Veterinary Science

Preparatory Training for the Veterinary Assistant

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Chapter 1 - Lesson 1

The Profession of Veterinary Medicine

Introduction

What is veterinary medicine? The word "veterinary" originates from the Latin word, veterinarius, beast of burden. Webster defines the term veterinary as "of, relating to, or being the science and art of prevention, cure, or alleviation of disease and injury in animals and especially domestic animals."

This definition scratches the surface of a field that is broad-based and complicated because veterinary medicine means many things to many people. Today's veterinarian is a highly educated and skilled individual who is dedicated to promoting the health and welfare of both people and animals.

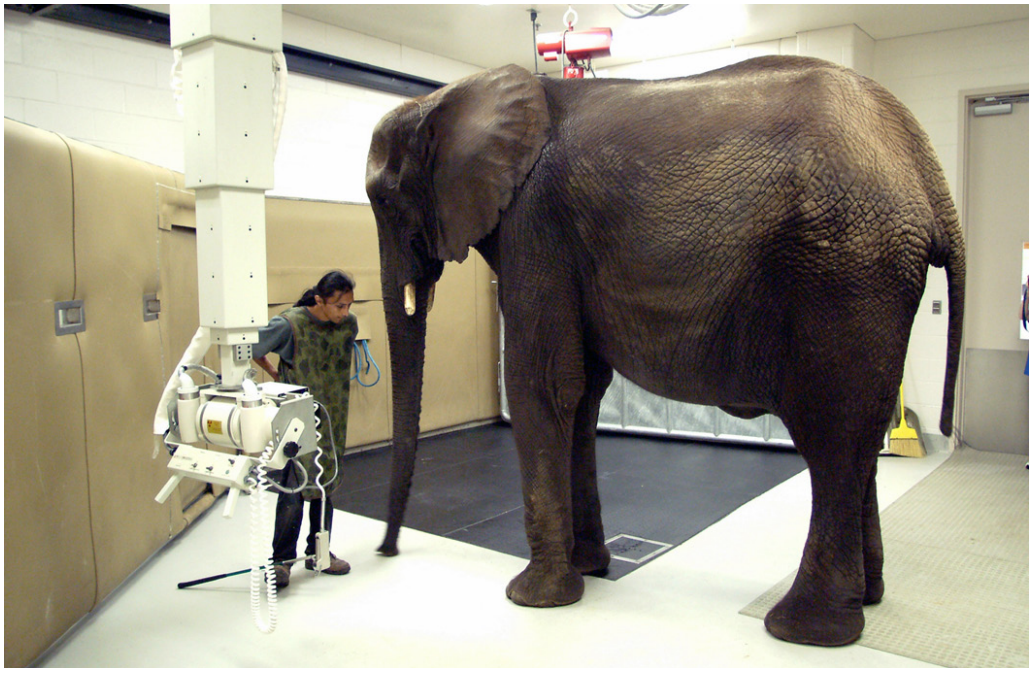
For the average person, a veterinarian is an individual on whom they rely to keep their animals healthy and happy. However, there are numerous other options for a veterinarian besides clinical practice. Thus, there are many career options for veterinary assistants to consider.

Treating companion animals in a private practice setting is just one of the fields a veterinarian or veterinary assistant might choose.

Private Veterinary Practice

In private veterinary practices, veterinarians provide technical and consulting services and perform research. A private practice may be located in a clinical setting where the clients visit the veterinarian, or may be a field practice where the veterinarian travels to the client. A veterinarian might perform examinations and administer medications and treatments, or provide information and professional opinions.

Companion animals make up the largest percentage of private practice patients. Companion animals include dogs, cats, horses, and exotics, such as reptiles, birds, and rodents. Food animals, such as cattle, swine, goats, sheep, and poultry, may be treated in a private practice also. Of the approximately 61,000 veterinarians in private practice in the United States, 77 % are companion animal, 6 % are equine, 8 % are food animal, and 7 % are mixed animal.



Veterinarians often specialize in the treatment of a particular species.

Veterinarians may also choose a specialized veterinary practice. A veterinarian may specialize in a particular species, such as felines, avians (caged birds, poultry), equines, fish and marine animals, or wildlife and exotic animals (zoo animals). A veterinarian might also specialize in a particular animal body system - circulatory system (cardiology), orthodontics (dentistry), skin (dermatology), and eyes (ophthalmology), for example.

Public Veterinary Practice

Public veterinary practice of about 12,000 veterinarians includes positions in both state and federal government institutions, including the U.S. Military, state and federal agencies, and universities. These practices can be divided into four general groups: education, research, regulatory, and service.

Education

Veterinarians in education hold positions as university professors and extension specialists. They teach students studying veterinary medicine and deliver information to veterinarians and animal owners. The research-based and knowledge-based information made available to students and the public fosters the optimal health and well-being of animals.

Research

Veterinarians may perform basic or clinical research on both laboratory and domestic animals. Basic research includes discovery research in the study of diseases. Once a disease has been defined in basic research, veterinarians can perform clinical (applied) research in the study of clinical cases of the disease.

Regulatory

Veterinarians in regulatory practice perform inspections in both animal and human health. Brucellosis, tuberculosis, and equine infectious anemia control are just a few of the regulatory programs in which veterinarians participate. In the interest of public health, veterinarians perform food inspections on seafood, dairy products, eggs, and meat products. They also carry out inspections in zoonoses control.

Veterinarians help control the spread of disease by participating in regulatory control programs.

Service

Various veterinary institutions, such as veterinary colleges and veterinary diagnostic laboratories, provide clinical and diagnostic services.

The staff veterinarians may practice in clinics where animal patients are admitted for diagnosis and treatment of diseases and injuries, while other veterinarians are staffed in laboratories to examine submitted animals and specimens (blood, urine, tissues) for causes of sickness or death.

Veterinarians often provide their services to local animal humane societies that offer care, shelter, population control, adoption, and disease control to the domestic animal population.

Diagnostic support is essential for proper diagnosis and treatment.

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Industry Veterinary Practice

Industry offers career opportunities for about 3,000 veterinarians, as well. Agricultural and pharmaceutical companies hire veterinarians to develop and perform trials on animal health products. Animal feed companies need veterinarians to evaluate the nutritional value and safety of animal feeds. Dog and cat food on grocery store shelves has undergone extensive testing by veterinarians. Their research ensures that both commercial and companion animals receive a balanced, healthy diet.

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Questions

1. What is the definition of veterinary medicine?
2. Approximately how many veterinarians are in practice in the United States?
3. Name three fields of practice for a licensed veterinarian.

Activities

1. Interview a veterinarian practicing in the following:
   a. Small animal clinic
   b. Large animal clinic
   c. Research facility
   d. Education institution
   e. Diagnostic laboratory
   f. Regulatory agency (i.e. Department of Health, Animal Health Commission)
   g. Drug company
   h. Animal shelter
2. Record information about their education, specialized training, responsibilities, and services.

Chapter 1 - Lesson 2

The Veterinary Assistant

Introduction

The veterinary assistant is an integral part of the veterinary team. Veterinary assistants work in large and small animal private practices, for the federal government, diagnostic laboratories, pharmaceutical companies, pet food producers, pet equipment suppliers, pet stores, animal shelters, zoos, and aquariums. The position of veterinary assistant involves much more than cleaning cages. Veterinary assistants are responsible for nursing sick and injured animals, treating and bandaging wounds, assisting in surgeries, collecting blood samples, identifying bacteria, taking radiographs, and countless other duties supporting the care and treatment of pets, companion animals and livestock, research animals, and laboratory support.

Veterinary assistants aid in surgical procedures.

Patient Care Support

Clinic Practice

Animals are likely to experience anxiety and confusion when they are presented to a veterinarian for examination. The animal is being handled by unfamiliar people, often in unfamiliar surroundings. In many instances the veterinary assistant is one of the first individuals to come in contact with the animal, and he/she is among the first to assume responsibility to calm the patient and offer reassurance.

The risk to both the animal and the handler is greatest when an animal must be restrained or moved during examination and treatment. The veterinary assistant must be aware of the animal's mental and physical condition. Is the patient scared or territorial? Is it

The veterinary assistant calms the patient and offers reassurance during the exam.

The veterinary assistant monitors and encourages the patient's recovery.

injured and, if so, where is the injury? The veterinary assistant must constantly be aware of these factors when handling an animal. Often the success of a patient's treatment rests on the shoulders of the veterinary assistant who must administer the medicine properly, assess and record the patient's progress, and keep the patient as calm and content as possible.

In modern veterinary clinical practices, the veterinary assistant plays a major role in the care and well-being of the animal patients and the productivity of the veterinarian. The veterinary assistant is responsible for performing much of the actual preparation and treatment of a patient.

In many veterinary practices, the veterinary assistant is the first person to talk with the owner and initiate the physical examination recording the patient history and medical reason for the visit. In many instances the veterinary assistant will have weighed the animal, taken its temperature, assessed its general condition, and discussed the primary health concerns with the owner. The assistant is also a principal recorder of the patient's vital signs and medical history. This information becomes part of the patient's permanent medical record. Assigning these duties to the veterinary assistant allows the veterinarian to spend more time with each patient and the ability to see more patients. Following the veterinarian's exam, the veterinary assistant will carry out the treatment, discuss any dispensed medication with the client, and offer any related educational material. A veterinary assistant who undertakes all of these responsibilities must understand the proper techniques for the care and handling of animals, basic principles of normal and abnormal life processes, routine lab and clinical procedures, normal and abnormal animal behavior, and office and hospital management. Veterinary assistants can learn most of these procedures with the assistance of the veterinarian, but some must also be learned from study, careful observation, and experience.

Field Practice

In ambulatory practices, where conditions are not as controlled as in the clinic, thorough knowledge and quick actions of a veterinary assistant are integral to the success of a call. If a heifer suffered a severe laceration on her leg the veterinary assistant may be called upon to assess the problem and assemble the instruments and medications necessary for the veterinarian to treat the patient. The assistant would also need to know the proper techniques for restraining the animal, including knowledge of rope handling and knot tying.

Zoo Practice

At a zoo, the veterinary assistant is required to work with a wide range of exotic animals. The assistant might be asked to bottle feed a baby chimpanzee or a newborn tiger cub. If a great horned owl broke a wing, the assistant may be assigned responsibility for treating the wing and nursing the bird back to health.

The assistant's knowledge of animal behavior is extremely important in the zoo setting where the animals are exotic and untamed. For instance, the assistant might be called to assist the veterinarian in treating a lioness's cut paw or a cheetah's tooth ache. The assistant must be familiar with the medical problem before entering the cage and be prepared with the proper equipment, instruments, and medical supplies that the veterinarian will need to treat the patient. Animals in an aquarium offer a whole new range of unique responsibilities. The veterinary assistant would need knowledge of the unique behavioral characteristics of aquatic animals. If an assistant were placed in charge of a sea otter, he/she would need to know what behaviors indicate happiness, fear, or illness. The assistant would also need to know how to restrain the sea otter for veterinary examination and health evaluation.

Elephant restrained for an x-ray.

Blood samples taken from a tortoise.

Laboratory Support

Microscopic Examinations

A veterinary assistant is a highly trained individual who must understand the processes and methods of clinic operations. Examinations of fecal, urine, and blood samples are critical in making accurate diagnoses. The veterinary assistant must learn how to correctly obtain these samples, prepare the samples for tests and microscopic examinations, and recognize the presence of parasites and other abnormalities. For example, a veterinary assistant might be asked to prepare a wet-stained blood smear and examine it for microfilariae in a dog's heartworm test. To perform this task the assistant would need to know how to collect blood from the dog, how to handle the blood sample, and how to make the appropriate slide. The assistant would then need to examine the slide and have the microscope focused on areas of abnormalities for the veterinarian to view.

A veterinary assistant knows how to use a microscope and prepares slides for the veterinarian to view.

If a cat that was unable to urinate properly was brought into the clinic, a veterinary assistant might be asked to identify the presence of crystals in the cat's urine; a common ailment in cats. The assistant would need to be familiar with the proper techniques for obtaining a urine sample, handling the sample, and classifying the crystals in the urine as those present in either alkalinic or acidic urine.

A veterinary assistant's ability to identify the morphology (the physical shape and structural characteristics) of bacteria under a microscope is very important. From the initial microscopic examinations, the veterinary assistant can make suggestions on the proper tests to perform to more accurately identify the bacteria. Although the veterinarian is responsible for making the final diagnosis, the veterinary assistant can play a key role in performing bacteriologic tests and identifying various bacteria.

A veterinary assistant who is employed at a diagnostic lab might be responsible for identifying bacteria on a daily basis. When a sample from a veterinary clinic is sent to the lab, the assistant might be responsible for identifying the morphology of bacteria and discerning whether the sample contains Gram-positive bacteria or Gram-negative bacteria, or both. Once the results of the preliminary analysis were obtained, the veterinary assistant would be able to determine which additional laboratory tests would be required to further classify the bacteria.

Radiography

If an owner brought a lame horse into the clinic, the veterinary assistant would likely be called upon to assist in completing an x-ray examination.

Good radiographs are produced by a knowledgeable operator or technician. To obtain accurate radiographs, the veterinary assistant must determine the proper settings on the machine dials, understand the proper use of safety accessories, and know the radiographic positions and terminology. If the patient is uncooperative, the veterinary assistant must also know the proper techniques for safely restraining the animal to allow completion of the x-ray procedure.

Sometimes, radiographs may need to be taken out in the field. The veterinary assistant must be prepared to deal with uneven terrain, untamed large animals, and other outdoor distractions while attempting to make a good radiograph. An accurate, clear radiograph is important for the veterinarian's diagnosis.

Technician is preparing a sedated lion for an x-ray.

Career Development

Veterinary assistant positions are available in different capacities with varying degrees of responsibility. A secondary school student might work part-time as a veterinary assistant to earn supplemental money. However, many people who choose to be a veterinary technician as a life career will frequently enroll in accredited educational programs and gain registration. To become a registered veterinary technician (RVT), the individual must pass a national exam. This exam usually requires formal instruction from a veterinary training institution, usually a program of study at a community college that allows the student to earn an Associate of Applied Science degree. Through formal instruction, students learn the many skills, and

acquire the knowledge and professional values they will need to become competent assistants. Coursework will include such topics as microbiology, veterinary anatomy, radiology, first aid, handling and restraining animals, and many other subjects. There are as many as 60 schools in the United States that offer veterinary technician training programs. The standard curriculum is accredited by the American Veterinary Medical Association (AVMA) and requires 2 years of study. Students who graduate are well-versed and clinically prepared to work in many areas of veterinary medicine, and are able to carry out their responsibilities as veterinary technicians with confidence.

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Questions

1. List five places where a veterinary assistant might work.
2. How is the veterinary assistant important in an animal's recovery?
3. List four responsibilities a veterinary assistant might have in a veterinary clinic.
4. Describe the responsibilities a veterinary assistant might have at a diagnostic laboratory.
5. Describe the responsibilities of a veterinary assistant in an ambulatory veterinary practice.
6. What responsibilities might a veterinary assistant have at a zoo?
7. What responsibilities might a veterinary assistant have at an aquarium?
8. Why is it important that a veterinary assistant know how to perform microscopic examinations of bacteria?
9. Why is it important that a veterinary assistant be able to recognize certain types of animal behavior?
10. List five skills that would be useful to a veterinary assistant.
11. What is required for a person to become a registered veterinary technician?

Activities

1. Interview a veterinary assistant in a small animal clinic and an ambulatory practice and find out the daily job requirements of the positions.
2. Contact a zoo and inquire what positions they have for veterinary assistants.
3. Contact a diagnostic laboratory and inquire what positions they have for veterinary assistants.
4. Contact two schools that offer curriculum for veterinary technicians and inquire about descriptions of their scholastic programs.

Chapter 1 - Lesson 3

Animals & Society

Animals help human beings in many ways.

Introduction

Though most Americans do not rely on animals for their very survival, their lives are still influenced by human-animal relationships. Animals enrich countless lives every day. In addition to providing companionship and service, animals supply meat, milk, and eggs to feed people, and leather, wool, and mohair to clothe them. What would life be like if humans had no contact with animals - no dogs, no cats, no birds, and no horses? Many people would only lose their companions, but for others, the absence of animal contact would mean the loss of lives and lifestyles. In today's society, animals are more than friends - they are the eyes for the blind, the ears for the deaf, and the limbs of the paralyzed.

Dogs find lost people and illegal drugs, horses carry policemen, and dogs and cats befriend the elderly. They are responsible for thousands of careers; ranchers, medical researchers, feedlot managers, veterinarians, and many others rely on animals for their livelihood.

Animals were an essential part of everyday life.

People and animals have coexisted for thousands of years. Over time, both human-animal relationships and human perceptions of animals have changed. When the pioneers first settled America, animals were essential to their survival. Because it was a rural society, early Americans relied on animals for transportation, farming, protection, clothing, and food.

In modern America, however, 98 % of the population lives in cities; people no longer need animals to accomplish their daily tasks. With this shift in lifestyles has come a change in American values and the way people perceive relationships between humans and animals.

Scientists and people in agriculture-related industries need to understand and consider these different perceptions when dealing with the public.

Animals played many important roles in early American life. Horses and oxen provided transportation and pulled plows in the fields. Dogs assisted in herding livestock and protecting the homestead. Livestock and poultry represented important sources of food and clothing for people on the farm. People relied on their animals for almost every task.

The introduction of gas-powered engines and the industrialization of American factories led Americans on a migration from the farm to the city. Life back on the farm changed dramatically as well. Automobiles decreased the need for horses as a means of transportation. Oxen and plows gave way to tractors and other mechanical farm implements. Other agricultural technologies revolutionized farming so that relatively few farmers could produce more than enough food to feed the nation. The average American no longer needed to farm for survival; entire generations grew up without ever having contact with animal agriculture.

The values of Americans changed along with their changing lifestyles. Urban dwellers kept dogs and cats as pets, but regarded them more as companions than as tools of survival. People became increasingly concerned with the treatment of animals outside of their households as well. In 1866, Henry Burgh founded the first private humane society in the United States, the American Society for the Prevention of Cruelty to Animals (ASPCA). Similar SPCA programs soon sprouted in cities across the United States. The Humane Society for the Promotion of Animal Welfare, founded in 1883, focused its efforts toward the care of homeless and abused animals, the sterilization of companion animals, and the prevention of animal cruelty. It was from these early efforts that the modern-day animal protection movement grew.

The growth in animal protection organizations has resulted from a growing interest in animal intelligence, awareness, consciousness, and the influence of contemporary philosophers exposing animal exploitation and providing logical arguments for animal protection. Like America itself, the animal protection movement is comprised of many different groups of people with a wide range of ideals and values. However, the movement can be broken into two broad groups: advocates for animal welfare and advocates for animal rights.

ASPCA®

The ASPCA was founded by Henry Burgh in 1866 because of increasing concern about animal welfare.

Animal welfare concerns date back approximately 200 years. Early laws were designed to protect society from sadists and psychopaths, who usually inflicted their torture on animals first, before attacking people. The lawmakers reasoned that those who were cruel to animals would be cruel to people, too. However, early laws excluded suffering inflicted on animals if they were for human benefit or necessity. Animal research, animal agriculture, the fur industry, and animal-related leisure events (rodeos, riding, and racing events) were all exempt from anti-cruelty laws.

In the 1960s, activists continued to focus on kindness to animals, love for animals, and the prevention of cruelty to animals. Most of the new anti-cruelty legislation, however focused on companion animals, like dogs and cats. Animals, like mice, rats, sheep, or pigs, that failed to fall in the "cute and cuddly" category were ignored in the anti-cruelty laws. New principles in animal rights and animal welfare focus less on the kindness/cruelty issues and more on animal suffering, whether it is cruel or not.

In addition, people are expected to respect animals and their needs, not out of kindness, but out of justice and fairness. This does not imply that animals should be treated as equals to people.

Animal Welfare

Animal welfare is based on science and is related to the well-being and productivity of animals. Its advocates encourage the humane treatment of animals. People in agricultural settings take pride in the well-being of their livestock and their companion animals, too. Agriculturists often do not receive enough acknowledgment for their efforts to promote animal welfare. Farmers are strong advocates of animal welfare. To them, quality care of animals is good business and personally rewarding. Producers who neglect or abuse their animals will not stay in business long; no one wants to purchase undernourished, poorly conditioned animals.

Medical and pharmaceutical researchers have also been attacked for their use of animals in scientific studies. While some of these studies have caused animals to become ill, without them, many of the drugs and medical procedures humans rely on so heavily today would not exist.

Today, nutrition, health, and management needs of animals are well known and scientifically based, because of animal research. Continuous development within the veterinary medical profession has provided leadership for improved animal welfare and advances in health care for animals and humans. Scientists, including veterinarians, educators, social workers, and members of the medical profession, together with many individuals and organizations interested in animal welfare are learning to work together to better understand the interactions between people and animals.

Animal Rights

The concept of animal rights is based on the philosophy that all living creatures, human and animal, have equal rights. Animal rights advocates believe that animals have the right not to be used or exploited in any manner by humans. To adhere to these policies, society would have to eliminate the use of animals for food, clothing, leisure, and research purposes.

Some individuals believe that man's involvement with animals has denied animals of social interaction. Major issues of animal rights focus on intensive animal production practices, such as the use of battery cages for laying hens; the containment of young calves in single crates for veal production; and the continuous tethering of sows in confinement.

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Questions

1. If you have a pet in your home, how has that animal had an impact on your life?
2. Do you think animals benefit from having contact with humans? Explain.
3. Do you think humans could exist without animals? Explain.
4. List some aspects of human-animal relationships where you see a need for improvement.

Activities

1. Visit a grocery store, feed store, department store, and a pharmacy. List seven items that would not be on the shelves of these stores without the use of animals?
2. Look around your home; find and list five objects you would not have if humans had no contact with animals.
3. Visit your local animal shelter. Ask the employees what steps the shelter takes to encourage the humane treatment of animals.
4. Visit several livestock producers. Ask them if responsible, humane care of their animals is or is not important to their businesses.

FAZD CENTER

National Center for Foreign Animal and Zoonotic Disease Defense