

## Veterinarian Overview

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### Overview

Veterinarians play a major role in the healthcare of pets, livestock, and zoo, sporting, and laboratory animals. Some veterinarians use their skills to protect humans against diseases carried by animals and conduct clinical research on human and animal health problems. Others work in basic research, broadening the scope of fundamental theoretical knowledge, and in applied research, developing new ways to use knowledge.



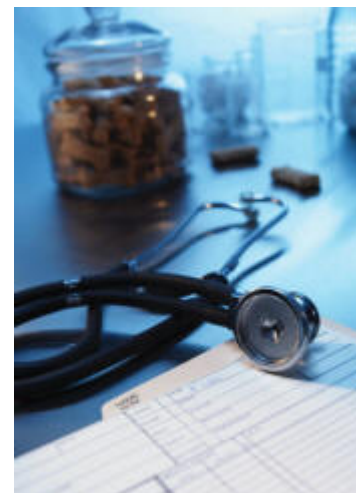
Most veterinarians perform clinical work in private practices. More than 50 percent of these veterinarians predominately, or exclusively treat small animals. Small-animal practitioners usually care for companion animals, such as dogs and cats, but also treat birds, reptiles, rabbits, and other animals that can be kept as pets. About one-fourth of all veterinarians work in mixed animal practices, where they see pigs, goats, sheep, and some nondomestic animals in addition to companion animals. Veterinarians in clinical practice diagnose animal health problems; vaccinate against diseases, such as distemper and rabies; medicate animals suffering from infections or illnesses; treat and dress wounds; set fractures; perform surgery; and advise owners about animal feeding, behavior, and breeding.

A small number of private-practice veterinarians work exclusively with large animals, mostly horses or cows; some also care for various kinds of food animals. These veterinarians usually drive to farms or ranches to provide veterinary services for herds or individual animals. Much of this work involves preventive care to maintain the health of the animals. These veterinarians test for and vaccinate against diseases and consult with farm or ranch owners and managers regarding animal production, feeding, and housing issues. They also treat and dress wounds, set fractures, and perform surgery, including cesarean sections on birthing animals. Veterinarians euthanize animals when necessary. Other veterinarians care for zoo, aquarium, or laboratory animals.



Veterinarians who treat animals use medical equipment such as stethoscopes, surgical instruments, and diagnostic equipment, including radiographic and ultrasound equipment. Veterinarians working in research use a full range of sophisticated laboratory equipment.

Veterinarians can contribute to human as well as animal health. A number of veterinarians work with physicians and scientists as they research ways to prevent and treat various human health problems. For example, veterinarians contributed greatly in conquering malaria and yellow fever, solved the mystery of botulism, produced an anticoagulant used to treat some people with heart disease, and defined and developed surgical techniques for humans, such as hip and knee joint replacements and limb and organ transplants. Today, some determine the effects of drug therapies, antibiotics, or new surgical techniques by testing them on animals.



Some veterinarians are involved in food safety at various levels. Veterinarians who are livestock inspectors check animals for transmissible diseases, advise owners on the treatment of their animals and may quarantine animals. Veterinarians who are meat, poultry, or egg product inspectors examine slaughtering and processing plants, check live animals and carcasses for disease, and enforce government regulations regarding food purity and sanitation.

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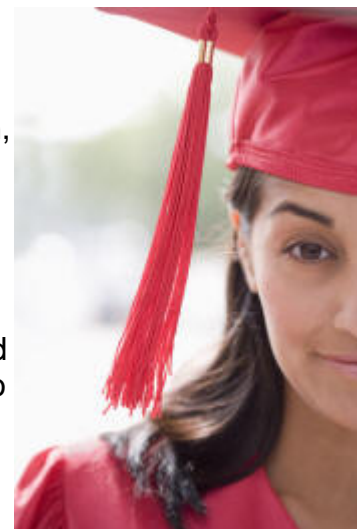
## Preparation

Prospective veterinarians must graduate with a Doctor of Veterinary Medicine (D.V.M. or V.M.D.) degree from a 4-year program at an accredited college of veterinary medicine and must obtain a license to practice. The prerequisites for admission vary. Many of these colleges do not require a bachelor's degree for entrance, but all require a significant number of credit hours -- ranging from 45 to 90 semester hours -- at the undergraduate level. However, most of the students admitted have completed an undergraduate program.



Applicants without a bachelor's degree face a difficult task gaining admittance.

Preveterinary courses emphasize the sciences. Veterinary medical colleges typically require classes in organic and inorganic chemistry, physics, biochemistry, general biology, animal biology, animal nutrition, genetics, vertebrate embryology, cellular biology, microbiology, zoology, and systemic physiology. Some programs require calculus; some require only statistics, college algebra and trigonometry, or precalculus. Most veterinary medical colleges also require core courses, including some in English or literature, the social sciences, and the humanities. Increasingly, courses in practice management and career development are becoming a standard part of the curriculum, to provide a foundation of general business knowledge for new graduates.



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In addition to satisfying preveterinary course requirements, applicants must submit test scores from the Graduate Record Examination (GRE), the Veterinary College Admission Test (VCAT), or the Medical College Admission Test (MCAT), depending on the preference of the college to which they are applying. Currently, 22 schools require the GRE, 4 require the VCAT, and 2 accept the MCAT.

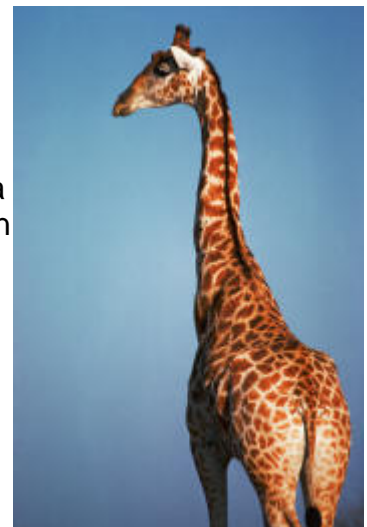
In admittance decisions, some veterinary medical colleges place heavy consideration on a candidate's veterinary and animal experience. Formal experience, such as work with veterinarians or scientists in clinics, agribusiness, research, or some area of health science, is particularly advantageous. Less formal experience, such as working with animals on a farm or ranch or at a stable or animal shelter, also is helpful. Students must demonstrate ambition and an eagerness to work with animals.



There is keen competition for admission to veterinary school. The number of accredited veterinary colleges has remained largely the same since 1983, whereas the number of applicants has risen significantly. Only about 1 in 3 applicants was accepted in 2004.

AVMA-recognized veterinary specialties -- such as pathology, internal medicine, dentistry, nutrition, ophthalmology, surgery, radiology, preventive medicine, and laboratory animal medicine -- are usually in the form of a 2-year internship. Interns receive a small salary but usually find that their internship experience leads to a higher beginning salary, relative to those of other starting veterinarians. Veterinarians who seek board certification in a specialty also must complete a 3- to 4-year residency program that provides intensive training in specialties such as internal medicine, oncology, radiology, surgery, dermatology, anesthesiology, neurology, cardiology, ophthalmology, and exotic small-animal medicine.

All States and the District of Columbia require that veterinarians be licensed before they can practice. The only exemptions are for veterinarians working for some Federal agencies and some State governments. Licensing is controlled by the States and is not strictly uniform, although all States require the successful completion of the D.V.M. degree -- or equivalent education -- and a passing grade on a national board examination. The Educational Commission for Foreign Veterinary Graduates (ECFVG) grants certification to individuals trained outside the United States who demonstrate that they meet specified requirements for the English language and for clinical proficiency. ECFVG certification fulfills the educational requirement for licensure in all States. Applicants for licensure satisfy the examination requirement by passing the North American Veterinary Licensing Exam (NAVLE), an 8-hour computer-based examination consisting of 360 multiple-choice questions covering all aspects of veterinary medicine. Administered by the National Board of Veterinary Medical Examiners (NBVME), the NAVLE includes visual materials designed to test diagnostic skills and constituting 10 percent of the total examination.



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The majority of States also require candidates to pass a State jurisprudence examination covering State laws and regulations. Some States do additional testing on clinical competency as well. There are few reciprocal agreements between States, making it difficult for a veterinarian to practice in a different State without first taking that State's examination.

Nearly all States have continuing education requirements for licensed veterinarians. Requirements differ by State and may involve attending a class or otherwise demonstrating knowledge of recent medical and veterinary advances.

Most veterinarians begin as employees in established practices. Despite the substantial financial investment in equipment, office space, and staff, many veterinarians with experience set up their own practice or purchase an established one.

Newly trained veterinarians can become U.S. Government meat and poultry inspectors, disease-control workers, animal welfare and safety workers, epidemiologists, research assistants, or commissioned officers in the U.S. Public Health Service or various branches of the U.S. Armed Forces. A State license may be required.

Prospective veterinarians must have good manual dexterity. They should have an affinity for animals and the ability to get along with their owners, especially pet owners, who tend to form a strong bond with their pet. Veterinarians who intend to go into private practice should possess excellent communication and business skills, because they will need to manage their practice and employees successfully and promote, market, and sell their services.



### ► Accredited Programs

Accreditation represents the highest standard of achievement for veterinary medical education in the United States. Institutions that earn accreditation confirm their commitment to quality and continuous improvement through a rigorous and comprehensive peer review. There are 28 colleges in 26 States that meet accreditation standards set by the Council on Education of the American Veterinary Medical Association (AVMA).

<ul style="list-style-type: none"><li>• <a href="#"><u>Auburn University</u></a></li><li>• <a href="#"><u>Colorado State University</u></a></li><li>• <a href="#"><u>Cornell University</u></a></li><li>• <a href="#"><u>Iowa State University</u></a></li><li>• <a href="#"><u>Kansas State University</u></a></li><li>• <a href="#"><u>Louisiana State University</u></a></li><li>• <a href="#"><u>Michigan State University</u></a></li><li>• <a href="#"><u>Mississippi State University</u></a></li><li>• <a href="#"><u>North Carolina State University</u></a></li><li>• <a href="#"><u>Oklahoma State University</u></a></li><li>• <a href="#"><u>Oregon State University</u></a></li><li>• <a href="#"><u>Purdue University</u></a></li><li>• <a href="#"><u>Texas A&amp;M University</u></a></li><li>• <a href="#"><u>The Ohio State University</u></a></li></ul>	<ul style="list-style-type: none"><li>• <a href="#"><u>The University of Minnesota</u></a></li><li>• <a href="#"><u>Tufts University</u></a></li><li>• <a href="#"><u>Tuskegee University</u></a></li><li>• <a href="#"><u>University of California, Davis</u></a></li><li>• <a href="#"><u>University of Florida</u></a></li><li>• <a href="#"><u>University of Georgia</u></a></li><li>• <a href="#"><u>University of Illinois</u></a></li><li>• <a href="#"><u>University of Missouri-Columbia</u></a></li><li>• <a href="#"><u>University of Pennsylvania</u></a></li><li>• <a href="#"><u>University of Tennessee</u></a></li><li>• <a href="#"><u>University of Wisconsin-Madison</u></a></li><li>• <a href="#"><u>Virginia Tech</u></a></li><li>• <a href="#"><u>Washington State University</u></a></li><li>• <a href="#"><u>Western University of Health Sciences</u></a></li></ul>
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## Specialty Areas

American Veterinary Medical Association-recognized veterinary specialties -- such as pathology, internal medicine, dentistry, nutrition, ophthalmology, surgery, radiology, preventive medicine, and laboratory animal medicine -- are usually in the form of a 2-year internship. Interns receive a small salary but usually find that their internship experience leads to a higher beginning salary, relative to those of other starting veterinarians. Veterinarians who seek board certification in a specialty also must complete a 3- to 4-year residency program that provides intensive training in specialties such as internal medicine, oncology, radiology, surgery, dermatology, anesthesiology, neurology, cardiology, ophthalmology, and exotic small-animal medicine.



The American Board of Veterinary Specialties recognizes and encourages the development of recognized veterinary specialty organizations promoting advanced levels of competency in well-defined areas of study or practice categories to provide the public with exceptional veterinary service. Currently, there are 20 AVMA-recognized veterinary specialty organizations comprising 37 distinct specialties. More than 7,500 veterinarians have been awarded diplomate status in one or more of these 20 recognized veterinary specialty organizations by completing rigorous postgraduate training, education, and examination requirements.



The following specialty organizations have additional resources on many areas:

- ▶ American Board of Veterinary Practitioners ([www.abvp.com](http://www.abvp.com))
- ▶ American Board of Veterinary Toxicology ([www.abvt.org](http://www.abvt.org))
- ▶ American College of Laboratory Animal Medicine ([www.aclam.org](http://www.aclam.org))
- ▶ American College of Poultry Veterinarians ([www.acpv.info](http://www.acpv.info))
- ▶ American College of Theriogenologists ([www.theriogenology.org](http://www.theriogenology.org))
- ▶ American College of Veterinary Anesthesiologists ([www.acva.org](http://www.acva.org))
- ▶ American College of Veterinary Behaviorists ([www.dacvb.org](http://www.dacvb.org))
- ▶ American College of Veterinary Clinical Pharmacology ([www.acvcp.org](http://www.acvcp.org))
- ▶ American College of Veterinary Dermatology ([www.acvd.org](http://www.acvd.org))
- ▶ American College of Veterinary Emergency and Critical Care ([www.acvecc.org](http://www.acvecc.org))
- ▶ American College of Veterinary Internal Medicine ([www.acvim.org](http://www.acvim.org))
- ▶ American College of Veterinary Microbiologists ([www.vetmed.iastate.edu/acvm](http://www.vetmed.iastate.edu/acvm))
- ▶ American College of Veterinary Nutrition ([www.acvn.org](http://www.acvn.org))
- ▶ American College of Veterinary Ophthalmologists ([www.acvo.org](http://www.acvo.org))
- ▶ American College of Veterinary Pathologists ([www.acvp.org](http://www.acvp.org))
- ▶ American College of Veterinary Preventive Medicine ([www.acvpm.org](http://www.acvpm.org))
- ▶ American College of Veterinary Radiology ([www.acvr.org](http://www.acvr.org))
- ▶ American College of Veterinary Surgeons ([www.acvs.org](http://www.acvs.org))
- ▶ American College of Zoological Medicine ([www.aczm.org](http://www.aczm.org))
- ▶ American Veterinary Dental College ([www.avdc.org](http://www.avdc.org))

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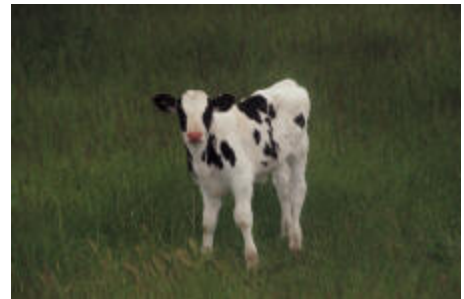
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## Day in the Life

Veterinarians often work long hours. Those in group practices may take turns being on call for evening, night, or weekend work; solo practitioners may work extended and weekend hours, responding to emergencies or squeezing in unexpected appointments. The work setting often can be noisy.

Veterinarians in large-animal practice spend time driving between their office and farms or ranches. They work outdoors in all kinds of weather and may have to treat animals or perform surgery under unsanitary conditions. When working with animals that are frightened or in pain, veterinarians risk being bitten, kicked, or scratched.

Veterinarians working in nonclinical areas, such as public health and research, have working conditions similar to those of other professionals in those lines of work. In these cases, veterinarians enjoy clean, well-lit offices or laboratories and spend much of their time dealing with people rather than animals.

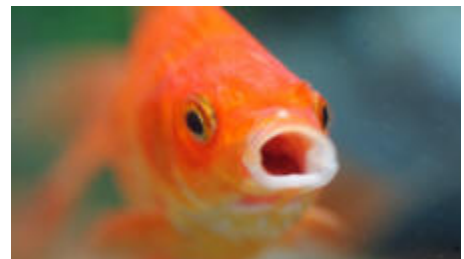


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## Earnings

Median annual earnings of veterinarians were \$71,990 in May 2006. The middle 50 percent earned between \$56,450 and \$94,880. The lowest 10 percent earned less than \$43,530, and the highest 10 percent earned more than \$133,150.

The average annual salary for veterinarians in the Federal Government was \$84,335 in 2007.



According to a survey by the American Veterinary Medical Association, average starting salaries of veterinary medical college graduates in 2006 varied by type of practice as follows:

Large animals, exclusively	\$61,029
Small animals, predominantly	57,117
Small animals, exclusively	56,241
Private clinical practice	55,031
Large animals, predominantly	53,397
Mixed animals	52,254
Equine (horses)	40,130

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## Employment

Veterinarians hold about 62,000 jobs in the U.S. According to the American Veterinary Medical Association, about 3 out of 4 veterinarians were employed in a solo or group practice. Most others were salaried employees of another veterinary practice. Data from the U.S. Bureau of Labor Statistics show that the Federal Government employed about 1,400 civilian veterinarians, chiefly in the U.S. Departments of Agriculture, Health and Human Services, and, increasingly, Homeland Security.



Other employers of veterinarians are State and local governments, colleges of veterinary medicine, medical schools, research laboratories, animal food companies, and pharmaceutical companies. A few veterinarians work for zoos, but most veterinarians caring for zoo animals are private practitioners who contract with the zoos to provide services, usually on a part-time basis.

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## Career Path Forecast

According to the US Department of Labor, employment is expected to increase much faster than average. Excellent job opportunities are expected.

Employment of veterinarians is expected to increase 35 percent over the 2006-16 decade, much faster than the average for all occupations. Veterinarians usually practice in animal hospitals or clinics and care primarily for companion animals. Recent trends indicate particularly strong interest in cats as pets. Faster growth of the cat population is expected to increase the demand for feline medicine and veterinary services, while demand for veterinary care for dogs should continue to grow at a more modest pace.



Many pet owners are relatively affluent and consider their pets a member of the family. These owners are becoming more aware of the availability of advanced care and are more willing to pay for intensive veterinary care than owners in the past. Furthermore, the number of pet owners purchasing pet insurance is rising, increasing the likelihood that considerable money will be spent on veterinary care.

More pet owners also will take advantage of nontraditional veterinary services, such as cancer treatment and preventive dental care. Modern veterinary services have caught up to human medicine; certain procedures, such as hip replacement, kidney transplants, and blood transfusions, which were once only available for humans, are now available for animals.



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Continued support for public health and food and animal safety, national disease control programs, and biomedical research on human health problems will contribute to the demand for veterinarians, although the number of positions in these areas is limited. Homeland security also may provide opportunities for veterinarians involved in efforts to maintain abundant food supplies and minimize animal diseases in the U.S. and in foreign countries.

Excellent job opportunities are expected because there are only 28 accredited schools of veterinary medicine in the United States, resulting in a limited number of graduates -- about 2,700 -- each year. However, applicants face keen competition for admission to veterinary school.

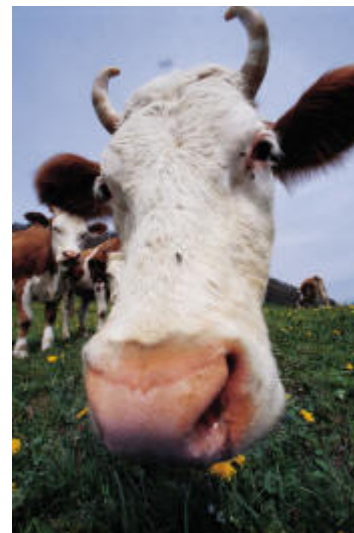
New graduates continue to be attracted to companion-animal medicine because they prefer to deal with pets and to live and work near heavily populated areas, where most pet owners live.

Employment opportunities are good in cities and suburbs, but even better in rural areas because fewer veterinarians compete to work there.

Beginning veterinarians may take positions requiring evening or weekend work to accommodate the extended hours of operation that many practices are offering. Some veterinarians take salaried positions in retail stores offering veterinary services. Self-employed veterinarians usually have to work hard and long to build a sufficient client base.

The number of jobs for large-animal veterinarians is likely to grow more slowly than jobs for companion-animal veterinarians. Nevertheless, job prospects should be better for veterinarians who specialize in farm animals because of lower earnings in the farm-animal specialty and because many veterinarians do not want to work in rural or isolated areas.

Veterinarians with training in food safety and security, animal health and welfare, and public health and epidemiology should have the best opportunities for a career in the Federal Government.



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## Professional Organizations

Professional organizations and associations provide a wide range of resources for planning and navigating a career as a veterinarian. These groups can play a key role in your development and keep you abreast of what is happening in your industry. Associations promote the interests of their members and provide a network of contacts that can help you find jobs and move your career forward. They can offer a variety of services including job referral services, continuing education courses, insurance, travel benefits, periodicals, and meeting and conference opportunities. A broader list of professional associations is also available at [www.careercornerstone.org](http://www.careercornerstone.org).

### ► American Animal Hospital Association ([www.aahanet.org](http://www.aahanet.org))

The American Animal Hospital Association (AAHA) is an association of members who primarily treat companion animals, or pets. They have over 36,000 members who hold different jobs in a veterinary clinic, including veterinarians, technicians, managers, receptionists and more.

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▶ **American Board of Veterinary Specialties ([www.avma.org/education/abvs](http://www.avma.org/education/abvs))**

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▶ **American Veterinary Medical Association ([www.avma.org](http://www.avma.org))**

The American Veterinary Medical Association (AVMA), established in 1863, is a not-for-profit association representing more than 74,000 veterinarians working in private and corporate practice, government, industry, academia, and uniformed services. Structured to work for its members, the AVMA acts as a collective voice for its membership and for the profession.