

Michigan Youth Zoonotic Disease Education Continuation Grant

CONTACT INFORMATION

State Health Department Coordinator

Mary Grace Stobierski, DVM, MPH, DipACVPM

State Public Health Veterinarian

Manager

Michigan Department of Health and Human Services

333 S. Grand Ave, 3rd floor, Lansing, MI 48933

Office: 517-335-8165

Email: stobierskim@michigan.gov

Additional State Health Department Coordinator

Kimberly Signs, DVM

Zoonotic Disease Epidemiologist

Michigan Department of Health and Human Services

333 S. Grand Ave, 3rd floor, Lansing, MI 48933

Office: 517-335-8165

Email: signsk@michigan.gov

Youth Agricultural Organization Coordinator

Julie Thelen

4-H Livestock and Veterinary Science Educator

Michigan State University Extension

474 S. Shaw Lane, Anthony Hall, Room 1287 G, East Lansing, MI 48824

Office: 517-432-1626

Email: thelenju@anr.msu.edu

State Animal Health Participant

Steve Hussey, DVM

Veterinary Program Manager for Swine, Aquaculture and Invasive Species

Michigan Department of Agriculture & Rural Development

PO Box 40017, Lansing, MI 48909

Office: 517-284-5685

Email: husseys@michigan.gov

BACKGROUND

In Michigan, there are 181,664 youth engaged in 58,860 animal science youth experiences through Michigan 4-H. Michigan State University Extension (MSUE) is the primary lead agency in Michigan for providing education to youth involved in agriculture.

There have been numerous recent documented zoonotic outbreaks at Michigan county fairs, including during the 2016 fair season. The Michigan Department of Health and Human Services (MDHHS) has confirmed the following zoonotic disease outbreaks with human cases in recent years: influenza A/H3N2v during 2016 in association with 3 Michigan fairs and one Ohio fair, influenza A/H3N2v during 2012 and 2013 in association with three Michigan fairs and one Ohio fair, *Escherichia coli* during 2010, 2011, and 2014 in association with Michigan fairs, and *Salmonella* during 2005 and 2014 at two Michigan fairs. In 2015, an outbreak of *Cryptosporidium* was associated with an agriculture education program in a Michigan high school. In addition, since 1996 other public health outbreaks have been confirmed in association with petting zoos, including rabies, *Cryptosporidium*, *Salmonella*, and *Escherichia coli*. Many Michigan county fairs also include petting zoos.

Both MDHHS and the Michigan Department of Agriculture and Rural Development (MDARD) have staff that serve as subject matter experts on zoonotic diseases and respond to potential outbreaks. MDHHS receives no state funding for communicable disease epidemiology activities. Neither Department has funding dedicated to provide education, especially to youth. Extramural funding is often the only way to invest in supplies and materials needed for educational programs.

Michigan was fortunate to receive a \$20,000 grant from CSTE in 2014 which initiated the development of materials to assist with zoonotic disease education, and distributed these materials to about 47,000 youth across the state. In 2016, Michigan was again fortunate to receive an additional \$75,000 to continue the work begun in 2014. With these funds, the group was able to build on relationships and projects already in place to reinforce messages about zoonotic disease prevention. Outreach included MDHHS leading two influenza sessions for 4-H staff and a youth session for 4-H Exploration Days. MSUE created and distributed a total of six “Animal Science Anywhere” lesson plans on topics including influenza, One Health and careers in human and animal health. Two veterinary students conducted 36 “Youth Zoonotic Disease Prevention” trainings around the state in all 14 MSUE districts. Finally, the relationships developed between MSUE, 4-H and MDHHS enabled rapid cooperation in a CDC Epi-Aid investigation and follow-up of an outbreak of variant influenza A(H3N2) at 3 Michigan county fairs in the summer of 2016. A text-based illness monitoring system for active surveillance was utilized to monitor for human illness. It had never previously been deployed in an outbreak.

In Michigan, this collaboration has been successful in improving the youth participant awareness and knowledge of influenza and zoonotic diseases. In this new grant cycle, we hope to build on the relationships that have been developed and to involve more individuals in both public health and youth agricultural education at the local level. Fostering relationships at the local level through a focus on protecting both human and animal health will facilitate more effective and efficient responses to important animal and public health issues, including outbreaks of disease. We would also like to help other Midwest states leverage the impact of this ongoing funding by sharing our experiences and resources with regional partners in public health and youth agricultural education. We propose to participate in local, regional and national efforts to share best practices for facilitating prevention,

detection, and monitoring of zoonotic diseases with the goal of creating a sustainable local, regional and national partnership network.

RESOURCES

Many existing resources are available for this project to support the proposed activities outlined in the following Methods section and to ensure completion of the project and its deliverables.

The primary state health department contact is Mary Grace Stobierski, DVM, MPH, DipACVPM, who is the State Public Health Veterinarian in Michigan, as well as an epidemiology section chief. She has more than twenty years of experience in public health. The primary agricultural organization contact is Julie Thelen, who is the 4-H Livestock and Veterinary Science Educator at Michigan State University Extension. In addition to the MDHHS, MSU Extension, and MDARD mentioned in the Contact section, an additional MDHHS epidemiologist has been involved in this grant proposal and would be available to serve as subject matter expert for completion of the grant activities. Kimberly Signs, DVM is a Zoonotic Disease Epidemiologist and has been in her current position for fourteen years. In addition to being a subject matter expert for diseases of zoonotic origin, she has been involved in a number of fair and petting zoo outbreak responses.

Drs. Hussey, Signs, and Stobierski will again review any materials that are developed. They will review the scientific content of materials for accuracy and appropriateness. Ms. Thelen has experience in developing educational materials for 4-H youth and will ensure that content is understandable and age appropriate. She will be the primary liaison to 4-H and other youth in agriculture groups in Michigan.

MDHHS has engaged in a number of previous collaborations with federal partners such as CSTE and state partners such as MDARD and MSU around the topic of avian influenza and other zoonotic disease issues. In 2007, MDHHS successfully competed for the “Avian Influenza Rapid Response at the State Level” project funded through CSTE. For this project, MDHHS collaborated with MDARD to provide a series of regional trainings targeted to local, state and federal responders to an avian influenza outbreak. In 2013, following the influenza A/H3N2v outbreaks of the previous year associated with agricultural fairs, MDHHS and MDARD worked together to create a “Disease Outbreak Response in Show Swine” brochure that was distributed to fairs throughout the state (http://www.michigan.gov/documents/mdard/FINAL_Brochure_for_fair_-_May_28_2013FINAL_425795_7.pdf). For the past four years, MDHHS has been hosting a monthly “One Health” conference call with state and federal partners with the goal of improving surveillance, prevention, control and mitigation of vector-borne and zoonotic diseases by creating a culture of communication and engagement across traditional agency boundaries. Since 2013, the MDHHS Emerging and Zoonotic Infectious Disease Section has hosted a series of quarterly webinars for public health partners, and topics have included *Salmonella* and live poultry. Finally, in 2014, MDARD conducted a series of “One Health” meetings that included MDARD and MDHHS staff. Animals in public settings such as exhibits are not infrequently the source of human illness outbreaks. The purpose of these meetings was to develop a coordinated response between the state agencies around outbreaks involving humans and domestic animals.

Through the CSTE “Youth Zoonotic Disease Education Grant” opportunity, MDHHS successfully competed to receive \$20,000 in the initial grant cycle with our proposal to develop educational materials targeted at youth in agricultural education programs

(http://msue.anr.msu.edu/resources/zoonotic_disease). We developed new relationships between MSU Extension, 4-H and FFA, the primary youth agricultural organizations active in Michigan, whose members may be impacted by zoonotic diseases through their close contact with animals in agricultural exhibits. MSU Extension is a trusted resource for these organizations and already provides training and curriculum for both the volunteer leaders and youth participants. This relationship provided for acceptance of the materials developed as part of this grant and allowed for fast and efficient distribution of the materials via attendance at existing in-person trainings. This collaboration has been facilitated through face-to-face meetings with subject matter experts at MDHHS and MDARD as well as MSU Extension personnel.

With the 2014 funding, we adapted the Georgia “Be a Disease Detective” magazine for Michigan and developed Youth “Zoonotic Disease Education Tool kits”. These remain available on the MSUE 4-H website for printing and use by anyone (http://msue.anr.msu.edu/resources/zoonotic_disease). We printed and distributed over 61,600 copies of the magazine, and produced and distributed 2,000 tool kits to Michigan 4-H leaders and volunteers. In addition we designed two versions of a “Be Healthy at the Fair/Around Animals” sign that was printed on sturdy, re-usable materials by the Michigan Farm Bureau. Because the \$20,000 grant had already been utilized, external funding sources were sought and received from MDARD and Michigan Association of Fairs & Exhibitions (MAFE) to print 264 signs. Fairs and county offices appreciated the signs and choose to purchase an additional 139 signs through an order with MSUE.

For the 2016 period, we built on these relationships and utilized additional opportunities for youth education by creating content for three existing MSU Extension outreach activities. One event was an April meeting of 4-H Leaders and Program Coordinators, where MDHHS hosted a session to educate adult attendees about Influenza and the materials that were developed and distributed as part of the original grant award, as well as plans for the 2016 funding award. A second event was to develop a session for the MSUE “4-H Exploration Days” which took place from June 22-24, 2016 (http://msue.anr.msu.edu/program/info/4_h_exploration_days). Participants in 4-H Exploration Days included students between the ages of 11-19. They can choose from one of 200 sessions that provide 5 hours of contact time for instruction. MDHHS developed a session on the topic of “Be a Disease Detective”, for 33 participants. Finally, we were fortunate in having a site visit from the CSTE and CDC program staff who were able to participate in the 2016, “Michigan 4-H Animal and Veterinary Science Camp” (http://msue.anr.msu.edu/program/info/4_h_animal_veterinary_science_camp), and provided participants with information about zoonotic diseases, One Health and careers in human and animal health. The kids loved this session!

MSU Extension has a history of working with the MSU College of Agriculture and Natural Resources Agriculture (ANR) Communications Department, who has staff skilled in graphic design and development of educational materials. This department has already designed many materials specifically for Michigan 4-H. For the 2014 grant, we worked with ANR to develop two large, durable posters for display at fairs and animal exhibit settings, reminding people to “Be Healthy Around Animals” (http://msue.anr.msu.edu/resources/be_healthy_at_the_fair_sign).

In 2016, MDHHS and MSUE developed a set of pull-up banners that were distributed to all 14 MSU Extension Districts for use as educational displays at events. In addition, MDHHS and MSUE provided Michigan local health departments and MSU Extension offices with information about the project and

provided these agencies with posters to display in their offices and to be distributed in the community at venues where animals are present. These materials provide an opportunity to encourage communication between local health departments and their county fairs and exhibitions.

One of the goals that has carried through this series of grants is the creation of durable, re-usable educational materials. These include developing and distributing a Michigan version of the “Be a Disease Detective” magazine, developing 4-H curriculum about pathogens, zoonoses, One Health, careers, and other related topics that did not exist before (the lessons are available to anyone to use on the MSUE website at http://msue.anr.msu.edu/resources/4_h_animal_science_anywhere), creating posters for fairs and exhibits reminding people how to “Be Healthy Around Animals”, and posters to teach 4-H exhibitors that “Biosecurity is as Easy as 1-2-3”.

All of the resources that MDHHS and MSUE have developed as a result of this grant funding have also been shared with CSTE and CDC partners through the Basecamp share point site. We hope that others find these materials to be useful in their efforts to educate youth in agricultural programs in their states.

METHODS

The partnership’s motivating principles for this grant opportunity include facilitating prevention, detection, and monitoring of zoonotic diseases, especially emerging diseases, such as novel influenza, with epidemic or pandemic potential. With ongoing funding, Michigan proposes to continue and to build on the work that has already been accomplished. Behavior change requires consistent and persistent messages that reinforce best practices. This often requires a concerted effort to support these behaviors at all levels. For example, we can encourage hand washing at fairs and festivals, but if the event sponsor does not provide plentiful and convenient handwashing stations for the public to use, the behavior cannot be reasonably performed.

To date, as a result of this funding, Michigan has created a variety of content for youth in agricultural education and their adult sponsors, meant to improve participant awareness and knowledge of influenza and other zoonotic diseases, including disease transmission and prevention. These materials have aimed to motivate participants to adopt behavior that can prevent zoonotic disease transmission. We have also sought to educate participants about careers in public and animal health, to encourage the next generation of health professionals. These efforts have also sought to facilitate a better understanding among participants of the role human and animal health plays in disease prevention.

Michigan proposes to build on our previous work with the following activities for this grant cycle:

- 1. Printing and Distributing Materials Already Developed and continuing the “One Health” focus**
 - A. Reprinting of “Be Healthy Around Animals” signage to be distributed to fairs and petting zoos. We aim to have these signs in every animal barn at every Michigan fair.
 - B. Provide sessions at 4-H Exploration Days. Participants in 4-H Exploration Days include students between the ages of 11-19. They can choose from one of 200 sessions that provide 5 hours of contact time for instruction. MDHHS staff epidemiologists and laboratorians will again host a session on the topic of “Be a Disease Detective” for the MSUE “4-H Exploration Days” taking place from June 21-23, 2017 (http://msue.anr.msu.edu/uploads/234/74214/Expodays-17-RegBook-WEB-version_2.pdf).

C. Michigan 4-H Animal and Veterinary Science Camp. The Michigan 4-H Animal and Veterinary Science Camp, in its fourth year, is for youth ages 13-16 and is application based. For 2017, over 180 applications have been received. The camp reaches up to 50 youth from approximately ten states. MDHHS will work with MSUE to develop daily presentations with a focus on “One Health” for the camp. In addition, MSUE plans to hire 5 veterinary students to serve as camp counselors, allowing each counselor to work closely with 10 attendees. In this way, attendees will learn from older peers who have successfully navigated the path to veterinary school. The One Health focus will help youth understand the variety of science disciplines involved in the human, animal, and environmental health interface and potential career paths to consider. Youth will complete an evaluation at the conclusion of the camp.

D. Develop and print “One Health” youth signage to be used at community youth events including fair and petting zoos. The resource will match the format of previously created resource and be designed specifically for youth. The MSU College of Agriculture and Natural Resources (ANR) Communications Department will design the resource and assist in quoting printers. Distribution of the signage will take place at the 2018 Michigan Association of Fairs Convention.

E. Creation of two “Animal Science Anywhere” lesson plans as curricula for use by teen and adult leaders. Currently, six of the lessons have been combined into two kits that were built and distributed in 2014 and 2016. Each kit included three lessons and the supplies for those lessons. Within the kits, instructors were asked to provide feedback on the lessons. Based on this feedback, two more lessons, on epidemiology and outbreak investigation, will be created and added to the existing lesson plans found at: http://msue.anr.msu.edu/resources/4_h_animal_science_anywhere. Editing and design will be completed by the MSU ANR Communication Department.

F. Creation of three short videos to promote healthy habits with animals. The three videos will each be less than two minutes in length and include voiceover and closed captioning. The focus of the videos will include the following topics; hand washing, basics of animal biosecurity, and do’s and don’ts of staying healthy around animals. The videos will include animations and voice-overs. The videos will be posted on the MSUE 4-H website and used in social media outreach efforts targeted to 4-H youth during fair season. MDHHS and MDARD Communications staff can also repost these messages on Department Facebook and other social media sites.

2. Host Series of Meetings with Fair Boards and Local Public Health in Michigan

A. Host zone meetings (2.5 hours) in each of the six Michigan Association of Fairs and Exhibition (MAFE) zones, dividing the largest zone (zone 5) into two separate meetings to shorten the travel distance and encourage regional participation. In Michigan, there is a need for better collaboration between public health, animal health, and members of the agriculture community that have frequent contact with animals. One of the goals of this funding is to facilitate collaborative human case identification and outbreak response. The purpose of these meetings will be to bring together fair organizers, local public health, and regional animal health experts to discuss zoonotic disease prevention during agricultural fairs and exhibitions. This effort will build on the work being done with youth, bringing the lessons to adults who plan the events and supervise youth working with animals. Direct invitations will be sent to fair boards, local health departments, local fair

veterinarian, Michigan 4-H Program Coordinators, and MDARD regional staff. MAFE staff will assist in coordinating and planning the event. MDHHS and MSUE will develop an agenda and take-home materials for the main purpose of facilitating communication between fairs, animal health and public health at the local level. At the conclusion of each meeting, attendees will be asked to complete a short evaluation.

B. Host a zoonotic disease education and mitigation training for fair and exhibition organizers. Feedback from fair and exhibition organizers has indicated that this group would like to promote healthy habits around animals that help prevent disease outbreaks among fair exhibitors and attendees. They would appreciate learning practical ways to implement or incorporate practices recommended by public health and animal health experts. MDHHS will develop and/or host a workshop for fair and exhibition organizers, preferably organized in conjunction with the annual Michigan Association of Fairs and Exhibitors (MAFE) conference hosted each year in January. If possible, MDHHS will utilize training resources already developed that comport with sound public health practice recommendations (such as those contained in the NASPHV Compendium of Measures to Prevent Disease Associated with Animals in Public Settings), or develop our own based on this guidance.

C. Joint MDHHS/MSUE Presentation at MAFE Convention, January 2018. Two of the stated objectives for this grant are to facilitate a better understanding among participants of the role public and animal health play in disease prevention, as well as to develop relationships among stakeholders that could be used to facilitate more effective and efficient responses to important public and animal health issues. To date, we have done a good job reaching youth involved with animals but need to inform the adult organizers and supervisors of exhibition events for youth about disease issues and how to mitigate risk. The purpose of this presentation will be to provide an overview of the Youth in Agriculture Education project, show the tools that have been created, and encourage ongoing collaboration among fair organizers, 4-H program coordinators, and public and animal health experts at the local level to adopt best practices that promote human and animal health and prevent disease transmission. Post session, attendees will be asked to complete an evaluation of the session.

3. Outreach to Other States in Region to Share Materials and Encourage Collaboration

A. Attend 2-day 2017 Grantee Meeting organized by CSTE. Two MDHHS staff and one Michigan 4-H Staff member will attend. We hope to have the opportunity to highlight the Michigan resources developed as a result of these grants and to show how this effort impacted the response to an outbreak of swine influenza associated with fairs in Michigan and Ohio in 2016.

B. Conduct a Regional Meeting with State Partners. One of the stated objectives of this grant is to foster inter-state collaboration around youth zoonotic disease education and outbreak response efforts with the goal of creating a sustainable regional and national partnership network to implement this work. This meeting will initiate this effort in our Midwest region. MDHHS proposes to host, via webinar (recognizing that out of state travel is often not possible), a meeting with regional State public health staff and their state counterparts working to educate youth in agriculture. The purpose of the meeting will be to encourage collaboration among the various stakeholders, using our efforts in Michigan as an example, and to share resources that have already been developed and that can be easily adopted. In advance of the webinar, all participants

will be mailed a “tool box” that will include examples of all the resources Michigan has developed as a result of funds received from this grant. Discussion will focus on how these materials have been used in Michigan to improve youth in agriculture’s knowledge about zoonotic diseases their prevention, as well as careers in public and animal health, and other topics. The target audience is our counterparts in other Midwest states working with youth and public health colleagues. Post meeting, attendees will be invited to complete an online evaluation.

PROJECT TIMELINE

April 2017:	Notification of Award
May-August 2017:	Plan and invite attendees to the seven Zone Fall meetings Develop curriculum for Veterinary Science Camp with partners Reprint and distribute “Be Healthy Around Animals” signage Creation of three short videos about healthy habits
May 2017:	Begin process of hiring additional student for part-time work
August-November 2017:	Conduct 7 zone meetings across the state in coordination with MAFE
TBD 2017:	Three Michigan partners travel and participate in national CSTE Grantee Meeting
June 21-23, 2017	Present session “Be a Disease Detective” during 4-H Exploration Days
June 26-30, 2017:	Organize/present “One Health” sessions at 4-H Animal and Veterinary Science Camp; hire 1 veterinary student mentor for each 10 campers
May-November 2017:	Develop two Animal Science Anywhere curriculum units; 1) Epidemiology and 2) Outbreak Response Develop “One Health” youth signage with ANR Communications
October-December 2017:	Compile questions and concerns from Zone meetings and prepare resources as needed Find or create curriculum for Fair Organizer Zoonotic Disease Prevention Training
January 11-13, 2018:	Michigan Association of Fairs Convention including a MDHHS/MSUE session about the Youth Ag Education Grant accomplishments Host Fair Organizer Zoonotic Disease Prevention Training Distribute “One Health” youth signage
March 2018:	Follow-up with Zone Meeting attendees to help prepare for 2018 fairs
April 2018:	Combine evaluation data from presentations to determine impact

IRB

Both the Michigan Department of Health and Human Services and Michigan State University have internal Institutional Review Boards. We plan to develop an evaluation instrument for components 1.B., 2.A., and 3.B. These instruments will be a hard copy survey or completed online utilizing Survey Monkey. The Michigan 4-H Science Team Evaluation has been exempted by Michigan State University and will be utilized as a modified evaluation tool. No personally identifying information or protected health information will be collected as a part of this grant.