



# UMASH

Upper Midwest  
Agricultural Safety  
and Health Center

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*A collaboration of the University of Minnesota School of Public Health and College of Veterinary Medicine, the National Farm Medicine Center of the Marshfield Clinic with the Migrant's Clinicians Network, and the Minnesota Department of Health.*

Summary Annual Report

2016-2017

NIOSH Center of Excellence in Agricultural  
Disease and Injury Research, Education, and Prevention  
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## SECTION I

### Center Summary:

The Upper Midwest Agricultural Safety and Health Center (UMASH) is a Center of Excellence in Agricultural Disease and Injury Research, Education, and Prevention funded by the National Institute for Occupational Safety and Health (NIOSH). The center is a collaboration of the **University of Minnesota School of Public Health** and **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.

The UMASH focuses on the **the interrelationship between the production practices and the farm workplace health and safety conditions, and the interdisciplinary connections needed to address worker health and safety**. Production practices are primarily driven by social, economic, and animal health and productivity considerations. In agriculture, workplace health and safety conditions are strongly influenced by these production practices. The UMASH emphasizes the concept of **One Health** which engages multiple disciplines to understand the interdependence between animal health, human health, and the health of the environment. The UMASH also emphasizes how the ever-changing nature of agriculture can influence the health and well-being of agricultural workers.



The current five-year grant cycle (2016-2021) includes six funded projects: **Optimizing Assessment and Control of Virus-Containing Particles in Animal Agriculture Operations**, **Rural Firefighters Delivering Agricultural Safety and Health (RF-DASH)**, **Promoting Safety and Worker Health for Immigrant Dairy Workers**, **Longitudinal Study of Infectious Disease Risks at the Human/Swine Interface**, **Surveillance and Control of Zoonotic Diseases in Agricultural Workers in the Upper Midwest**, and **Assessing Work Related Injuries in Animal Agriculture with Multiple Data Resources**. The center also has an **outreach** component to disseminate and collect information from stakeholders; an **emerging issues program** to explore new opportunities and address emerging issues in the field of agricultural safety and health; and an **evaluation** program to monitor and assess the performance and outcomes of the center.

## Relevance:

The agriculture industry is challenged with responding to an increasing global demand for a safe and plentiful food supply that is both affordable and produced in a sustainable manner. To meet this demand the industry will develop novel approaches to producing food. The changes accompanying food production will also impact the people who produce the food. The complex and varied nature of the agricultural workplace contributes to agriculture being one of the most hazardous occupations. As agriculture evolves to meet increasing global food demand, the occupational health risks encountered by the agricultural work force will evolve with some hazards being eliminated and others emerging. The changing face of agriculture will also change who is producing food. Small farms may give way to larger enterprises that hire the majority of their labor force; including many who have no background in agriculture. Understanding and managing these changes is essential to protecting the health of agriculture workers and their families.



The Upper Midwest Agricultural Safety and Health Center (UMASH) conducts research, education and prevention activities aimed at improving the health and safety of workers and their families. The UMASH investigates how this evolving industry is changing the risks agricultural populations face. It develops improved methods to identify and reduce risks and it explores how best to interact with producers, agricultural workers and their families, and the broader agricultural community.

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**Ag Center web link:** [umash.umn.edu](http://umash.umn.edu)

## SECTION II

### Program highlights

#### Research Projects:

#### [Monitoring Zoonotic Diseases in Minnesota Agricultural Workers and Their Families](#)

Agriculture is a large part of Minnesota's economy, supporting more than 340,000 jobs through food animal production and processing support services. Zoonotic diseases (diseases that can be passed between animals and people) are a risk to agricultural workers, their families, and visitors to farms and other agriculture venues. However, little information is available describing specific risk factors on the farm for developing a zoonotic disease or how frequently agricultural workers, their families and visitors get sick from food animals. Since 2012, the UMASH project at the Minnesota Department of Health (MDH) has focused on describing the size of this problem in agricultural populations and visitors to agricultural venues. This information will help us develop more effective prevention measures and guide our educational messaging to minimize the occurrence of zoonotic diseases.



*Child petting deer at Petting Zoo*

Diarrheal illnesses caused by *Cryptosporidium*, *E. coli* O157:H7, *Campylobacter*, and *Salmonella* infections are reportable to MDH, and all ill people are interviewed with a routine questionnaire that includes agricultural exposures (living, working, or visiting a farm, petting zoo, fair, or other venue with animals). Beginning in 2012, patients who report a food animal agriculture exposure have been re-interviewed with a more detailed questionnaire about the farm and their interactions with the animals. Based on these interviews, 59% of all Minnesota residents with a *Cryptosporidium parvum* infection, 21% with an *E. coli* O157:H7 infection, 27% with a *Campylobacter* infection, and 10% with a *Salmonella* infection had a food animal exposure before their illness. These percentages are much higher than previously estimated, for all but *Salmonella*; (*Cryptosporidium parvum* 16%, *E. coli* O157:H7 6%, *Campylobacter* 17%, and *Salmonella* 11%). MDH offers educational materials to these patients, and 41% of them were interested in receiving the materials.

This past year the MDH investigated numerous reports of illness associated with animal contact. Minnesota was a part of a large nationwide outbreak of *Salmonella* infections associated with

live baby poultry contact. People from 48 states have become ill with a total of 961 cases of illness, 215 hospitalizations, and 1 death. MDH sent out a press release reminding poultry owners that bacterial infections can be acquired from handling live poultry, to keep poultry in their own living spaces separate from the home, and to wash their hands after contact with poultry or their environment. In addition, we investigated an outbreak of Shiga toxin-producing *E. coli* infections associated with a petting zoo at a campground, and initiated several investigations at private farms. In each case MDH has worked closely with the facility or farm owners to provide a consultation to prevent future illness. This is one example of the type of outreach MDH does with farmers and agritourism operators. MDH has offered five full-day workshops to people associated with county fairs, and three free evening workshops to people with agritourism operations (apple orchards, pumpkin patches, corn mazes, etc.) on how to have safe human-animal interactions. These workshops were well-attended and will be offered on an annual basis. For people who are involved in county fairs or agritourism but are unable to attend an in-person workshop, MDH has created an on-line, voluntary certification program for public animal contact venue operators. This training program is based on national best practices and can be completed at a person's convenience. Venue operators who finish the program are certified by MDH as having received training in minimizing the risk of illness and injury in their visitors. This program is expected to launch in November 2017.

## **Longitudinal study of infectious disease risks at the human-swine interface**

This project builds upon our recent research with veterinarians, a unique group for studying transmission of infectious agents from animals and humans. Our previous work confirmed that swine veterinarians can be colonized for at least 18 months by *S. aureus*/MRSA of animal origin, but the risk of actual infections appeared to be low.

In the current project, we are studying 3 infectious agents (*Staphylococcus aureus*, including MRSA; Influenza A virus and Hepatitis E virus) carried by swine that are currently of concern for public health, and particularly for people who work with live animals. In this 5-year project, we will compare the rates of clinical illnesses likely to be related to these 3 agents in a groups of 80 swine veterinarians and 50 companion animal veterinarians. Rates of exposure to *S. aureus* and influenza are being assessed by collection of nasal swabs from both groups every 3 months, and evidence of exposure to Hepatitis E virus is being assessed by collecting 3 blood samples from the swine vets over the course of the study.

Although it is still early in the study, we have already recruited 69 swine veterinarians and 48 companion animal veterinarians who have submitted at least one nasal swab and completed surveys of their recent history of animal contact as well as relevant health events over the prior 3 months. As in our last study, the veterinarians have become interested in the study and show very high compliance in completing the sample collection and surveys. Early data indicate that the swine veterinarians test positive for *S. aureus* much more often than the companion animal veterinarians, and that they are predominantly carrying *S. aureus* variants of swine origin.

## Optimizing Assessment of Virus-Containing Particles in Animal Agriculture

To know how far infectious virus-containing particles may travel through air, and to identify the most effective ways to limit exposure to these particles, we must first be able to measure concentrations, sizes, and infectivity of virus-containing particles present in animal production facilities. To facilitate better measurements, large volumes of air must be sampled to collect enough live virus to exceed limits of detection and to allow for quantification of virus in the samples. Existing field-portable, size-differentiating samplers do not allow us to capture sufficient live virus to achieve these goals in workplaces. Therefore, the objectives of this research are to develop a high-volume, field-portable, size-differentiating viral aerosol sampler, potentially incorporating and exploiting existing technologies, and to demonstrate its use by measuring worker exposures to live airborne influenza viruses in animal agriculture facilities.

The first step in this project has been to evaluate the performance of a broad range of existing instruments that can be used to collect samples of virus-containing particles. We have assembled three sets of samplers for evaluation: one set that captures particles primarily by liquid impingement and/or cyclonic motion, a second set that uses air filtration or electrostatic attraction, and a third that collects particles using inertial impaction. The samples are being evaluated using low pathogenic strains of H9N9 avian influenza virus and H3N2 swine influenza virus, as well as MS2 bacteriophage that is commonly used in laboratory experiments. As shown in the figure, instruments are being tested side-by-side in an isolation room using mechanically-generated virus aerosols. These tests will determine the most effective sampling technologies and parameters that will collect the greatest quantity of live virus and viral RNA.



*Researcher with air sampling equipment*

This project involves collaborations with external partners. NIOSH has loaned us a Cyclone Bioaerosol Sampler for these tests. We are borrowing two developmental instruments from colleagues at other academic institutions: the Viable Virus Aerosol Sampler (VIVAS) from Dr. C.Y. Wu at the University of Florida and Aerosol Dynamics Inc. and the Rutgers Electrostatic Passive Sampler (REPS) from Dr. Gedi Mainelis's team. We have rented a SpinCon II wet concentrator air sampler and borrowed a BobCat dry filter air sampler from InnovaPrep LLC. In addition, the University of Minnesota Department of Mechanical Engineering is loaning us a

Tisch Environmental Series 230 High Volume Cascade Impactor and a prototype Trichotomous Virtual Impactor Sampler.

This project will fill a critical gap in knowledge about airborne viruses, allow more rapid assessment of risks to workers posed by emerging viruses in animal agriculture, and contribute significantly to the protection of worker health when zoonotic disease outbreaks occur in animal agriculture settings.

## **Rural Firefighters Delivering Agricultural Safety and Health (RF-DASH)**

Agricultural workers are 8 times more likely to die on the job than workers in any other industry. Efforts to prevent such injury and death on farms through policy are met with resistance, meaning most safety improvements must be adopted voluntarily. Through a [UMASH pilot study](#), a pile sort activity was designed to find influential actors around dairy farmers who may be able to motivate a farmer to take action on injury prevention. The community-engaged work found firefighters and EMS as trusted individuals in the rural community. The Rural Firefighters Delivering Agricultural Safety and Health, or RF-DASH, was conceived from these results.

RF-DASH utilizes existing networks of firefighter/EMS training, e.g. technical and community colleges, department training officers, and training conferences, to equip first responders with tools and knowledge to perform brief farm safety consultations. These consultations are designed to improve farm safety and ensure the safety of first responders in the event of an emergency. This train-the-trainer program aims to teach the following curricula to firefighters/EMS in Wisconsin, Minnesota, and Illinois.

As there is no right-of-way or mandatory pre-planning on many farms (as is the case with most other businesses), it is incumbent on the local fire department to request access and work closely with the local farm community to ensure timely and safe emergency responses. Farm MAPPER is an interactive web tool that provides emergency responders onsite information about hazards and physical layouts of agricultural operations. It is designed for ease of site navigation and data entry, even with limited computer knowledge. The tool aids emergency responses, increasing safety for responders.

In pilot research, farmers expressed willingness to make changes to behavior and operations if given advice from their local fire department. The second module facilitates the analysis of farm risks by these trusted community members. The [SaferFarm.org](#) risk analysis tool is a simple method for providing first-hand information about and a process for evaluating hazards in agricultural environments. The web-based tool is easy to use and would allow a firefighter to go onto a farm and perform a brief agricultural safety consultation. This means the firefighter could identify hazards and rate its severity with reference pictures as guides. The RF-DASH model will train firefighters to use this tool and perform safety consultations on farms. RF-DASH includes the merging Farm MAPPER and SaferFarm.org onto one platform.

We are modifying a farm first aid curriculum for rural firefighters and first aid instructors to train farmers, farm workers, and farm families in Farm First Aid. This module will deploy first aid skills within farm scenarios recognizable to the region's farming community. The appropriate prevention tactic will be disseminated at the conclusion of each first aid scenario. Thus, participants will be made hyperaware of harm and injury, but then given a means to handle the emergency and ideally prevent the injury. Farm First Aid teaches farm families how to respond when they discover an emergency and while waiting for first responders.

Additionally, insurance companies are also lending their support to the project. They have options to provide scholarships for firefighters to be trained in first aid and the technology, fund dairy breakfasts to connect trained firefighters/EMTs to their communities, or lower premiums for farmers who participate.

First year successes include modifying the existing curricula for trainers to use. A curriculum feedback round table was organized with 6 fire departments and tech/community colleges represented from 3 states (IL, WI, MN). The project was successfully disseminated in the *Dispatcher*, *Wisconsin Fire Chief*, and *EMS Professionals*, three popular trade journals for firefighters/EMS. Additionally, the project's success will be chronicled in *Progressive Dairyman* from October through December. The project was also well received at the National Occupational Research Agenda (NORA) Conference in Minneapolis, MN and the International Society for Agricultural Safety and Health (ISASH) in Logan, UT. The most impressive project success has been in the reception by the community of firefighters/EMTs, as well as the salience of the topic for rural first responders.

## **Outreach and Engagement**

Throughout the year, the UMASH outreach staff at the University of Minnesota (UMN), the National Farm Medicine Center (NFMC) and the Minnesota Department of Health (MDH) interact in-person with agricultural audiences, researchers and others at a variety of farm shows, meetings, conferences and other events across the region. A sampling of outreach events in the past year include: U of MN Extension Women in Agriculture Conference, Women's Agricultural Leadership Conference, MN Veterinary Medicine Association, Central MN Farm Show, WI Agrability Summit, Central Plains Dairy Expo (SD), MN Farmfest, MN Minnesota Milk Producers Spanish Workshops, Big Iron Farm Show (ND), Midwest Regional Agricultural Safety and Health (MRASH) conference, the Leman's Swine Conference the Agricultural Media Summit, International Society for Agricultural Safety and Health conference, National Farmers Union annual convention, National Association of Farm Broadcasters meeting and the Midwest Organic and Sustainable Education Service meeting. Many of these events are highlighted on the [UMASH In the Field](#) section of the website.

MDH outreach staff continue to focus on engaging farmers and county fair managers and organizers directly through our Agritourism and Healthy Fairs workshops. Additional workshops are planned for 2018. Presentations on agritourism were given at the MN Rural & Ag Law Institute and the National Agriculture Law (webinar). Additionally, UMASH has contributed to

the development of a 2-hour web-based voluntary certification program called *Safer FACEs* (Safer Farm Animal Contact Exhibits) for anyone working with animals and the public. This training contains all of the national best practices for safe public-animal contact venues and gives operators an efficient cost-free way to educate themselves. This program will be available in November 2017.

In May 2017, UMASH partnered with the [Midwest Center for Occupational Health and Safety \(MCOHS\)](#) to co-sponsor our annual National Occupational Research Agenda (NORA) Symposium, [Prescription Opioid Use in Occupational Health Care: Reducing Risk and Improving Safety](#) to understand the complexities of this issue and the impact on occupational health, including agricultural worker safety and health. These events also provide an opportunity for UMASH researchers and pilot project grantee to present posters on their research.

## Communications

UMASH continues to grow our network of regional (MN, WI, IA, SD, ND) stakeholders through email, social media and personal interaction at agriculture events, meetings, and other events. In January 2017, we launched a new [Farm Safety Check \(FSC\)](#) resource aimed at farmers as a monthly reminder to regularly check and fix hazards to prevent injury/illness on the farm. The FSC focuses on a different topic each month with a checklist of common hazards and resources. Topics have included: chemical storage, grain handling, electrical safety, keeping children safe, ATV safety, heat illness, agritourism, fire prevention and emergency preparedness. In August 2017, NMFC outreach staff spoke to the Cooperative Network 2017 Dairy Plant and Field Reps Conference about the FSC project. The presentation was well received and attendees suggested topics and new ways to disseminate the FSC information.

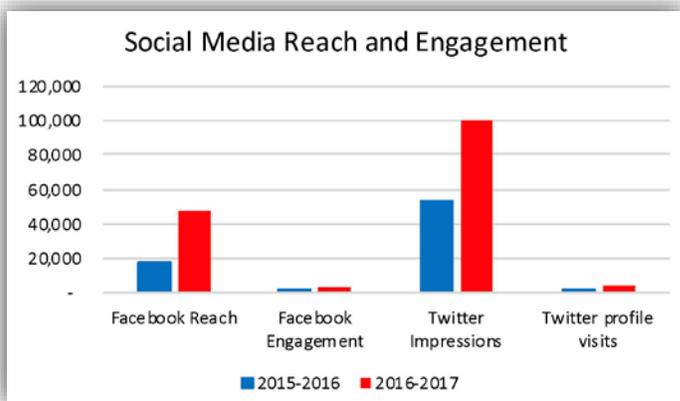


The FSC has been shared by agricultural media outlets, communications staff at commodity and professional agricultural organizations, extension and others in articles, newsletters and on their websites. For example, in May 2017 the [Minnesota Corn Growers Association](#) highlighted

the FSC in a blog on their website and also facilitated radio interviews with the Linder Farm Network and the Red River Valley Farm Network to promote this resource. UMASH is also engaging agribusiness vendors at farm shows and distributing our [Farm Safety Champion flier](#) with suggestions about how to 'Become a voice for farm safety' in their organizations and communities to help promote a culture of safety on the farm.

UMASH has frequent **email communication** with our stakeholders and agricultural media outlets to disseminate farm safety resources, announce upcoming events, share Spotlight Stories and newsletters, and promote awareness campaigns. Our email list of 1,350 continues to grow to reach more producers, agri-businesses, professional farm organizations, extension, agricultural educators, public health and health care practitioners and researchers, veterinarians, agricultural media outlets, and many others across the region. Our electronic newsletter, "[The UMASH Connection: Farms and People](#)", is published 3-4 times each year to highlight center news and activities. Past issues are available on the UMASH website.

We have expanded our **social media** efforts to reach more farmers and agricultural organizations across the region (MN, WI, ND, SD, IA) with farm safety information and resources. Over the past year we gained 129 new page likes/followers on or [Facebook](#) (405 total) and 76 new followers on [Twitter](#) (381 total) and have significant increases in reach and engagement on both platforms.

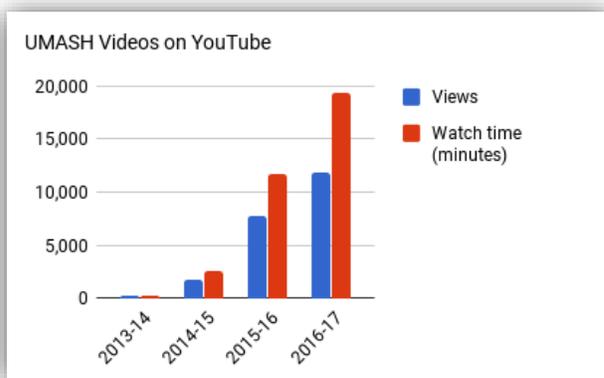


The [UMASH website](#) provides a robust information hub where users can find information on UMASH research projects, agricultural safety training and educational resources, upcoming events, archived newsletters and blog/news postings, as well as contact information for Center researchers and staff. The website provides easy access 24/7 allowing users to visit at their convenience. Our [English and Spanish resource library](#) includes educational factsheets, videos, and safety posters on topics such as: safe agritourism, low-stress animal handling, needlestick prevention, Bilingual dairy worker safety training curriculum, the FSC checklists and information about ROPS Tractor Safety (rebate) programs in MN and WI



Many of our factsheet and safety resources are also available in print, such as our 11x17 2-sided bilingual **barn posters** for needlestick prevention and safe animal handling are also distributed at farm shows and available upon request from the center. Laminated 11 x17 **handwashing posters** are available for agritourism and fair operators, as well as the Farms, Fairs, and Fun brochure which can be used by agritourism operators or educators/school groups visiting farms or hosting petting zoos.

Outreach staff and UMASH researchers have collaborated to produce over **20 short educational videos** suitable for employee training and education to reduce injuries and illness in agriculture, many are in English and Spanish. New videos produced in the past year have focused on [agritourism awareness](#), a promotional video on the UMASH [Bilingual Dairy Worker Safety curriculum](#) and a new [One Health Explained](#) video providing examples of how UMASH is applying a One Health approach to addressing issues in agricultural safety and health. Our [dairy stockmanship](#) and [needlestick prevention](#) videos continue to see increases in views and watch time. Our videos are available on both the [UMASH YouTube](#) and [US AgCenters YouTube](#) channels and are available on the UMASH website.



*The UMASH videos have been watched by viewers in all fifty US states, the District of Columbia, and more than 100 countries around the globe.*

## **Cross center and other partnerships and collaborations for outreach**

UMASH outreach staff have had a greater presence in regional producer focused events collaborating with two other NIOSH funded Ag Centers, the Great Plains Center for Agricultural Health and the Central States Center for Agricultural Safety and Health, at farm shows in the region, including: Minnesota Farmfest in August and at the Big Iron Farm Show (ND) in September. These collaborative efforts to advocate for farm safety were highlighted in a recent [Spotlight Story](#) on the UMASH website.

Each year, UMASH participates with the other eleven U.S. Agricultural Safety and Health Centers to promote farm safety and share resources during two national awareness events: [Agricultural Safety Awareness Program \(ASAP\) Week](#) in March and [National Farm Safety and Health Week](#) in September. These collective awareness events are leveraged to promote the collective educational safety resources of the US Ag Centers including the US Ag Centers YouTube channel. During the 2017 summer months, the US Ag Centers also collaborated on the development and implementation of the [Beat the Heat](#) social media campaign to promote safety messaging and resources for preventing heat related illness.

UMASH is part of a Minnesota-based farm safety working group with the Minnesota Department of Agriculture (MDA), the Minnesota Safety Council (MSC), Minnesota Department of Health (MDH) and other state agencies and agribusiness companies. This initiative helped efforts to encourage the Minnesota State Legislature to fund the [Minnesota Rollover Protection System \(ROPS\) Rebate Program](#), which UMASH is helping to promote through our outreach activities.

In August 2017, UMASH collaborated with the Minnesota Department of Agriculture (MDA) and the Minnesota Safety Council (MSC) to sponsor a panel discussion at Minnesota Farmfest titled [Farm Safety: Protecting You, Your Family, Your Visitors, and Your Bottom Line](#). The panel discussion was moderated by MSC President Paul Aasen. Panelists included: David Glamm, a farmer who experienced a life changing injury, University of Minnesota Environmental Health Professor Marizen Ramirez, Occupational Medicine Physician Dr. Matt Keifer, and Northstar Mutual Sr. VP. Gary Metz.

## **Evaluation Core:**

Understanding the influence of the UMASH Center through monitoring and evaluation activities is a continuing priority to ensure effective and impactful use of the Center's resources. During the past year, we focused our team efforts in three key areas:

- Monitoring Outreach – As part of our commitment to assessing the effects of outreach activities, our evaluation team updated the outreach monitoring system to generate reports

for UMASH personnel across the Center to use for strategic planning, to measure our reach into communities, and to inform future outreach priorities.

- Emerging agricultural safety and health issues. To address our goal to scan the environment to identify emerging new and re-emerging trends, the evaluation team worked with UMASH staff and leaders to design a 3-step process to identify the most pressing issues with feasible approaches to either conduct pilot research or assemble existing knowledge for educating and raising awareness to address the issues. The 3 steps are: (1) scan & prioritize issues, (2) design and plan an intervention project (pilot research or educational outreach campaign), and (3) evaluate goal and benchmark achievements. With input from UMASH leaders, the team tested and adjusted details of steps 1 and 2 and Center leaders identified a project to address in Year 2.
- Education and promotional video collaboration. The evaluation team assisted in a video production project by reading and analyzing interview transcripts from audio-video recordings of interviews with UMASH staff and regional farmers about their experiences with and within UMASH projects carried out in the first round of NIOSH funding. Evaluation team graduate students identified key themes for leadership uses and *best* quotes from which the videographer located footage to use in resulting promotional outreach and education videos for the UMASH websites and social media.

## Other Center Activities

### [Prescription Opioid Use in Occupational Health Care: Reducing Risk and Improving Safety](#)

The 2017 National Occupational Research Agenda (NORA) Symposium was held Wednesday, May 5 at Mayo Memorial Auditorium at the University of Minnesota School of Public Health. The NORA symposium was co-sponsored by the Upper Midwest Agricultural Safety and Health Center (UMASH) and Midwest Center for Occupational Health and Safety (MCOHS).

The keynote speaker was Dr. Thomas Wickizer, Chair and Stephen F. Loeb Professor, the Ohio State University College of Public Health. The event featured a presentation by Dr. Wickizer, a Q&A discussion, research poster session, and reception. Attendees from diverse backgrounds including healthcare, occupational health and safety, education, research, government, communications, labor relations, and human resources attended. Students and researchers from MCOHS and UMASH took part in a poster presentation session. Thirty-three poster/abstracts were presented, including thirteen posters from UMASH research and pilot projects. Event photos are available on the School of Public Health [Flickr](#) stream.

### [NIOSH U.S. Agricultural Safety and Health Center Collaborative Efforts](#)

UMASH collaborates with the other eleven NIOSH-funded Ag Centers throughout the year to collaborate to share resources and conduct outreach focused three safety awareness campaigns: [Agricultural Safety Awareness Program \(ASAP\) Week](#) (March), [National Farm Safety and Health Week](#) (September), and US Ag Centers communications campaign on

preventing heat related illness (June-August 2017). UMASH continues to actively participate in the US Ag Centers Awareness and YouTube work groups that develop and implement these collaborative agricultural safety awareness campaigns.

Training and Education Videos are enduring resources that can be targeted to specific occupations, education levels, language and culture and provide 24/7 access to information. UMASH with the other NIOSH AFF Centers collaborated to create the Agricultural Centers (USAgCenters) Safety and Health [YouTube channel](#). This channel was designed to reach a new generation of agricultural workers and producers with agriculture, forestry and fishing health and safety videos. Videos are produced, maintained, and monitored by AFF Center personnel. Content experts review each video. Guideline documents assure quality and consistency. Analytics and other topics pertaining to the channel are discussed during monthly teleconferences. With 108 videos and over 284,667 minutes watched since 2013, this channel has proven to be a great success. During the first year of the new cycle of AFF funding, the channel seen an increase of 200 subscribers and has seen significant spikes in viewership during the Ag Safety Awareness and National Farm Safety and Health Week Campaigns. This channel continues to grow as Centers produce additional videos and as more educators and trainers consistently use these videos in the classroom and in the field.

## **Pilot Projects Program**

The [UMASH pilot project program](#) provides grant funding to explore new areas and build new partnerships in agricultural safety and health. The pilot project program emphasizes projects that address National Occupational Research Agenda (NORA) objectives for agriculture and approach One Health problems in agriculture. It is anticipated that the pilot projects will foster additional work in these areas.

The five pilot projects being carried out were initially awarded in the previous grant funding cycle and were being completed in 2017.

- **Predictors of Best Practices in Farm Air Quality Sampling among Young Producers**  
AgriSafe Network

This project will develop, test, and instruct a new educational module to demonstrate and train students in using low-cost industrial hygiene air sampling equipment. The module will be delivered at colleges currently partnering in Invest in Your Health programs, and it will provide hands-on demonstration at college farms as part of overall management and employee health.

- **Describing the Impact of Daily Exposure to Tetracycline by Dairy Cattle Hoof Trimmers of the Upper Midwest on the Prevalence of Multidrug Resistant *Staphylococcus aureus***  
Dairy Production Medicine, Veterinary Population Medicine,  
College of Veterinary Medicine, University of Minnesota

Hoof trimmers work on a variety of farms and are exposed daily to topical antibiotics. This project proposes to describe the colonization prevalence of HT with MRSA or other drug-resistant MSSA strains. The knowledge from this project will guide both physicians and public health officials in treating and tracing SA infections in agricultural communities. In addition, the dairy industry will benefit from the development of health and safety protocols for workers.

- **The Impact of Highly Pathogenic Avian Influenza (HPAI) on Worker Health and Family Well-being: Implications for Building Resilience**

Environmental Health Sciences, University of Minnesota School of Public Health

The study will examine the experience of turkey growers, farm workers and their families from the MN county hardest hit by 2015 Highly Pathogenic Avian Influenza (HPAI) outbreak—Kandiyohi County. Using the One Health perspective and a case study approach the research team will investigate the impact of the outbreak on individuals' physical and mental health, coping and resilience and any ripple effects on family and community.

- **Tick-borne Disease Risk for Agricultural Workers and their Families in the Midwest**

Epidemiology and Community Health, School of Public Health, University of Minnesota Marshfield Clinic Research Foundation, Marshfield WI

A new interdisciplinary research group is being created with experts from University of Minnesota Marshfield Clinic Research Foundation (MCRF), National Farm Medicine Center (NFMC), and Minnesota Department of Health with the long-term goal of advancing the knowledge of the ecology, epidemiology, and social determinants of TBD as well as identifying effective strategies for infection prevention and clinical case management.

- **Livestock Associated Staphylococcus aureus Infections in Residents of a High Swine Production Area**

Foodborne, Vectorborne, and Zoonotic Disease Unit Minnesota Department of Health  
Veterinary Population Medicine College of Veterinary Medicine, University of Minnesota

This pilot study would work with the Fairmont Hospital of Martin County to acquire and type SA isolates from clinically infected patients at the hospital and associated out-patient facilities for 9-months (budgeting for 120 isolates). With Martin County being in the largest swine producing county of the state, this study will help better indicate whether human LA-SA infections are occurring in a population with direct or indirect exposure to swine.