

# **IOWA APPLICATION**

**CDC/USDA/CSTE Project Development Grant**

**Submitted on March 31, 2017**

**Submitting Agency:** Iowa Department of Public Health

**Collaborating Agencies & Associations:**

- Iowa Department of Agriculture & Land Stewardship
- Iowa 4-H
- Iowa FFA Association
- Center for Food Security & Public Health at Iowa State University's College of Veterinary Medicine

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## DESCRIPTION OF THE PROBLEM

Animal agriculture is an important part of our country's economy and culture. Iowa is a leader in animal agriculture, and ranks first in the nation in egg production (nearly 16 billion eggs per year) and hog inventory (more than 20 million head). Iowa is also a leader in cattle (6<sup>th</sup>) and turkey (9<sup>th</sup>) production (2016 State Agriculture Overview, [http://www.nass.usda.gov/Quick\\_Stats/Ag\\_Overview/stateOverview.php?state=IOWA](http://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=IOWA)).

As with most agriculture based states, youth agriculture programs are a key element in the future of animal husbandry and food production. Raising and showing livestock help youth develop responsibility, learn good sportsmanship, gain confidence, and teach the public about animal agriculture. Most Iowa youth interested in pursuing a career in agriculture are members of either 4-H or FFA. In Iowa, almost 100,000 youth are involved with 4-H and nearly 23,000 students participate in FFA.

While raising and showing animals have an overall positive impact on youth and the community, many zoonotic diseases can affect exhibitors and spectators, especially when people have close contact with animals. Several animal related disease outbreaks, such as variant influenza A virus of swine (H3N2v), or enteric disease outbreaks caused by pathogens such as *E. coli* and *Campylobacter*, have been associated with fairs within the past few years. In many instances, these events resulted in severe illness in youth. Younger children are at an increased risk for complications of zoonotic disease infections.

Youth livestock projects can also present disease transmission risks to animals due to the comingling of various animals and animal species from different locations, further emphasizing the importance of biosecurity practices in all livestock activities. While many commercial farms implement biosecurity measures to reduce the risk of disease among animals, youth animal agriculture projects are generally reared on a smaller scale, involve closer contact with the animals, and have an increased opportunity for comingling of animals or sharing of equipment (Smith 2012). Subsequently, many national and state agencies, organizations, and institutions have identified biosecurity for animal agriculture settings as a subject of high priority.

Understanding disease risks and preventive measures is critical to reduce the occurrence of zoonotic diseases among youth associated with animal agriculture. Awareness of these risks can help youth to understand the importance of disease prevention for themselves, their animals, and the public. Additionally, teachers, volunteer leaders, and parents should understand the same disease risks to further reinforce measures needed to prevent zoonotic disease transmission (Stevenson 2011).

While programs addressing issues of food safety (e.g., Quality Assurance Programs) are currently available and often required for youth in agriculture, programs directly targeted at youth that address the link between biosecurity, animal health, and zoonotic disease risks are very limited. Providing web-based education can produce engaging results, with the advantage of ease of access and availability. Additionally, with the growth of 1:1 technology in school systems, web-based modules can be easily incorporated into the animal or human health topics of current agriculture or science curricula.

# RESOURCES

## Relationships

Agencies and associations collaborating to develop and distribute the currently available and proposed educational program include the

- Iowa Department of Public Health,
- Iowa Department of Agriculture & Land Stewardship,
- Iowa 4-H,
- Iowa FFA Association, and
- Center for Food Security and Public Health at Iowa State University's College of Veterinary Medicine.

Several of the partner agencies and associations have participated in and led national zoonotic disease educational and policy development efforts.

Dr. Garvey, State Public Health Veterinarian and Deputy State Epidemiologist with the Iowa Department of Public Health (IDPH), was a member of the national committee, led jointly by the National Association of State Public Health Veterinarians (NASPHV) and National Assembly of State Animal Health Officials (NASAHO), that developed guidance on measures to minimize influenza transmission at swine exhibitions (available at [http://www.nasphv.org/Documents/Influenza\\_Transmission\\_at\\_Swine\\_Exhibitions\\_2015.pdf](http://www.nasphv.org/Documents/Influenza_Transmission_at_Swine_Exhibitions_2015.pdf)). She also co-chaired a national committee that developed recommendations for prevention and control of *Coxiella burnetii* infection among humans and animals (available at [http://www.nasphv.org/Documents/Q\\_Fever\\_2013.pdf](http://www.nasphv.org/Documents/Q_Fever_2013.pdf)).

Partner agencies and associations have a history of collaboration on zoonotic disease outreach and education. In response to the H3N2v cases in 2011 and development of national guidance, partners conducted joint outreach for exhibitors, fairs boards, and local public health officials. (The outreach materials are included as Attachments A, B, and C).

Beginning in 2009, the Iowa Department of Agriculture and Land Stewardship (IDALS) has organized an annual meeting with their department, the Iowa Department of Public Health, and the Iowa State Fair Committee. At the annual meeting, procedures for influenza surveillance at the State Fair are reviewed. Since 2009, any animal meeting the established case definition is immediately isolated and tested for influenza. Owner information is immediately provided to the Iowa Department of Public Health who interviews the animal owner to identify human illness; this interview occurs concurrently with animal testing to ensure that appropriate human testing can be completed without delay.

Because 4-H and FFA play such a central role in the development of agricultural leaders, these associations are key partners in the development of the proposed education program and continued distribution. Additionally, their support and involvement can ensure learning objectives align with curriculum and content standards. Promotion of the materials within their organizations is essential for success of this program.

The Center for Food Security and Public Health (CFSPH) works to increase national and international preparedness for accidental or intentional introduction of diseases that threaten food production and/or public health. The CFSPH has been developing online education since 2004. The CFSPH has a team of 14 veterinarians (most with Master of Public Health or PhD degrees) and 7 graphic design/IT specialists with years of experience developing and delivering online educational materials. The CFSPH is a well-respected authority on zoonotic disease education; CFSPH has been developing zoonotic disease education for veterinarians and public health professionals since its establishment, with funding from the

Centers for Disease Control and Prevention, in 2002. The CFSPH also works extensively with the USDA on infection control, biosecurity, and animal disease emergency response resources, as well as the management of the National Veterinary Accreditation Program. For more information about the CFSPH and to view other educational materials that the CFSPH has developed, please visit: <http://www.cfsph.iastate.edu>. The CFSPH was also named a World Organization for Animal Health (OIE) Collaborating Center for Day One Competencies and Continuing Education in May 2016.

### **Progress Report (FY16 Funding Period)**

Iowa was fortunate to receive funding through this program during the FY16 cycle. IDPH contracted with the CFSPH to create a free, interactive, online course for youth involved in animal agriculture. **Excellence in Exhibition: Preventing Disease in Animals and People** ([www.BlueNotFlu.org](http://www.BlueNotFlu.org)) is targeted at youth aged 13–18 years. The course encourages showmanship and animal involvement but provides information for youth to keep both animals and humans safe and healthy. The course addresses influenza as well as other zoonotic diseases. Collaborating agencies helped define course content and distributed the course through their organizations.

The expertise, collaboration, and content used in creation of this course will be leveraged to meet the objectives in the next funding year.

Hosted on the CFSPH website, the course was released on March 1, 2017. As of March 22, 2017, in the first 3 weeks of its availability, more than 1,500 people in 48 states and 13 countries have visited the website.

## METHODS

IDPH will contract with CFSPH to address the following three focus areas, each further described below:

- 1) Enhance existing course (created during FY16, described in the progress report above)
- 2) Promote and increase existing course distribution and implementation
- 3) Develop new course for younger audiences (specifically, children aged 7–12 years) based on existing course

### 1) Enhance existing course

- CFSPH will review and modify the existing course website to ensure compliance with Section 508 of the Rehabilitation Act, ensuring accessibility for all learners and allowing distribution through federal partners.
- CFSPH will consult with Iowa State University's Center for Excellence in Learning and Teaching (CELT), <http://www.celt.iastate.edu/about>, to identify and implement enhancements to the current course. Specifically, CFSPH will consult CELT's Online Learning Innovation Hub aimed at enhancing quality of instruction, increased reach, and accessibility.
- CFSPH will pursue incorporating the course into the national 4-H curriculum through national 4-H development standards and peer review.
- CFSPH will consult with CELT and CDC to revise the evaluation component as necessary to collect the most useful data to improve the course.
- CFSPH will work with CDC and CSTE to participate in any evaluation framework to assess implementation of the project on a national level.
- CFSPH will make course edits as appropriate to maintain content accuracy and timeliness.
- As a collaborating center with the OIE, CFSPH will pursue endorsement and OIE-logo placement on the course.

### 2) Promote and increase existing course distribution and implementation

- CFSPH and collaborating agencies will pursue opportunities to engage participation among Iowa youth through exhibits, formal presentations, and/or demonstrations/workshops at the following venues:
  - Association of Iowa Fairs Annual Conference (2017 & 2018)—During 2016, Dr. David Schmitt, State of Iowa Veterinarian, introduced the course to this audience. During 2017 and 2018, we will present our recommendations to the Iowa fair boards encouraging them to consider requiring all exhibitors to take the course prior to exhibiting animals.
  - Iowa FFA Association Leadership Conference and State Convention (2017 & 2018)—CFSPH will host an exhibit table (2017) and pursue an interactive workshop (2018) to directly reach our target audience of Iowa youth involved in FFA. By displaying interactive elements of the course on laptops and tablets, distributing informational flyers, handouts, stickers, and other material advertising the free course, and distributing zoonotic disease resources developed by CFSPH, other states, and CDC, we will encourage all Iowa FFA members and instructors in attendance (more than 5,000 each year) to take the course in preparation for the upcoming exhibition season.
  - 4-H State Conference and Animal Science Roundup (2018)—CFSPH will pursue hosting an interactive workshop to directly reach our target audience of Iowa youth involved in 4-H. By holding an interactive workshop during the three-day event, we will share some of the hands-on interactive elements of the course and encourage all Iowa 4-H members in attendance (more than 1,000 each year) to take the course in preparation for the upcoming exhibition season.
  - Iowa Association of Agricultural Educators Summer Conference (2017 & 2018)—CFSPH will host an exhibit table and pursue presenting to Iowa educators encouraging

them to incorporate this course into class curriculum. We plan to offer guidance and suggestions for integrated curriculum.

- Iowa School Nurse Organization Spring Conference (2017)—IDPH will present at this conference and encourage Iowa school nurses to share the course with science and agricultural educators within their facilities.
- CFSPH and collaborating agencies will also seek opportunities to engage youth participation from across the nation through exhibits, formal presentations, and/or demonstrations/workshops at the following venues:
  - World Pork Expo (2017 & 2018), in collaboration with the Ohio Department of Public Health.
  - International Association of Fairs and Expositions Annual Convention (2018)—As with the Association of Iowa Fairs Annual Conference, we will present our recommendations to the fair boards throughout the country encouraging them to consider requiring all exhibitors to take the course prior to the exhibition.
  - National FFA Leadership Conference (2017)—CFSPH will pursue hosting an exhibit table and an interactive teacher and/or student workshop. By displaying interactive elements of the course on laptops and tablets, distributing informational flyers, handouts, stickers, and other material advertising the free course, and distributing zoonotic disease resources developed by CFSPH, other states, and CDC, we will encourage all FFA members and instructors in attendance (more than 60,000 each year) to take the course.
  - Council of State and Territorial Epidemiologists Annual Conference (2018)—CFSPH and/or IDPH representatives will submit an abstract to promote the course and present results of the evaluation component.
- At all venues, we will display interactive elements of the course on laptops and tablets, distribute informational flyers, handouts, stickers, and other material developed by CFSPH advertising the free course, and distribute zoonotic disease resources developed by CFSPH, other states, and CDC.

### 3) Develop new course for younger audiences based on existing course

The existing course targets youth aged 13–18 years (middle and high school). When the existing course was released, Iowa received several requests for web-based materials targeting younger children. Although written materials are available, we were not able to identify any existing web-based materials for younger children similar to the course developed during 2016. Therefore, we are proposing to expand the existing course to address youth aged 7–12 years (elementary).

Similar to the creation of the existing course, collaborating agencies and associations will work together to design, develop, and distribute a web-based, interactive educational course addressing basic biosecurity measures to prevent zoonotic disease risks while interacting with various species of livestock or poultry including on the farm and during exhibitions. The expanded course curriculum will build upon the current course structure and will continue to be interactive and engaging. The expanded course curriculum will also focus on influenza and other zoonotic disease prevention, but it will be age appropriate for younger children, including more gamification, less text, a lower reading level, and shorter lessons. CFSPH will pursue formal incorporation into the national 4-H curriculum.

An evaluation component comparable to the existing course and consistent with any guidelines outlined by CDC and CSTE will be included in the new curriculum. In addition to the online course, supplemental materials will be developed, such as signs that 4-H clubs and FFA exhibitors can post at fairs/exhibitions promoting public health prevention messages.

## **Objectives**

The objectives stated in the funding guidance will be addressed as follows:

- *Improve participant awareness and knowledge of influenza and other zoonotic diseases, including zoonotic disease transmission and prevention*
  - The existing course currently addresses influenza and other zoonotic diseases. Course curriculum specifically addresses zoonotic disease transmission and prevention.
  - The expanded course proposed in this application targeting younger children will also address these critical issues.
- *Motivate participants to adopt behavior that can help prevent zoonotic disease transmission*
  - CFSPH and collaborating agencies will explore opportunities to encourage leaders/educators to incorporate the course into existing educational frameworks (e.g., agricultural and science educator's class curriculum and required measures for fair exhibitors).
  - CFSPH and collaborating agencies will continue (and expand as proposed above) efforts to bolster course distribution and increase awareness of available material.
- *Increase participant awareness and knowledge of careers in public and animal health*
  - A lesson describing careers and agencies in One Health and roles that individuals might play in a zoonotic disease outbreak is included in the current course. A comparable age appropriate model will be included in the proposed course.
- *Facilitate a better understanding among participants of the role public and animal health play in disease prevention*
  - A lesson describing personnel and agencies in One Health and roles that individuals might play in a zoonotic disease outbreak is included in the current course. A similar age appropriate model will be included in the proposed, expanded course.
- *Develop relationships among stakeholders that could be used to facilitate more effective and efficient responses to important public and animal health issues*
  - IDPH, CFSPH, and other collaborating agencies will continue to enhance existing relationships through joint efforts to develop and distribute the course. Additional relationships will be developed through direct outreach to youth, instructors, and educators.
- *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*
  - Iowa will continue to collaborate with inter-state partners through course distribution. Many states, including Utah, Virginia, Florida, Wisconsin, and Ohio, are currently using the course. Iowa will explore ways to continue and expand these joint distribution efforts.
  - Iowa will also explore inter-state collaboration opportunities when developing the expanded course curriculum.

### **Estimated Number of Participants**

There are approximately 23,000 FFA members in Iowa. Feedback from FFA instructors that were consulted during course development and those who have viewed the course since its release are finding the course to be a valuable resource and many plan to incorporate it into their educational curriculum. Nearly 100,000 youth are impacted by 4-H in Iowa. The course has been promoted to all county extension offices, and it is anticipated that a large proportion of 4-H leaders will incorporate the course as an educational component of a club meeting.

During March 1–22, 2017 (course release–present), more than 1,500 people in 48 states and 13 countries visited the course website. We will continue to promote the current course and distribute the new course to FFA and 4-H leadership; the Iowa Association of Fairs; Iowa veterinarians; the National Association of State and Public Health Veterinarians; swine, bovine, and poultry veterinarians and extension specialists; commodity groups (e.g., National Pork Board and Iowa Egg Industry Center); science teachers; and other

organizations involved with youth exhibiting animals. We will continue to promote the course to other agriculture-based groups so the general public may also use the course as an educational tool.

### **Project Sustainability**

Course sustainability costs will be marginal, as the existing course was created with sustainability in mind. No user specific login is required, as this would result in the need for increased IT support and maintenance and more opportunity for errors. IDPH and CFSPH will pursue alternate state and/or federal funds to make updates to the courses as needed.

### **Course Development Partners and Partner Representatives**

This project will include participation from state 1) public health, 2) animal health, 3) youth agriculture organizations, and 4) academia. Subject matter experts from each agency/association are listed below:

#### **Iowa Department of Public Health**

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## **IRB**

The current course, new course, and distribution activities are applied public health education; therefore, no IRB approval is necessary.

## **REFERENCES**

Smith MH, Meehan CL. Assessment of Bio-Security Risks Associated with 4-H Animal Science Exhibition Practices in California. Journal of Extension. 2012 June; 50(3). Available at: <http://www.joe.org/joe/2012june/a10.php>. Accessed on 26 Jan 2016.

Stevenson JL, Moore DA, Newman J et al. Assessing the need for an on-line educational module for volunteer leaders on biosecurity in Washington State 4-H Livestock projects. Journal of Extension. 2011 June; 49(3). Available at <http://www.joe.org/joe/2011june/a9.php>. Accessed 26 Jan 2016.

## Attachment A



Livestock exhibitor,

Last summer, pigs at fairs in other states spread the flu to other pigs and to people who cared for the pigs. This year, a national working group was created to identify ways to reduce the risk of flu being spread at fairs. The measures listed on the next page were suggested for exhibitors to consider. Although the measures specifically address pigs, many could be applied to other types of livestock at the fair as well. Please review the measures as you prepare for the upcoming fair season.

Thank you for continuing to make our fairs safe, fun, and educational.

A handwritten signature in black ink, reading "R. B. Baker".

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## Suggested Measures for Exhibitors

### ***Measures to consider before the fair***

- Talk to your vet about biosecurity and swine health practices at home.
- Know the symptoms of flu in pigs (fever, going off feed, being less active, runny nose and cough).
- Call your vet if your pig(s) becomes sick.
- Know that taking a sick pig to the fair could make people and other animals sick.
- Ask fair organizers what you should do if your pig becomes sick at the fair.
- Do not show a pig and the herd mates it has had contact with for at least seven (7) days after returning from a fair or show to reduce the risk of spreading flu.
- Talk to your vet about whether flu vaccine is a good option for your pigs. These vaccines can sometimes decrease the chance of your pigs getting sick with flu and if your pigs do get sick they may be contagious for a shorter time. If you decide to vaccinate, it is important to work with your vet to prevent withdrawal issues.
- Know that pigs and people can be infected by sick people. People with flu-like illness should stay home and away from pigs until they are fever-free for at least 24 hours without the use of fever-reducing medication.
- It is recommended that everyone 6 months of age or older be vaccinated against seasonal influenza every year. Seasonal influenza vaccine is usually distributed in late summer and early fall, and people should be vaccinated as soon as the vaccine becomes available.
- People at high risk for developing more severe complications from flu include the following: children younger than 5 years old, people 65 years of age and older, pregnant women, and people with certain long-term health conditions (like asthma, diabetes, heart disease, chronic respiratory disease, weakened immune systems, and neurological or neurodevelopmental conditions). People in these high risk groups should limit their exposure to sick pigs.

### ***Measures to consider during the fair***

- Check your pigs daily for signs of flu-like illness (fever, going off feed, being less active, runny nose and cough).
- Report any flu-like illness to the designated fair veterinarian or the appropriate fair staff so the sick pigs can be evaluated.
- Use precautions when caring for sick pigs to decrease the chance of passing flu to people and other animals.
- Practice good hygiene by:
  - Not eating or drinking in the animal areas
  - Washing your hands frequently
  - Not sleeping in the animal areas.
- If you become sick with flu-like symptoms (runny nose, fever, chills, cough, sore throat, headache, body aches), call your health care provider and public health.
  - Tell them that you have been in close contact with pigs and have been at the fair.
  - Stay home and away from pigs until you are fever-free for at least 24 hours without the use of fever-reducing medications.

### ***Measures to consider after the fair***

- Isolate and observe pigs for illness after returning home and before allowing contact with other animals
  - The isolation/observation period should be no fewer than 7 days.
  - Clean and disinfect equipment, clothing, shoes, and vehicles/trailers that were at the fair.
  - Call your vet if pigs get sick.
- Call your health care provider and a public health official if you or a family member develops flu-like illness after returning home from the fair.
  - Tell your healthcare provider that you have been in close contact with pigs and were recently at the fair.
  - Sick people should stay home and away from pigs until they are fever-free for at least 24 hours without the use of fever-reducing medications.

## Attachment B



Fair Board Members,

Last summer, pigs at fairs in other states spread the flu to other pigs and to people who cared for the pigs. In response, a national working group was created to identify ways to reduce this risk. Although the measures created specifically address pigs, many also could be applied to other types of fair livestock. The measures enclosed were suggested for fair organizers to review and take into consideration when planning this year's fair. The entire working group report is also included for your review. Feel free to call either of us with any questions or concerns.

Thank you for the important work that you are doing to promote educational fairs in our state,

A handwritten signature in blue ink, reading "Dave Schmitt".

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## **Suggested Measures for Fair Organizers**

### ***Measures to consider before the fair***

- Limit the time pigs are congregated and co-mingled at an exhibition. Measures might include:
  - Shorten the total time pigs are on the exhibition grounds; ideally exhibition swine should be on the exhibition grounds no more than 72 hours.
  - Release pigs from the exhibition grounds as soon as possible following their respective show(s).
  - If offering both terminal pig and breeding swine shows, schedule the terminal show after the breeding swine show or schedule a break between shows. Use this break to clean and disinfect the facility.
  - Locate longer-term swine exhibits (i.e. Big Boars, birthing center animals, display exhibits of pigs) away from areas where the competition swine are housed.
- Establish a relationship with a veterinarian(s) who will be present or on call for the duration of the exhibition. The veterinarian(s) will be responsible for monitoring the animals for clinical signs, evaluating sick animals and taking additional steps as warranted to minimize the risk of influenza-like illness in the swine.
- Establish a protocol to immediately remove sick swine from the exhibition area.
- Maintain records of individual swine identification and source farms to enhance the speed and accuracy of an animal disease investigation associated with the exhibition.
- Establish methods to rapidly communicate (i.e. email addresses and/or phone numbers from show entry information, social media channels, etc.) with exhibitors about procedural changes or incidents associated with the exhibition.
- Host non-animal-related activities (i.e. dances, pizza parties, etc.) in locations other than animal barns.

### ***Measures to consider during the fair***

- Host a meeting with exhibitors and their family members prior to the start of the exhibition to do the following:
  - Provide contact information for the designated exhibition veterinarian.
  - Provide instructions on how to report animal illnesses and explain any specific actions that may be required if a pig becomes sick at the show.
  - Provide contact information for a public health official who can answer public health questions and be available during the exhibition.
  - Review exhibition regulations.
  - Review and encourage disease control measures to be utilized during the exhibition, including the daily monitoring of the animals during the show, as well as for when the exhibitor returns home.
- Provide easy access to hand washing stations.
- Post informational signage that includes the following messages:
  - No eating or drinking in the animal areas
  - Wash hands frequently
  - No pacifiers, sipping cups or strollers in the animal areas
- Discourage sleeping in the animal areas.
- If human or swine influenza-like-illness is associated with the exhibition, animal health and public health officials should be notified immediately. Public health officials should facilitate human testing for influenza viruses, including variant influenza viruses, investigate the source of illness, and attempt to identify additional human cases. If illness is detected in swine or humans, public health recommendations include:
  - People who have influenza-like illness should leave the exhibition immediately and seek medical care. They should advise their health care provider about their exposure to swine.
  - People at high risk for developing more severe complications from influenza, as listed above, should be discouraged from entering the swine areas.
- When the animals are released, clean and disinfect the swine exhibition areas.

## Attachment C



### Local Public Health Administrators,

Last summer, pigs at fairs in other states spread the influenza (H3N2v) to other pigs and to people who cared for the pigs. This year, a national working group was created to identify ways to reduce the risk of flu being spread at fairs. The working group report is attached to this email. While most of the measures were intended for fair organizers and exhibitors, several also impact public health.

We encourage you to discuss the suggested measures with your fair boards as part of the fair planning process that many of you already participate in. If you are not currently connected with your fair boards, we would encourage you to consider reaching out to them. Contact information for fair boards can be found at [www.iowafairs.com/site/aif-member-fairs.php](http://www.iowafairs.com/site/aif-member-fairs.php). This work group report is also being sent to fair boards and will be distributed to exhibitors through 4-H and FFA. Feel free to call Dr. Garvey with any questions or concerns.

Thank you for the important work that you are doing to promote public health in Iowa,

A handwritten signature in blue ink, reading "Ann Garvey".

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A handwritten signature in blue ink, reading "Dave Schmitt".

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