



Upper Midwest Agricultural Safety and Health Center

Quarterly Update

University of Minnesota School of Public Health • University of Minnesota College of Veterinary Medicine
National Farm Medicine Center • Minnesota Department of Health

umash.umn.edu

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UMASH Quarterly Update is one way the Upper Midwest Agricultural Safety and Health Center (UMASH) is working to engage people and organizations around research, education and prevention aimed at improving the health and well-being of agricultural workers and their families.

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National Farm Safety & Health Week
September 16-22, 2012

Every year since 1944, the third week of September has been recognized as National Farm Safety & Health Week. The theme for 2012 is **Agricultural Safety & Health...A Family Affair**. This year's theme has a focus on the foundation of agriculture throughout the world – the farm family. [Learn more](#)

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Welcome from the Director

Bruce Alexander, PhD

Welcome to the Upper Midwest Agricultural Safety and Health Center's (UMASH) first quarterly update. We will be using this format as one way to connect with people interested in the health and well-being of the people who produce our food. The UMASH is a new center for agricultural safety and health and is sponsored by the National Institute for Occupational Safety and Health (NIOSH).

Our center has two central themes for approaching worker health and safety issues. The first is recognizing that **the face of agriculture continues to change**. Responding to an increasing global demand for food at affordable prices that is produced in a sustainable manner will alter the requirements for the people who work in the industry. The staff of UMASH is committed to working with producers, their families and employees to understand and anticipate



changes to help identify ways to keep this workforce healthy.

The second unifying theme is the concept of **One Health**. This concept strives to recognize the connections between **animal health, human health, and the health of the environment**. We feel it is important to keep all of these factors in mind when addressing occupational health and safety issues in agriculture. We have recently experienced an excellent example of the importance of embracing the One Health approach. The Summer of 2012 saw the emergence of another novel influenza virus; H3N2v. There was considerable concern about the potential spread of the virus from pigs to people and the role human-pig interaction could have on the evolution of the virus to a more severe type. It was clear that there was potential risk to both people and pigs, and understanding the nature of the virus and the nature of transmission was essential to making the most appropriate public health decisions. It was also an example of the importance of public health professionals working closely with producers and veterinarians to keep the well-being of both people and animals on the table.

As the UMASH moves into its second year we look forward to developing strong partnerships with people and organizations representing all aspects of agriculture to ensure our food is produced in a manner that keeps the people involved healthy.

Project Spotlight

Surveillance for Zoonotic Diseases in Agricultural Workers in Minnesota

Principal Investigator: Kirk Smith, DVM, Ph.D.

Co-Investigators: Richard N. Danila, Ph.D., Joni M. Scheffel, DVM, MPH

Project Coordinator: Carrie Klumb, MPH

Diseases that humans acquire from animals are termed “zoonotic diseases” or “zoonoses”. That germs from livestock and poultry can make people sick is widely known in the public health community. Outbreaks caused by germs such as *E. coli* O157:H7, *Salmonella*, *Campylobacter*, and *Cryptosporidium* due to contact with livestock (cattle, goats, sheep, pigs) and poultry at petting zoos, educational farm programs, open farms, and fairs are documented on a regular basis. However, human illnesses that are part of outbreaks make up only a small proportion of all the illnesses caused by these germs. Therefore, the total number of illnesses caused by contact with food production animals cannot be determined by studying outbreaks alone. It has also been documented that agricultural workers and their families have become ill from the aforementioned germs. However, no one has conducted a comprehensive study of all outbreak and non-outbreak illness cases to determine how frequently food production animals serve as a source of illness. As part of UMASH, the Minnesota Department of Health is working to determine how many illnesses are acquired from contact with food production animals or their environments (versus from consumption of food, swimming in or drinking water, or contact with other ill people). The primary focus is agricultural workers and their families. In large part, the effort consists of follow up interviews with farm workers, farm families, farm visitors, and petting zoo attendees, who have become ill due to germs such as *E. coli*, *Campylobacter*, *Cryptosporidium*, *Salmonella*, and *Yersinia*. Other issues of potential importance are agricultural exposures (forestry as well as farming) to vectorborne diseases, such as Lyme disease and West Nile virus, or other zoonotic diseases like swine influenza and rabies. So far, 176 cases with agricultural exposure have been interviewed for UMASH.



Meet the Principal Investigator

The format of the UMASH surveillance interview is different from the more general interviews for foodborne and vectorborne illnesses; and they are largely centered on asking the case to recall the types of food animals present, any contact with an animal or its environment, and handwashing practices. The interview for farm workers and farm families also includes questions asking them to recall specific chores and personal protective equipment (PPE) from the week before they became ill, as well as demographic information about the farm. These questions could help epidemiologists and other health professionals identify certain activities that may put farmers and their families at a greater risk for contracting zoonotic diseases.



Kirk Smith, DVM, PhD
Supervisor
Foodborne, Vectorborne, and
Zoonotic Disease Unit
Minnesota Department of Health

[View Bio](#)

One of the most important aspects of the project is the opportunity to increase awareness among agricultural families and visitors to agricultural settings. For example, this summer a 14 year old contracted an *E. coli*O157:H7 infection after working with a calf on the family farm for a 4H project. The Minnesota Department of Health was able to test the child and the calf's stool and found the same type of *E. coli* O157:H7 in the child and the calf. The family had owned cattle for years but this was the first year their child was working with a calf. The child became very ill and developed hemolytic uremic syndrome (HUS), which involves kidney failure, and was hospitalized for over a week requiring multiple blood transfusions. When we spoke to the family about their child's animal exposure they were not aware that cattle can carry germs like *E. coli* O157:H7 which can make people seriously ill. Luckily this story has a happy ending with the child making a full recovery. As a result of their child's illness this family is better educated about zoonoses and is now careful to take proper precautions when working with animals. They want other people to learn from their experience and prevent others from going through what they went through.

MDH has developed a variety of fact sheets on how farm families and guests can prevent illness on the farm; other UMASH fact sheets include information about specific zoonotic diseases. To date, 108 of the 176 interviewed cases (61%) have requested additional information. It is also important for farm

families and visitors to realize that many of the germs that can make people sick are a natural part of animals' digestive systems, so the animals may not appear ill. MDH does not want to make farmers, farm families, and visitors afraid of interacting with animals, but instead to make them aware of the potential illnesses that people can get from animals and how they can avoid becoming sick in the future.

Outreach and Engagement

During this first grant year, various UMASH study teams have begun meeting with dairy farmers and pork producers in Minnesota and Wisconsin, study investigators have presented seminars or presentations about operationalizing the One Health concept, and other team members have networked with agricultural professionals at a number of conferences, workshops, and other events.

Our outreach and engagement program priority is to create a **two-way flow of information** between our Center and people affected by and involved in agriculture. This includes producers, processors, agribusinesses, public health and health care practitioners, farm family members, and many others.

UMASH seeks to learn about emerging needs, trends or challenges that may affect agricultural health and safety.

Contact us by email or phone:
umash@umn.edu or 612-625-8836



Ruth Rasmussen, RN, MS, MPH
Outreach and Engagement
Coordinator

Resources

H3N2v (variant) Influenza and Swine Contact Fact Sheet

Multiple infections with variant influenza A (H3N2v) viruses have been identified in 3 states in recent weeks. From July 12 through August 3, 2012, 16 cases of H3N2v were reported and confirmed by CDC. [Learn more on the UMASH website.](#)

Farm Fact Sheets are now available for zoonotic diseases, including: [Cryptosporidium](#), [Campylobacter](#), [Salmonella](#), [E. coli O157:H7](#), [petting zoos and fairs](#), and [generic zoonoses](#). These downloadable educational materials were developed by UMASH project staff at the Minnesota Department of Health and are available on the [UMASH website](#).

National Farm Medicine Center Agricultural Safety Consulting

Agriculture Safety Consulting (ASC) is a program of the National Farm Medicine at Marshfield Clinic that was developed to assist and support dairy farmers in this changing agriculture industry. ASC offers assistance in safety program development, implementation and management. ASC, with its multicultural and bilingual staff, has unique capabilities in addressing the Spanish language training needs of Hispanic employees. Packages range from identifying hazards and making abatement recommendations to guidance on development of self-administered farm safety programs with options for on-site English and Spanish farm safety training for employees. [Learn more about ASC](#) and [Tailored Service Packages](#).



Pilot Projects Program

Small grants are available through the UMASH Pilot Projects Program to explore new opportunities and address emerging issues related to the health and safety of agricultural workers and their families.

The following projects were awarded funding in 2012:



Characterization of shiga-toxin producing E. coli infections and cryptosporidia in South Dakota with respect to agricultural exposures and other risk factors.

South Dakota State University

Developing Culturally and Linguistically-Appropriate Pesticide/Chemical Education Materials for Hmong Produce Growers

Bioproducts and Biosystems Engineering Department and University of Minnesota Extension

Pilot Project Exploratory Immunologic Differences in Cord Blood from Infants Born into Farming Environments Compared to Nonfarming Environments in MESA

University of Wisconsin

Design Guidelines for Healthy and Safe Animal Production Building Systems

Center for Rural Design, University of Minnesota

Watch our [UMASH Pilot Projects page](#) on the UMASH website for a new Request for Proposals this fall.

Upcoming Events

National Farm Safety and Health Week

"Agricultural Safety & Health:

A Family Affair"

September 16-22, 2012

Agricultural Safety and Health:

Focus on Dairy

September 28-29, 2012

Palmerston North, New Zealand

26th Annual Conference of the American

Evaluation Association

October 24-27, 2012

Minneapolis, Minnesota

11th Annual Midwest Rural Agricultural

Safety & Health Conference:

Reaping the Rewards

November 14-16, 2012

Cedar Rapids, Iowa

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One Health in Agricultural Safety and Health

UMASH embraces a **One Health** philosophy that recognizes the connections between **human, animal, and environmental health** when addressing occupational health and safety issues in agriculture.



UMASH is a collaboration of the **University of Minnesota School of Public Health**, **University of Minnesota College of Veterinary Medicine**, the **National Farm Medicine Center of the Marshfield**



Clinic with the **Migrant Clinicians Network**, and the **Minnesota Department of Health**. This collaboration brings together unique and complimentary expertise to address existing and emerging occupational health and safety issues in agriculture.

Research • Education • Prevention

Upper Midwest Agricultural Safety and Health Center (UMASH)

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