

#### The Institute for Rural and Environmental Health

In 1955 The University of Iowa initiated the first specialized institute in the Western Hemisphere dedicated to studying the prevention of occupational illnesses and injuries in agricultural workers. Originally called The Institute of Agricultural Medicine, it is now The Institute for Rural and Environmental Health (IREH), part of the University's College of Public Health.

In 1973 the Institute launched the first academic training program in agricultural safety and health at a health sciences school. The program received national attention at a time when there was no national or state policy regarding safety and health in one of the largest and most hazardous industries in the country.

In 1988 we organized a conference and education process ("Agriculture at Risk: A Report to the Nation") that brought agricultural occupational health and safety to the forefront as a national public health issue. Resulting policies have addressed the broad need for research in this area and for the education of health and safety professionals.

Also needed was a system in which agricultural health specialists are employed to deliver occupational health services once they are trained. We are helping to build that infrastructure with our AgriSafe Network of agricultural occupational health clinics and Certified Safe Farm Program.

Here we present brief descriptions of several IREH programs that address the important need for prevention of illnesses, injuries, and deaths in our agricultural communities.

## **Center Directors Institute for Rural and Environmental Health**



Craig Zwerling, MD, PhD, MPH. Director, Injury Prevention Research Center (IPRC). Professor and Head, Department of Occupational and Environmental Health (secondary appointments: Departments of Internal Medicine and Epidemiology). Current research interests: injury epidemiology, occupational injury prevention, workers with disabilities, older workers.



Thomas M. Cook, PT, PhD. Director, Center for International Rural and Environmental Health (CIREH). Associate Director, Injury Prevention Research Center (IPRC). Professor (joint appointment: Physical Therapy graduate program). Director, Ergonomics training program Current research interests: ergonomics, including development of exposure assessment methods; electromyography; therapeutic applications of new technology; musculoskeletal injuries; international occupational safety and health; global ergonomics.



Kelley J. Donham, MS, DVM. Director, Iowa's Center for Agricultural Safety and Health (ICASH). Professor, Associate Head for Agricultural Medicine. Current research interests: occupational and environmental hazards in agriculture; effects and control of the agricultural environment on human and animal health; comparative aspects of environmental neoplastic and infectious diseases; epidemiology of infectious disease hazards common to humans and animals.



Wayne T. Sanderson, PhD, CIH. Director, Great Plains Center for Agricultural Health (GPCAH). Associate Professor. Current research interests: beryllium exposure levels and lung cancer risk; exposure and health risks associated with pesticides; environmental evaluation of bioterrorism agents.



Nancy L. Sprince, MD, MPH. Director, Heartland Center for Occupational Health and Safety (Iowa ERC). Professor (secondary appointment: Department of Internal Medicine). Director, Occupational Medicine Residency Program. Current research interests: epidemiology of occupational lung disorders; risk factors for farm-related injuries; pulmonary disease among Persian Gulf War veterans; injuries among older workers; disabilities and workplace accommodations.



Peter S. Thorne, PhD. Director, Environmental Health Science Research Center (EHSRC). Professor (secondary appointment: Civil and Environmental Engineering). Director, Inhalation Toxicology Facility; Director, Environmental Health Sciences Training Program. Current research interests: environmental triggers of asthma; bioaerosol toxicology; animal inhalation models of pulmonary diseases; organic dust-induced lung inflammation and hypersensitivity; exposure assessment methodologies for bioaerosols; indoor air quality - toxins, microbes and aeroallergens.



#### Kelley J. Donham, DVM, MS, Director Eileen Fisher, PhD, Associate Director

#### **Mission**

Iowa's Center for Agricultural Safety and Health (ICASH) envisions Iowa as the world's healthiest and safest agricultural environment in which to live and work. Created in 1990 by the Iowa state legislature, ICASH is a partnership of public and private agricultural health and safety organizations, including **The University of Iowa**, **Iowa State University**, **Iowa Department of Public Health**, the **Iowa Department of Agriculture and Land Stewardship** and a diverse group of private organizations including

- Farm Safety 4 Just Kids
- Easter Seals FArm Program
- Sharing Help Awareness United Network (SHAUN)
- AgriWellness
- The Iowa AgriSafe Network
- Proteus
- National Education Center for Agricultural Safety

The organizational hub is the Institute for Rural and Environmental Health located in The University of Iowa's College of Public Health.

I-CASH is unique—the only legislative-based collaborative agricultural health and safety organization in the United States.

#### **Activities**

Among its many accomplishments in the past decade, I-CASH has

- developed the AgriSafe Network, a group of 25 hospitals, health clinics, and county health departments that provide community-based, preventive occupational health services for the farm community.
- developed and initiated the Certified Safe Farm Program.
- trained and certified over 200 nurses and other health care providers in agricultural occupational health.
- promoted the development of Farm Safety 4 Just Kids, a non-profit organization dedicated to preventing injuries and fatalities of children and youth in farm environments.
- fostered the development of Farm Safety Day Camps.
- awarded \$55,000 in grants for prevention of illnesses and injuries to farm youth in over 20 communities in Iowa.
- played a role in significantly reducing agricultural deaths and injuries in Iowa—by 44% and 32% respectively—since 1990.

#### Funded by

Iowa State Legislature (through The University of Iowa College of Public Health)

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#### Kelley Donham, DVM, MS, Principal Investigator

#### Mission

Certified Safe Farm (CSF) is an innovative agricultural health and safety research project conducted by Iowa's Center for Agricultural Safety and Health (I-CASH) at the University of Iowa and the AgriSafe Clinic in Spencer, Iowa.

The mission of CSF is to enhance the safety of the Iowa farm and the health of its workers and reduce injuries and illness to farm families by 1) removing hazardous exposures on farms, 2) detecting illnesses, 3) tailoring education to individual farms and, 4) providing significant incentives for compliance. Our vision is to build a sustainable program in partnership with the agribusiness community and make it available to all agricultural producers in the United States.

#### Activities

Professionals trained in agricultural occupational health provide preventive services and education to 135 study subjects (farmers) in a nine-county area. The intervention farmers receive a free yearly health screening, on-farm safety review, and individualized preventive education. Cholinesterase levels, pulmonary function, hearing check, and personal protective equipment education are among the items addressed at the health screening. The on-farm safety review covers potential hazards with machinery, chemical storage areas, outdoor environment, and buildings. It provides a unique opportunity for the farmer to learn about health and safety issues specific to his/her own operation. CSF is currently in its fifth year of active research and data collection, with injury and illness rates being compared between the 135 intervention farmers and 135 controls.

CSF encourages a healthy lifestyle in an atmosphere of voluntary behavioral change (and a monetary incentive provides an additional impetus for change). In bi-annual CSF meetings, participant farmers have expressed a clear interest in this type of incentive-based program.

#### Funded by

National Institute of Occupational Safety & Health (NIOSH National Pork Producers (NPPC)
Iowa Pork Producers (IPPC)
Pioneer International Hi-Bred
Wellmark Foundation

#### **Great Plains Center for Agricultural Health**

Wayne T. Sanderson, PhD, CIH, Director College of Public Health 100 Oakdale Campus lowa City, Iowa 52242 (319) 335-4207

#### Mission

The Great Plains Center for Agricultural Health (GPCAH) is dedicated to protecting and promoting the health and safety of farmers and their families, farm workers, and the agricultural community. The Center is one of 10 NIOSH-funded agricultural health centers and serves Iowa, Nebraska, Kansas, and Missouri (Federal Region VII).

#### **Activities**

The Center conducts multidisciplinary research on agricultural health and safety, investigating the effects on farm families of everything from microbes to machinery. Through our outreach program, we present new understanding gained from research to farmers, community leaders, education and health care providers, and policy makers. We train health professionals, including industrial hygienists, veterinarians, and physicians, on agricultural health and safety, and we provide technical assistance to health professionals and community organizations on research methods, training, and education.

Some specific projects of the Center include:

- the Keokuk County Rural Health Study, a twenty-year study of disease, injury, and environmental exposures in the residents of a rural Iowa county
- research on the ergonomics of farming, including musculoskeletal and carpal tunnel disorders
- studies leading to a better understanding of genetic susceptibility to dust-related lung disease
- new methods for measuring inhalable toxins in swine, poultry, and dairy production environments
- continuing education for occupational health nurses and physicians
- conferences and workshops on agromedicine, mental health, and other topics for a wide array of health professionals
- an extension of the education and safety review program known as "Certified Safe Farm" (currently being tested on row crop and swine farms) to dairy farms.
- prevention of tractor-related fatalities with strategies and policy recommendations of our Tractor Risk Abatement and Control (TRAC) program

#### Funded by

National Institute for Occupational Safety and Health (NIOSH)

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## Iowa AgriSafe Network

The Iowa AgriSafe Network reaches out to farm families, farmworkers, and agribusinesses to promote and support occupational health and safety. The Network receives educational support from of Iowa's Center for Agricultural Safety and Health (I-CASH), headquartered at The University of Iowa.

Working as a partner with existing community and regional services, including the extension service, local schools, area agribusinesses, commodity groups, and health and human service agencies, the Iowa AgriSafe Network clinics provide the following services to the farming community:

> Occupational health physical examinations and screenings. Services include but are not limited to:

Audiogram

**Pulmonary Function Test** 

Skin Cancer Screening

Back/Spine Lifting Safety Assessment

**Tetanus Immunization** 

Cholinesterase (when applicable)

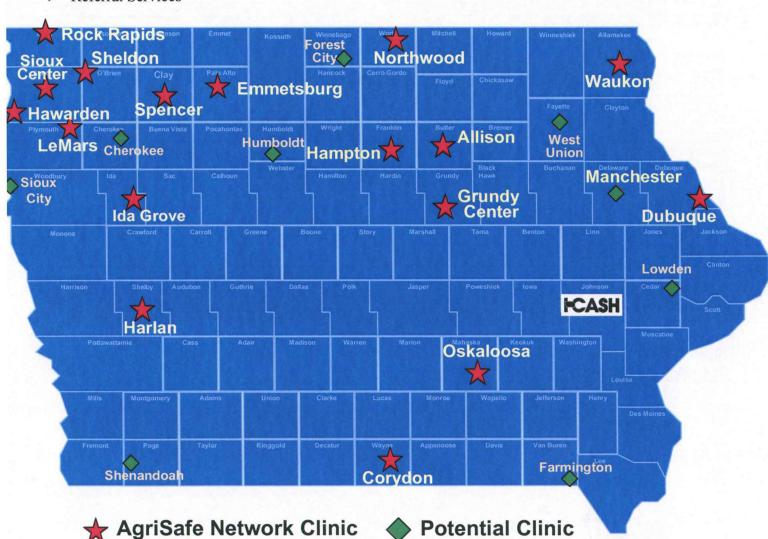
Cholesterol

**Blood Pressure** 

Height and Weight

Vision Screening

- Health education and health promotion programs
- > Personal protective equipment (such as respirators) education, fit testing and sales
- > On-farm Safety Reviews
- Farm Safety Day Camps
- Mobile Clinics
- > Referral Services



## **Iowa AgriSafe Network Clinic Locations**

AgriSafe Occ. Health Services	AgriSafe	AgriSafe
Spencer Hospital	Sioux Center Community Hospital	Floyd Valley Hospital
1200 First Avenue East	605 South Main Avenue	Hwy 3 East, Box 10
Spencer, IA 51301	Sioux Center, IA 51250	LeMars, IA 51031
712-264-6107	712-722-8188	712-546-3450
Occupational Health Outreach	AgriSafe Rural Neighbors	Agri-Safe
Myrtue Memorial Hospital	Butler County Public Health	Hawarden Community Hospital
1213 Garfield Avenue	428 6 <sup>th</sup> Street	1111 11 <sup>th</sup> St
Harlan, IA 51537	Allison, IA 50602	Hawarden, IA 51023
712-755-4288	319-267-2934	712-551-3127
Occupational Health	AgriSafe Rural Neighbors	Wayne County Public Health
Mahaska County Hospital	Franklin County Public Health	417 South East St, PO Box 102
1308 17 <sup>th</sup> Avenue East	1600 Central Avenue East	Corydon, IA 50060
Oskaloosa, IA 52577	Hampton, IA 50441	641-872-1167
641-672-3417	641-456-5820	
Rural Health and Safety	AgriSafe Rural Neighbors	AgriCare
Mercy Health Center	Grundy County Health Care System	Veterans Memorial Hospital
250 Mercy Drive	802 1 <sup>st</sup> Street	401 1 <sup>st</sup> Street SE
Dubuque, IA 52001	Grundy Center, IA 50638	Waukon, IA 52172
563-589-8111	319-824-6312	563-568-3411
Worth County Public Health	Palo Alto County Hospital	Horn Memorial Hospital
PO Box 228	3201 First Street	701 East 2 <sup>nd</sup> Street
Northwood, IA 50459	Emmetsburg, IA 50536	Ida Grove, IA 51445
641-324-1741	712-852-5469	712-364-3311
Northwest Iowa Health Center	Merrill Pioneer Comm. Hospital	
118 N 7 <sup>th</sup> Ave, PO Box 250	801 S. Greene Street	
Sheldon, IA 51201	Rock Rapids, IA 51246	
712-324-6402	712-472-2591 ext. 128	

### **Potential Clinics**

Sioux Valley Memorial Hospital	Winnebago CO P.H. Nursing	Mercy Business Health Services
300 Sioux Valley Drive	216 Clark Street	4301 Sergeant Rd
Cherokee, IA 51012	Forest City, IA 50436	Sioux City, IA 51106
712-225-5101 Ext. 255	641-585-4763	712-274-4250
Ag Health and Safety Center	Lowden Family Medical Clinic	Palmer Lutheran Health Center
Van Buren County Hospital	305 McKinley Ave, PO Box 309	Health South
PO Box 70	Lowden, IA 52255	112 Jefferson St
Keosauqua, IA 52565	563-941-7596	West Union, IA 52175
319-293-3171		319-422-3876
Shenandoah Medical Center	AgriHealth	Humboldt Co. Memorial Hospital
Occupational Health	Regional Medical Center	1012 N 15 <sup>th</sup> St
1 Jack Foster Dr	709 West Main Street	Humboldt, IA 50548
Shenandoah, IA 51601	Manchester, IA 52057	515-332-2492
712-246-7250	563-927-7303	



### **Agricultural Safety and Health Training**

Kelley J. Donham, DVM, MS, Director

#### Mission

The Heartland Center for Occupational Health and Safety, established in July 2000, serves Iowa, Nebraska, Kansas, and Missouri with training and outreach programs in six areas of specialization, including agricultural safety and health (the others are occupational health nursing, industrial hygiene, occupational medicine, ergonomics, and occupational injury epidemiology).

The goal of the agricultural health and safety program is to increase the number of health care professionals and health and safety professionals who have knowledge and skills in anticipation, detection, diagnosis, evaluation and control of health and safety hazards of agricultural workers. We also work to enhance the knowledge and skills of practitioners who work with an agricultural population on a daily basis, and to help regional organizations deliver agricultural health and safety information.

#### **Activities**

The philosophy of our academic training is based on cross-training in health sciences; agricultural sciences; specific knowledge of agricultural exposures, injuries, and illness; and general knowledge of the agricultural way of life. Similar to the way medicine or nursing trains specialists like cardiologists or pediatric nurses, our program trains industrial hygienists to be creates agricultural hygienists, occupational health nurses to be agricultural occupational health nurses, and so on.

The centerpiece of our continuing education efforts is the Agricultural Occupational Health Certification Program. Twice a year participants attend our continuing education courses for basic information that enables them to function as practitioners in the prevention of occupational illnesses and injuries in the farm community. Participants who successfully pass the exams offered at the end of each session receive a certificate. More than 200 health professionals, including nurses, physicians, physician assistants, nurse practitioners and others have been trained and certified in agricultural safety and health through this program.

Our outreach efforts are currently focused on developing educational programming and AgriSafe Clinic Networks similar to the one in Iowa by working with the Universities of Nebraska, Illinois, Kentucky, and Eastern Carolina; Clarkson College; and the Wisconsin Office of Rural Health.

#### Funded by

National Institute for Occupational Safety and Health (NIOSH)

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#### **Environmental Health Sciences Research Center**

Peter S. Thorne, PhD, MS, Director

#### Mission

The University of Iowa Environmental Health Sciences Research Center (EHSRC) is one of 21 university-based Environmental Health Cores funded by the National Institute of Environmental Health Sciences (NIEHS). Established in 1990, the EHSRC is the only NIEHS center in the rural Midwest and the only center to focus on rural environmental exposures and related injuries and diseases.

Building on the University of Iowa's strengths in health science and environmental research, the EHSRC seeks to enhance ongoing research, initiate new collaborations, and serve as a resource to the State of Iowa, the region, and the nation in the area of agricultural and rural environmental health.

#### Activities

Ours is an interdisciplinary center with investigators from the Departments of Microbiology, Biostatistics, Occupational and Environmental Health, Internal Medicine, Epidemiology, and Pathology, to name a few. Current research topics include arsenic exposure, asthma, bioterrorism, genetic disease, and phytoremediation (the use of plants for biological remediation of environmental problems).

In 2001, the EHSRC was involved in a two-pronged effort to advance state policy on Concentrated Animal Feeding Operations (CAFOs) to ensure the environmental safety of its citizens. We provided an open forum for public discussion and spearheaded a science-based assessment of the health effects of CAFOs.

Our community outreach and education activities meet the needs of Iowans through programs such as the Environmental Health Sciences Institute for Rural Youth (EHSI). We also serve the upper Midwest as a technical resource to assist in environmental health policy making.

The EHSRC Pilot Grant Program continues to play an important role in providing seed funding, primarily to junior investigators who go on to compete for full funding from the National Institutes of Health (NIH), National Science Foundation (NSF), Centers for Disease Control (CDC), US Department of Housing and Urban Development (HUD), and a wide variety of private foundations. Any faculty member with a research interest in environmental health consistent with the goals of the Center is eligible to apply for pilot project grant support.

#### Funded by

National Institute of Environmental Health Sciences (NIEHS)



#### INJURY PREVENTION RESEARCH CENTER

Craig Zwerling, MD, PhD, MPH, Director

#### Mission

The University of Iowa Injury Prevention Research Center (IPRC), founded in 1990, is one of 11 Injury Control Research Centers (ICRCs) funded by the CDC's National Center for Injury Prevention and Control. Building on institutional strengths at the University of Iowa in rural and agricultural injuries, motor vehicle injury, and human factors, the IPRC has created a "Center of Excellence" in injury control research designed to bridge the gap between researchers and the practitioners who implement injury prevention programs. The IPRC's primary goal is to control and prevent injuries, especially in rural communities, focusing on high-risk populations such as children, the elderly, farmers, and those with disabilities.

#### **Activities**

In accord with this goal, the IPRC supports interdisciplinary research, training, and outreach, targeting a wide variety of unintentional injuries. Its multi-disciplinary teams of investigators represent the fields of engineering, epidemiology, medicine, biostatistics, public health, and the behavioral and social sciences. Activities are conducted in four areas essential to the prevention of injuries: 1) research, 2) training of undergraduate and graduate students, post doctoral trainees, and injury control practitioners 3) collaboration with other state and regional agencies and organizations, and 4) public policy advocacy. In brief, the IPRC community of injury researchers has:

- Published more than 245 injury-related articles since 1995
- Generated over \$28 million in injury research funding for 105 projects since 1995
- Involved at least 36 researchers from four colleges and 15 departments at the University of Iowa as well as from the Medical College of Wisconsin, the Marshfield Medical Foundation, the Washington University School of Medicine, and other organizations
- Responded to hundreds of requests for technical assistance from groups and individuals throughout the United States and beyond
- Played a major role in the development and implementation of a trauma plan for the State of Iowa
- Provided policy makers and their staff members with scientific evidence to support injury control-related measures.

#### Funded by

National Center for Injury Prevention and Control/CDC

#### Center for International Rural and Environmental Health

Thomas M. Cook, PhD, Director

#### Mission

The Center for International Rural and Environmental Health (CIREH) is dedicated to research, training and education concerning global issues in environmental, agricultural and occupational health. CIREH focuses on countries with substantial agrarian economies and countries with new democracies. Faculty and staff members associated with CIREH come from the social sciences, health sciences, and engineering, reflecting the philosophy that health is the outcome of social, economic, political, and environmental factors as they relate to fundamental biological processes.

#### **Activities**

One of CIREH'S main activities is an international training and research program in environmental and occupational health. Researchers in all stages of their careers come to the University of Iowa (UI) from Central and Eastern Europe and The Gambia, West Africa. They spend a semester taking courses to advance their discipline or to explore new areas. They are also matched with a UI faculty mentor to develop collaborative research projects and to design workshops to be taught in their home country. Faculty mentors have been able to travel to these countries and continue collaborative research projects with former trainees.

With CIREH funding, UI students do international research on topics related to environmental, occupational, and agricultural health. Funding is based on a competitive application process. We also support students' participation in a six-week summer internship program at the Gambia College School of Public Health.

This fall CIREH will begin a program entitled "The Iowa-Gambia Partnership," which, over the next three years, will bring 12 Gambian professionals in environmental health to Iowa for one-month study tours and also provide small grants to support community-based projects and incountry workshops.

In September 2002, CIREH sponsored the second of three workshops planned around issues of agriculture and environmental health in rural Central and Eastern Europe. The first meeting, which was held in September 2000, helped delegations from Slovakia, Czech Republic, Poland, Hungary and the Ukraine to identify their common areas of concern as well as their strengths. The second conference focused on the use and misuse of agricultural chemicals and related water safety issues.

#### Funded by

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The US Department of State
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# Craig Zwerling, MD, PhD, MPH John Lundell, MA Co-Principal Investigators

#### Mission

The Iowa Fatality Assessment and Control Evaluation (FACE) Program brings the causes of fatal injuries to the attention of people who can make a difference in worker safety. Through this program, we collect information on all occupational fatalities in the state of Iowa and perform in-depth studies of specific types of fatal injuries. Because Iowa farmers and farm families are at high risk for injuries, we routinely investigate agricultural fatalities. The ultimate goal of these investigations is to alert farmers about these risks and develop preventive strategies.

Since 1995, the FACE program has been carried out by the Department of Occupational and Environmental Health under a subcontract with the Iowa Department of Public Health. From 1995 through 2001, the FACE Program identified a total of 512 Iowans who were killed while at work. Approximately one-third (34.8%) of all fatalities were involved in agricultural activities, with the construction industry have the next highest percentage (18.9%).

#### **Activities**

Our findings are pooled with other FACE programs across the nation, to help the National Institute for Occupational Safety and Health (NIOSH) look for common risk factors. Alerts generated by our program have been widely disseminated throughout the nation, and descriptions of Iowa FACE investigations have been published in a variety of popular magazines aimed at farmers, such as *Wallace's Farmer*. Iowa FACE Program staff members also make numerous presentations at agricultural meetings.

#### Funded by

National Institute for Occupational Safety and Health (NIOSH) through the Iowa Department of Public Health



