs, modes of transmission and at-risk human populations. In recent years, CHEEC's Seed Grant Program has funded research identifying antibiotic-resistant bacteria in Iowa surface water, determining the risk of zoonotic infections to workers in the meat processing industry, and examining the fate of veterinary antibiotics in the environment. In 2004, CHEEC was very active on the infectious disease front. Research seed grants were awarded for projects identifying lowans who may be at risk for exposure to avian flu, and studying white-tailed deer as a possible reservoir for West Nile virus. CHEEC helped organize and fund the Iowa Beach Study, a multi-agency effort to measure the risk for gastro-intestinal disease from recreational use of Iowa lakes. CHEEC also co-sponsored the Iowa Conference on Emerging Infectious Diseases, which brought together international experts on SARS, avian flu, Nipah virus and other infectious agents to discuss research needs and policy directions. This annual report for 2004 describes these and other CHEEC activities over the past year.

Pete Weyer, Ph.D.  
Associate Director



# EDUCATION



## IOWA CONFERENCE ON EMERGING INFECTIOUS DISEASES

In 2004 CHEEC, in conjunction with the University Hygienic Laboratory and University of Iowa (UI) Office of the Vice President for Research, organized and hosted the *Iowa Conference on Emerging Infectious Diseases*. The conference exemplifies CHEEC's commitment to its mission *to determine the levels of environmental contamination which can be specifically associated with human health effects* through educational programming that seeks to introduce and broaden understanding of diverse environmental health topics. As speakers continually pointed out, infectious pathogens are an environmental contaminant, affecting water, air, soil and food, and ultimately posing a risk to human health.

The conference sought to increase understanding of emerging infectious diseases and the implications these diseases have for public health professionals in Iowa and worldwide. Leading researchers spoke in detail about SARS, avian influenza, and Nipah virus in Asia, and spongiform encephalopathies (mad cow disease and chronic wasting disease), West Nile virus, and influenza risks in North America. Conference participants were able to listen and interact with front-line public health professionals regarding programs and experiences in worldwide efforts combating these emerging infectious diseases. A conference offered the University of Iowa community, state and county public health employees, and the public a means to learn about these diseases and related issues.

# CHEEC aims to host and support environmental health conferences of interest to Iowans.

This conference is an ongoing effort broadening CHEEC's interest and involvement with pathogens and their development as agents of contamination. While not entirely a new area of research for CHEEC, the number of seed grant submissions and research interest of CHEEC affiliated faculty in this area is growing. Organizing this conference creates cooperative relationships among sponsors, speakers, and participants and increases opportunities for future collaboration.

## EDUCATION GRANTS

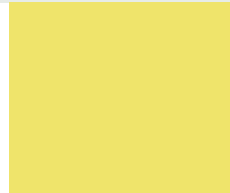
In 2004, CHEEC provided financial and organizational assistance for the *Environmental Health Impacts of CAFOs: Anticipating Hazards – Searching for Solutions* conference sponsored by the University of Iowa Environmental Health Sciences Research Center and National Institute of Environmental Health Sciences.

## SEMINAR

CHEEC sponsors a continuing seminar series on environmental health issues. The following seminar was held on the University of Iowa campus in 2004.

*Out of Iowa, Into Africa: Infrastructure in Developing Countries*; Joseph Hughes, Professor and Chair, School of Civil and Environmental Engineering, Georgia Institute of Technology.  
Co-sponsored with the UI Department of Civil and Environmental Engineering.

# RESEARCH



CHEEC funds pilot scale research across a range of environmental health topics. “Pilot” research refers to small-scale projects designed to test new and unusual hypotheses, develop innovative methodologies in both laboratory and field settings, or perform initial statistical analyses to support efforts in acquiring federal or private grants for larger studies. The research programs support the University of Iowa strategic goals by providing graduate level research opportunities and strengthening graduate level programs, creates distinguished innovative research, and fosters interdisciplinary development of research and service opportunities. In 2004, research awards represented nearly forty percent of CHEEC’s annual state allocation. Historically, CHEEC’s pilot level research grants generate over eight dollars in external funding for every dollar invested.

## SEED GRANTS

Grant submissions continue representing diverse topics. Fiscal year 2004 was no exception; seed recipients are conducting innovative laboratory and field studies in water, air, soil, and food contaminants. These projects received seed funding:

### **Are Iowans Exposed to Wild Ducks, Geese, and Game Birds at Risk of Avian Influenza Infections?**

*Investigators:* James Gill, University Hygienic Laboratory, Greg Gray, Sharon Setterquist, Department of Epidemiology, University of Iowa

### **Development of a Passive Air Sampler for Measuring PCBs in Air**

*Investigators:* Keri Hornbuckle, Department of Civil and Environmental Engineering, Hans-Joachim Lehmler, Department of Occupational and Environmental Health, University of Iowa

**New Approach to Environmental Immunotoxicant Biomonitoring in Humans: Deoxynivalenol (Vomitoxin) as Example**

*Investigators:* Suzanne Hendrich, Cindy Landgren, Department of Food Science and Human Nutrition, Iowa State University

**Plant-Assisted Bacterial Degradation of Perchlorate**

*Investigators:* Gene Parkin, Jerald Schnoor, Craig Just, Garrett Struckhoff, Department of Civil and Environmental Engineering, University of Iowa

**Sensitivity and Reliability of ELISPOT Assays for Detection of Cellular Immune Responses Under Simulated Field Collection**

*Investigator:* Elizabeth Field, Department of Internal Medicine, University of Iowa

**COOPERATIVE RESEARCH PROJECTS**

In 2004, funding and research began for the following projects:

**Fate of Endocrine Disruptors, Antibiotics and Pharmaceuticals in Wastewater Treatment Plants**

*Investigators:* Craig Just, Gene Parkin, Department of Civil and Environmental Engineering, University of Iowa

*Funding:* CHEEC, Iowa Department of Natural Resources-Geological Survey, UI Equipment Cost-Share program, and United States Geological Survey (in-kind)

**The Iowa Beach Study**

*Investigators:* Michael Wichman, University Hygienic Laboratory, Janice Boekhoff, Iowa Department of Natural Resources-Water Monitoring Program

*Funding:* CHEEC, Iowa Department of Natural Resources, and Center for Emerging Infectious Diseases, UI College of Public Health (in-kind)

Historically, CHEEC's pilot level research grants generate over eight dollars in external funding for every dollar invested.

# DATA MANAGEMENT



## CHEEC DATA

CHEEC data management staff provided full system support for programming, local area network administration, database design and administration, and applications development for in-house, state, and federal funded environmental health research projects.

CDMC created and maintains computerized databases on Iowa water quality, including the *Iowa Historical Municipal Water Treatment and Supply Database*, the *Municipal Analytical Water Quality Database*, and the *Statewide Rural Well Water Survey (SWRL)*.

In 2004, the following projects utilized CHEEC's environment health and computer database expertise:

- Completion of collaborative work with the UI Department of Geography for a grant titled *Water Quality Protection in Agroecosystems: Integrating Science, Technology, and Policy at the Watershed Scale*: funding provided by the US Department of Agriculture.
- Research and data management support for *Muscular Dystrophy Surveillance Tracking and Research Network (MDSTARNet)* in cooperation with the Iowa Registry for Congenital and Inherited Disorders; funding proved by the Centers for Disease Control and Prevention (CDC).
- Research and database management on the *Comprehensive Assessment of Rural Health in Iowa (CARHI)* in collaboration with the UI Departments of Geography, Occupational and Environmental Health, and Family Medicine. Funding provided by the CDC.
- Continued database support for the *Agricultural Health Study*; in collaboration with the UI Department of Epidemiology. Funding provided by the US Environmental Protection Agency and National Institutes of Health.

## WHO WE ARE

### CHEEC Center Staff

**Zhen Feng**

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**Jiji Kantamneni**

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**David Riley**

Program Coordinator

**Pete Weyer, Ph.D.**

Associate Director

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William Field, Ph.D., UI Department of Epidemiology

Jamie Cashman, Iowa Department of Agriculture and Land Stewardship

Bernard Hoyer, Iowa Department of Natural Resources

Richard Kelley, University Hygienic Laboratory (Chair)

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