Food Supply Veterinarians Help Protect What We Eat

A teacher resource developed by the American Veterinary Medical Association

www.avma.org

Why have a teacher guide?

The goal of AVMA sponsored 4th-6th grade learning activities is to heighten awareness of the vital role that veterinary medicine plays in the lives of humans, animals, society, and the environment. This initiative has five objectives:

- To teach children that there is an inseparable relationship between animals and humans
- To teach children that veterinary science makes vital contributions to our world
- To teach children that veterinary science significantly impacts their lives every day
- To interest young students in a career involving biology, mathematics, and applied science
- To promote a greater understanding of the scope of veterinary medicine

What is a Food Supply Veterinarian?

The U.S. Department of Agriculture (USDA) has a program called *Food Safety and Inspection Services (FSIS)*. The inspectors employed in the program are veterinarians who have the responsibility of making sure that the eggs, poultry, and meat we buy are wholesome and safe. There are about 1,200 veterinarians employed by the USDA, which is currently the largest employer of veterinarians in the world.

Some of the specific responsibilities of USDA veterinarians are to:

- ensure that meat, poultry and egg producers comply with sanitation standards.
- create procedures that control health hazards, such as *Salmonella*, from entering our food supply and making people sick.
- inspect eggs, poultry, and meat to ensure that these products meet the requirements put in place by the federal government.
- enforce the *Humane Slaughter Act*. This act is a United States federal law designed to protect food animals during the moment of their slaughter. According to the law, animals must be stunned into unconsciousness to ensure a quick, relatively painless death.
- serve as epidemiologists, pathologists, auditors, risk analysts, and security experts when required.

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What is the history of food inspection?

In Germany between 1779 and 1819, Dr. Johann Peter Frank, a pioneer in social medicine, emphasized the need for a controlled slaughter of food animals. Controlled slaughter means performing an inspection of the animal made before death and another inspection of the meat afterwards to check for the presence of *zoonotic diseases* (diseases that can spread from animals to people). These inspections were conducted by specially trained veterinarians. By 1880 in England and continental Europe the role of the veterinarian in protecting the public health was being accepted by physicians, demanded by society, and implemented into law by politicians.

In the United States, as cities grew and transportation systems developed, the distance increased between food production sites and the consumers. Meat was produced in large packing plants, shipped via interstate commerce, and also exported to Europe. In the late 1880s, England restricted importation of U.S. cattle for slaughter and several European countries excluded U.S. pork because of *trichinosis*—a parasitic disease caused by eating raw or undercooked pork that was infected with the larvae of a species of roundworm. In order to regain that overseas market, the U.S. enacted laws requiring health inspections of live animals before shipping.

In 1905, Upton Sinclair's book ***The Jungle*** was published and described the unsanitary conditions in Chicago slaughterhouses. The book caused a public and political outcry and, as a result, meat sales around the country dropped by almost a third. In 1906, new laws were passed that required mandatory inspection of all meat and meat products. A total of 163 processing plants were placed under federal inspection; today, there are more than 6,000 meat processing plants subject to inspections.

Public health in the United States has improved significantly since the first meat inspection acts were enacted. Advances in animal health have increased animal production and the quality of the products we derive from them.

How do veterinarians help to ensure a safe food supply?

As Americans focus more and more on the safety of their food, the role of a food supply veterinarian continues to increase in importance. These veterinarians are well-trained in animal health, animal welfare, and the humane handling of animals when they are transported, unloaded, and managed at the production plants.

Veterinarians in food animal practice also help protect our food supply by working closely with farmers and ranchers to raise and ship healthy animals. These veterinarians are trained to prevent, diagnose, control, and eradicate animal diseases on the production units.

What role does NAIS play in a safe food supply?

The *National Animal Identification System* **(**NAIS) is a voluntary program sponsored by the United States government that helps to monitor the movement of food animals from farms and ranches to production facilities. NAIS makes it possible to quickly trace a diseased animal to its source to protect the health of livestock and poultry and the economic well-being of those industries.

When a disease outbreak occurs, animal health officials need to know:

- which animals are involved in a disease outbreak
- where the infected animals are currently located
- where the infected animals have been in the past few days or weeks
- what other animals might have been exposed to the disease

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By choosing to participate in NAIS, food animal producers join a national disease response network built to protect animals, consumers, and the economic livelihood of producers against the devastation of an animal disease outbreak.

Enrichment ideas for this curriculum:

The timeline on your poster has discoveries that help veterinarians protect us and our food supply. Consider extending this lesson using the timeline information.

1851— A French veterinarian, Dr. Tabourin, improved the hypodermic syringe to make it a more effective tool for veterinary surgeons and physicians. This medical invention made it possible to give injections to animals and people to treat or prevent disease.
1954—Tranquillizers were developed for use on animals and humans. When a person or animal is hurt, tranquillizers calm them down so doctors can treat their injuries.
1999—Bronx Zoo veterinarian Dr. Tracy McNamera was the first person to determine that zoo animals and wild birds were dying from the same disease that was infecting people in New York. Once the link between West Nile Virus in animals and people was identified, researchers began to look for ways of preventing and treating this potentially deadly disease.

Glossary:

Epidemiologist — a scientist who studies the relationships between the occurrence of disease and environmental influences
FSIS — *Food Safety and Inspection Services*. A service of the US Department of Agriculture charged with ensuring that all meat, poultry, and processed egg products are safe to consume and accurately labeled
Humane Slaughter Act — a federal law designed to protect food animals and ensure that they do not suffer during the moment of their slaughter
NAIS — *National Animal Identification System.* A government-run program in the United States intended to permit improved animal health surveillance by identifying and tracking specific animals
***Salmonella* —** a bacteria that causes foodborne illness.
Sanitation Standards — a set of rules designed to prevent contact with the hazards of waste and to promote health
Slaughterhouse — a facility where farm animals are processed into meat products
Trichinosis — a parasitic disease caused by eating raw or undercooked pork infected with the larvae of a species of roundworm (that is no longer prevalent in the United States).

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USDA — *United States Department of Agriculture.* An agency of the federal government that develops and enforces policy on farming, agriculture, and food
Veterinary Pathologist — a specialist in recognizing and understanding how and why diseases occur
Zoonotic — any infectious disease that can be transmitted from wild or domestic animals to humans and vice versa

Additional Resources:

www.usda.gov United States Department of Agriculture
www.fsis.usda.gov United States Department of Agriculture-Food Safety Inspection Service
www.animalagriculture.org National Institute for Animal Agriculture
www.nafv.org National Association of Federal Veterinarians
www.aabp.org American Association of Bovine Practitioners
www.aasv.org American Association of Swine Veterinarians
www.acpv.info American College of Poultry Veterinarians
www.wvpa.net World Veterinary Poultry Association
www.aaap.info American Association of Avian Pathologists
www.cvm.uiuc.edu/petcolumns/index.cfm?function=showarticle&id=461 Illinois Veterinarians Play Vital Role in Homeland Security
www.multcolib.org/homework/animhc.html Library of animal information

Student Activities:

4th Grade Activity Sheet: *My Letter to a Friend*: The students will each write a letter to a distant friend or relative describing what they learned about food supply veterinarians in school. Next, they will trade papers with a partner and pretend they are the friend who received the letter and write a reply that includes questions about what their friend learned.

5th Grade Activity Sheet: *Food Supply Veterinarian Facts*: The students view three Web sites about food supply veterinarians or three magazine or newspaper articles about food safety issues that involve animals (such as BSE or mad cow disease) and write 1-2 sentences to describe what kind of information is available from the sources. They each write a paragraph that tells which site or article they liked best and why.

6th Grade Activity Sheet: *Questions about Food Supply Veterinarians*: The students will create a series of five or more questions relating to information from the teacher about food supply veterinarians and from doing research on the Internet. They will exchange questions with a partner, write answers to their partner's questions, and select the best questions to ask a local food handler or veterinarian.

Vocabulary Crossword Puzzle Activity Sheet: The students will demonstrate knowledge of the vocabulary words by correctly solving a crossword puzzle using the definitions of each word as clues.

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