

Healthy Animals, Healthy People: Inextricably Linked

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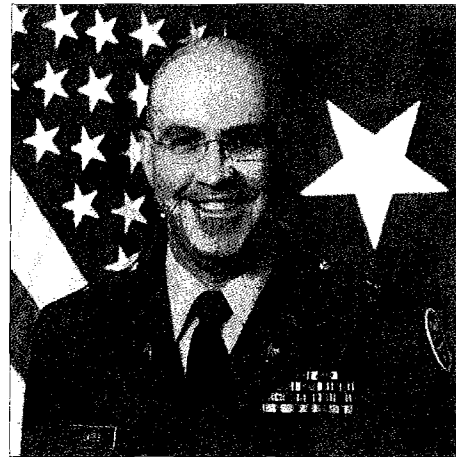
Dogs and dolphins, monkeys and cats, horses and mules, rabbits, rodents, reptiles, and humans—multiple species, and all are part of the focused mission of the US Army Veterinary Corps. For over 91 years, officers in our Corps, along with support personnel, have been an integral part of the Army Medical Department, making critical global contributions toward the health of animals, as well as the health of Soldiers, Family members, and others. The US Army Veterinary Corps was formed in 1916 at a time when our country was just beginning to comprehend the relationship between animal and human health. We now know that those ties are tremendous. With extraordinary versatility and vigilance, our relatively small veterinary team of 3500 total personnel has continued its quest of the Army version of “One Medicine, One Health.”

ONE MEDICINE, ONE HEALTH

Today, our nation’s medical and veterinary professions are working closely together in a resurgence of what we call One Medicine or One Health, that is, the recognition and appreciation for the linkage between human and animal health. The American Veterinary Medical Association and the American Medical Association have both taken formal steps toward better collaboration and partnerships, and veterinarians and physicians across the entire spectrum of their professions—in academia, private practice, government agencies, and many other aspects—have joined them.

The 19th Century German physician and pathologist Rudolph Virchow was one of the first medical professionals to connect animal and human health, stating:

Between animal and human medicine there is no dividing line, nor should there be. The object is different but the experience obtained constitutes the basis of all medicine.^{1(ppiii)}



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Dr Calvin Schwabe, a veterinarian and epidemiologist, and a professor at medical and veterinary medical colleges, agreed, writing:

Impacts on human health are what most clearly delimit veterinary medicine’s world view and best define its broadly manifested importance as a profession.^{1(pp1-2)}

This concept of One Medicine, One Health is embraced by the US Army Medical Department, and the Veterinary Corps is the cornerstone of its efforts.

HEALTHY ANIMALS

When most people think of veterinary services, they think of the actual health care for animals. And, of course, the roots of military veterinary medicine were in animal care, beginning in 1776, when General Washington demanded a farrier for a regiment of horses. During the War Between the States, the requirement for adequate horse health continued, and the War Department provided each cavalry regiment with a veterinary surgeon. Later, congress required

that every applicant for these positions be graduates of a recognized veterinary college. After the Veterinary Corps' inception, with passage of the National Defense Act of 1916, equine medicine and surgery was a major aspect of our mission.

Through the many wars since World War I, the use of animals in the military has evolved, and with it, so has the health care of those animals. Today, most of what are usually considered "military working animals" are specialty trained dogs (eg, explosive detection, mine detection, narcotic detection, and patrol dogs), all helping our entire Department of Defense with force protection around the globe. Veterinary personnel provide medical and surgical care to those military working dogs wherever and whenever needed.

Our Corps also provides health care to horses, mules, marine mammals, service animals, and all animals involved with military biomedical research. These, when combined with pets of military personnel, total over 750,000, similar to the number of active duty Soldiers and Civilian employees of the entire US Army.

An additional, invaluable Veterinary Corps mission, more readily visible in recent years, is animal care for host nation countries—normally referred to as civil affairs or humanitarian assistance. During these deployments, veterinary support personnel provide clinical and preventive veterinary care to livestock and other animals of the native people in Afghanistan, Iraq, Nicaragua, African countries, and the Philippines, for example. We not only improve the health of the animals, but also directly impact the quality of life for the families and, many times, the economies of those countries.

The need for veterinary personnel in the US military began with animal health care requirements, and it remains relevant even in today's world. While the diversity of animals, as well as their use in our military, has changed over time, their health is an essential part of military medicine.

HEALTHY PEOPLE

Shortfalls in Soldier health during the Spanish American War were pivotal in the evolutionary pathway leading to establishment of the Veterinary Corps before World War I. After thousands of alleged unnecessary casualties due to preventable illnesses, the country demanded that something be done to preclude such catastrophes in the future. The timing coincided

with wider acceptance of Virchow's views of animal and human links, and veterinarians were part of the solution.

Over 60% of disease pathogens and 75% of the emerging human pathogens are zoonotic, that is, transmissible between animals and humans. The Severe Acute Respiratory Syndrome (SARS) outbreak, the continuing Human Immunodeficiency Virus (HIV) epidemic and past influenza pandemics all originated in nonhuman species. Food and water-borne illnesses approximate a total of 76 million cases annually in the United States, and many can be traced to animal origins. This is especially true when the food commodities are animal by-products, such as milk, meat, and eggs. Protecting the food of deployed Soldiers, Sailors, Airmen, and Marines is a key mission for the Veterinary Service, whose members are deployed along with these forces. Bovine Spongiform Encephalopathy, or "mad cow disease," the spinach recall due to pathogenic *E. coli*, and the intentional melamine contamination of pet food are just a few examples which illustrate the necessity of having robust food safety and defense programs to mitigate the increased risks presented through consolidated food manufacturing systems and the globalization of food product distribution. Veterinarians are uniquely qualified to provide expertise in combating such outbreaks, not only because of our training in zoonoses, but also because of our "herd health" understanding and our systemic approaches to disease prevention and control.

To accomplish this, Army Veterinary Service personnel audit several thousand food producers in more than 80 countries annually, to ensure safe food for service members and beneficiaries. An example of the benefit to the combat commander was Veterinary Service approval of locally owned bottled water plants in Afghanistan at a savings of more than \$38 million per year and the elimination of over 4,000 water-delivery trips from supply routes, decreasing driver exposure to improvised explosive devices. These water plants are now part of the approved source audit program which is linked with other government food safety programs to share information, protecting service members and contributing to the nation's food safety.

One other significant example of zoonoses, with national and international prominence, is Avian Influenza. Army veterinarians have actively

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contributed to military and interagency planning processes. We have

- participated in developing the US Department of Agriculture (USDA) Avian Influenza Playbook in support of the National Response Plan,
- assigned Veterinary Corps Officers to the Joint Task Force-Civil Support,
- developed a capacity to respond,
- initiated training and equipment requirements to support the lead federal agency, and
- hosted interagency Avian Influenza surveillance and response conferences.

Veterinary personnel are currently an essential piece of overseas Avian Influenza testing and surveillance programs. In addition, we have trained over 150 veterinarians in the Department of Homeland Security Plum Island Foreign Animal Disease Diagnosticians Course to support combat commanders in the field, as

well as the USDA at home. This capacity to respond to natural or agroterrorism emergency events was demonstrated by the deployment of veterinary personnel to support the USDA during the 2002 Avian Influenza outbreak in Virginia and Pennsylvania.

Veterinary Services also conducts programs to detect, prevent and control other zoonotic diseases, such as certain parasitic infections and rabies in pets of military personnel, as well as government-owned animals. Given the close association of owners with their pets and handlers with their military working animals, such programs are essential in the protection of the health of all.

The physiological and psychological benefits to humans from animals are not completely understood, but the human-animal bond is so strong that it sometimes transcends comprehension. Examples tying mental and physical well being of humans to their association with animals abound, in our country and



abroad, in civilian as well as military populations. Katrina victims refused to leave their homes without animals, and military noncombatant evacuations have stalled until pets could go too. Animal assisted therapy and visitation animals are important aspects of the Warriors in Transition program, in addition to inpatient programs in the Veteran's Administration and Department of Defense. Pets are considered important, inseparable parts of the family, and mascots are almost always desired among deployed units. Again, veterinary personnel positively impact both animal health and human health through their support.

Veterinary Service contributions to military medicine extend past food safety, animal medicine, and zoonotic disease control programs. Approximately 30% of Veterinary Corps Officers are specialty trained in laboratory animal medicine, veterinary pathology, or veterinary comparative medicine, and assigned to research and development positions. Their contributions in prevention span a wide spectrum of activities, from developing new-generation smallpox vaccines to malaria vaccines and prophylaxes, and evaluating Future Combat Systems for Soldier safety, from which the derived benefits extend from the Department of Defense to the nation to the world.

INEXTRICABLE LINK

Veterinary Corps participation in all of our nation's conflicts since World War I has been an essential element in the maintenance of the health and well being of both animals and Soldiers. The highly technical education obtained by veterinarians has continued to prepare them for their changing mission requirements over the past 91 years, and we are uniquely qualified to contribute and lead in future efforts.

According to Zahn, Kaplan, and Steele, strategies related to One Medicine, One Health must span the entire spectrum of "veterinary and medical education, clinical care, public health and biomedical research."² Since 1980, the Army has been the Department of Defense Executive Agent for Veterinary Services,

providing veterinary support to all services, anytime, any place. Our veterinary missions, dictated in *Department of Defense Directive 6400.4*³—food safety and defense, animal medicine, zoonotic disease prevention and control, and medical research and training support—have been and continue to be inextricably linked to military human medicine.

Composed of 7 areas of concentration, the Veterinary Corps has over 750 veterinarians and warrant officers, and our entire veterinary team includes enlisted and civilian employees; active duty, reserve component, and Army National Guard; in Table of Organization and Equipment* and Table of Distribution and Allowances† organizations. Recent events in the national and international food safety and zoonotic disease arenas underscore the criticality of continuing and even building enhanced veterinary capabilities.

I am very proud that this edition of the *AMEDD Journal* showcases examples of the breadth and depth of expertise, capabilities, and support missions of today's Army Veterinary Corps. It is an honor to be a part of this extraordinary team, as we continue to work diligently, with other members of the Army medical team, toward healthier animals and healthier people.

*Defines the structure and equipment for a military organization or unit.

†Prescribes the organizational structure, personnel and equipment authorizations, and requirements of a military unit to perform a specific mission for which there is no appropriate table of organization and equipment

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2. Kahn LH, Kaplan B, Steele JH. Confronting zoonoses through clear collaboration between medicine and veterinary medicine (as "one medicine"). *Vet Ital*. 2007;43(1):5-19.
3. *Department of Defense Directive 6400.4, DoD Veterinary Services Program*. Washington, DC: US Dept of Defense; August 22, 2003.