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Dear Educators, Chapter Advisors, and Club Leaders,

The Center for Food Security and Public Health (CFSPH) at Iowa State University's College of Veterinary Medicine, in collaboration with the Iowa Department of Public Health and with support from the Centers for Disease Control and Prevention (CDC) and the Council of State and Territorial Epidemiologists created two **free online courses to teach youth about zoonotic diseases, "Excellence in Exhibition: Preventing Disease in Animals and People"**. 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. The courses are meant to encourage showmanship and animal involvement while keeping both animals and humans safe and healthy. The accessible courses are available to anyone free of charge at **www.BlueNotFlu.org** and can be completed on mobile devices.

Animal agriculture is an important part of our country's economy and culture. 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, and gain confidence. Most Iowa youth interested in pursuing a career in agriculture are members of either 4-H or FFA. In Iowa, nearly 100,000 Iowa youth are involved with 4-H and more than 15,000 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. While most 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. 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.

There are two courses, one for elementary students (ages 7–12) and one for middle and high school students (ages 13–18). Each is divided into six lessons. Students will learn about diseases, how diseases are spread, and how to prevent transmission between humans and animals in a fun and interactive way. Older learners will learn about specific zoonotic diseases, such as influenza, and complete case studies, and will also learn about career opportunities in One Health—the health of animals, people, and the environment. Estimated completion time for each lesson is 10-15 minutes for the elementary course, and 20-30 minutes for the middle/high school course. A certificate of completion with the student's name, chapter or club, and county is provided at the end of each lesson and at the end of each course.

Additional resources are available to students and instructors on the website, including

- Learning objectives for each lesson,
- Disease factsheets,
- Lesson worksheets,
- PowerPoints that contain the same information as the online courses,
- Biosecurity and disease prevention posters, and
- Biosecurity and disease spread activity guides.

Content and recommendations to promote healthy behaviors provided in the courses are science- and evidence-based to reduce the risk of disease transmission among animals and people. All reviewing partners ensure content aligns with state and national guidelines and recommendations based on scientific research. The courses are consistent with positive youth development principles and practices and learning methods (Appendix 1), align with Iowa and National 4-H Program Priorities in healthy living and STEM, align with Iowa Core and National Education Standards (Appendix 2), and have achieved Iowa and National 4-H peer review. Should you choose to incorporate the courses into your classroom or club, we have also developed additional material to aid in your instruction. Included in the password-protected "club leader or instructor" area of the website, you can find

- Learning objectives with answers for each lesson, and
- Answers to supplemental worksheets.

You can also use the learning objectives to help form questions for any exam you may wish to implement. Please contact YouthInAg@iastate.edu if you need the password.

We hope these courses are used widely by youth, parents, advisors, leaders, and fair organizers. To maximize participation, we suggest

- Incorporating the online courses into classroom curriculum,
- Using the courses to prepare for FFA contests,
- Incorporating the courses into 4-H projects in animal or human health,
- Developing competitions between clubs or chapters for participation,
- Awarding chapters or clubs for the most participation (completion certificates), and/or
- Requiring completion of the courses as a prerequisite for showing at local or state animal exhibitions or fairs.

We are excited to offer the courses to you, and hope you enjoy! As always, we welcome feedback. Please complete the course evaluation at the end of the course, or contact us directly at YouthInAg@iastate.edu.

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Appendix 1: Positive Youth Development Principles and Practices and Learning Methods

The "Excellence in Exhibition: Preventing Disease in Animals and People" online course teaches the following life skills:

- Health—Living
    - Healthy lifestyle choices
    - Disease prevention
    - Personal safety
- Head—Thinking
    - Critical thinking
    - Problem solving
- Head—Managing
    - Planning/organizing
- Heart—Relating
    - Communication

Youth must be **engaged in learning.** After completing the self-paced and self-guided interactive online course, they can apply what they have learned to their own animal projects at home and during exhibitions to build **a safe environment**. Youth also have an **opportunity for mastery** and may use elements of the course or supplemental material to teach other youth, leaders, or exhibition volunteers. Throughout the course, youth have the **opportunity to see themselves as an active participant in the future**, envisioning themselves doing the activities described with their own animal projects. They also have the **opportunity for self-determination**, and are encouraged to set goals for their animal projects as they learn best biosecurity practices.

Appendix 2: Education Standards

Iowa Core Alignment

The content of "Excellence in Exhibition: Preventing Disease in Animals and People" online course aligns with the following Iowa Core Standards:

- Health Literacy 21.9-12.HL.1
    - Demonstrate functional health literacy skills to obtain, interpret, understand and use basic health concepts to enhance personal, family, and community health.
- Health Literacy 21.9-12.HL.2
    - Synthesize interactive literacy and social skills to establish and monitor personal, family and community goals related to all aspects of health.
- Health Literacy 21.9-12.HL.3
    - Apply critical literacy/thinking skills related to personal, family and community wellness.
- Health Literacy 21.0.12.HL.5
    - Demonstrate behaviors that foster healthy, active lifestyles for individuals and the benefit of society.
- Engineering, Technology, and Applications of Science HS-ETS1-1
    - Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.
- Engineering, Technology, and Applications of Science HS-ETS1-3
    - Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.
- Engineering, Technology, and Applications of Science HS-ETS1-4
    - Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.

References

Iowa CORE. Health Literacy. Available at https://iowacore.gov/iowa-core/subject/21st-century-skills/10/health-literacy.

National Health Education Standards, 2nd Edition. Joint Committee on National Health Education Standards. 2007. Available at https://sparkpe.org/wp-content/uploads/NHES_CD.pdf.

Next Generation Science Standards. Available at https://www.nextgenscience.org/topic-arrangement/hsengineering-design.

National Education Standards

The content of "Excellence in Exhibition: Preventing Disease in Animals and People" online course aligns with the following National Education Standards:

- National Health Education Standards
    - Standard 1: Students will comprehend concepts related to health promotion and disease prevention to enhance health.
    - Standard 2: Students will analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors.
    - Standard 3: Students will demonstrate the ability to access valid information, products, and services to enhance health.
    - Standard 4: Students will demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks.
    - Standard 5: Students will demonstrate the ability to use decision-making skills to enhance health.
    - Standard 6: Students will demonstrate the ability to use goal-setting skills to enhance health.
    - Standard 7: Students will demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks.
    - Standard 8: Students will demonstrate the ability to advocate for personal, family, and community health.
- Next Generation Science National Education Standards: Engineering, Technology, and Application of Science
    - HS-ETS1-1: Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.
    - HS-ETS1-3: Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.
    - HS-ETS1-4: Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.

References

National Health Education Standards, 2nd Edition. Joint Committee on National Health Education Standards. 2007. Available at https://sparkpe.org/wp-content/uploads/NHES_CD.pdf.

National Health Education Standards. Centers for Disease Control and Prevention. 2016. Available at https://www.cdc.gov/healthyschools/sher/standards/index.htm.

Next Generation Science Standards. Available at https://www.nextgenscience.org/topic-arrangement/hsengineering-design.