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ABSTRACT

This report documents the need for and presents well-founded recommendations for the establishment of a college of veterinary medicine to serve New England and New Jersey. The need for a veterinary medicine college is discussed in relation to today's veterinarians, and future shortage estimations. Major recommendations suggest that (1) a regional college of veterinary medicine be established within New England or New Jersey. (2) The proposed college be cooperatively founded and supported by the New England States and New Jersey. (3) The initial capitalization and continuing operational funding of the college be equitably shared by the New England States and New Jersey. (4) The proposed regional college be closely allied with a medical school whose library, research, and clinical facilities will be available as a necessary complement to the veterinary medical program. (5) The functions of the proposed college include professional education and research, continuing education of veterinarians, consultation and referral services and extension activities. A 24-item bibliography and appendices of related material are included. (MJM)

THE NEED FOR A COLLEGE OF VETERINARY MEDICINE TO SERVE NEW ENGLAND AND NEW JERSEY

Prepared by the Staff of the
New England Board of Higher Education

1973
NEW ENGLAND BOARD OF HIGHER EDUCATION
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FOREWORD

The lack of a sufficient number of study opportunities in the various health professions was an important factor in the creation of the New England Board of Higher Education in 1955. This concern over the health and well being of the New England population has been evident throughout the Board's existence.

Because of the intrinsic relationship between human and veterinary medicine, the Board has from the outset been concerned over the lack of a veterinary education program in this region and has frequently been an active participant in discussions regarding the possible establishment of such a college. Most recently this involvement became more pronounced when a committee of Connecticut veterinarians approached the Board in 1971 to request its aid in the documentation of the apparent need for a veterinary college in New England.

With the help of an Advisory Committee on Veterinary Medicine, appointed by NEBHE and including practitioners from the six New England states, a report was published in January 1972 which did, indeed, point to a critical shortage of veterinarians in New England and to a growing shortage of opportunities for New England residents to pursue a professional program in the nation's existing veterinary medical colleges.

The publication of *A Report on the Need for a College of Veterinary Medicine in New England* had immediate effect. The New England Governors' Conference, at its January 1972 meeting, directed the New England Board of Higher Education to conduct a study of costs, alternative sites, and possible funding patterns for a regional college as recommended in that *Report.* Shortly thereafter, the New Jersey State Department of Higher Education contacted NEBHE to request that New Jersey also be a part of such a "feasibility" study. With the acceptance of New Jersey as a partner in this regional effort, two New Jersey members were added to the Advisory Committee (see p. ii) and this present up-dated and expanded "needs" report was begun by the NEBHE Director of Research, Raymond G. Hewitt.

In September 1972, Dr. Clarence R. Cole. Regents Professor and former Dean, College of Veterinary Medicine, Ohio State University, assumed the responsibility for studying the feasibility of establishing a college of veterinary medicine to serve New England and New Jersey. A new Advisory Council, in addition to the Advisory Committee, was also formed, composed of representatives from each state veterinary medical association, each state legislature, and both the human and veterinary medical professions, to advise Dr. Cole on his research and recommendations.

The current volume supercedes the earlier *Report* (which is out-of-print) and contains the most complete compendium of data regarding the status of veterinary medical manpower that we have seen, not only for New England and New Jersey, but for the nation. We believe it clearly points to the need

for establishing a regional veterinary college to serve New England and New Jersey. By mid-1973, Dr. Cole's completed study will provide those data necessary to determine which of the seven individual states is best suited as the site for the college itself and how it might best be financed by all seven states.

Through the sponsorship of studies such as these, the New England Board of Higher Education performs one of its primary functions — the identification of problem areas in higher education; the gathering together of pertinent facts and figures; the formulation, with the help of specialists, of possible solutions; and the dissemination of this information to the citizens of New England. In so doing, the Board strives to increase the availability of educational opportunities for New England residents while advancing the educational, social, cultural and economic welfare of the region.

Alan D. Ferguson
Executive Director
New England Board of Higher Education

April 1973

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SUMMARY

The New England states and New Jersey together face a critical shortage of over 1,500 veterinarians by 1980. In 1970, there were only 8.3 veterinarians available for every 100,000 residents of these seven states — five fewer than the national average that year, and less than half as many as should be available by the end of the decade to ensure adequate veterinary services. In spite of this shortage, however, hundreds of New England and New Jersey residents are annually denied the opportunity to attend a college of veterinary medicine.

The second veterinary medical school in the nation was founded in Massachusetts in 1854; furthermore this seven-state region is internationally known for its institutions of higher education and its medical/scientific competencies. It is ironic, therefore, that in the face of such needs and demands, Massachusetts has not had a college of veterinary medicine within its borders since 1947 and none of the remaining six states have ever contained such a college. This report seeks to document the need for and to present well-founded recommendations for the establishment of such a college in one of these seven states — on a regional basis, cooperatively founded and supported by the New England states and New Jersey.

THE VETERINARY PROFESSION

While the veterinarian is popularly thought of as treating pet animals, such as cats and dogs, small animal care is only one of the many and varied activities of today's veterinarian. Members of this profession, through their daily contact with and treatment of diseases critical to human welfare, provide essential contributions to the medical sciences. Today's veterinarian has joined his medical colleagues in the laboratory, the classroom and the community to prevent the infection of man from animal sources, to study "animal models" of human conditions, to ensure the humane treatment of laboratory and other animals, and to instruct future physicians, veterinarians and other health care specialists. The relationship between veterinary and human medicine is increasingly close and increasingly essential.

The protection of livestock and poultry, and in turn the protection of man who relies on these important sources of food, has long been a responsibility of the veterinarian through the prevention and treatment of animal diseases. Veterinarians also directly protect the consumer by conducting and supervising food inspection services. And they are actively involved in a wide variety of research efforts in areas such as aerospace, ecology, pharmacology and — most recently — the marine sciences. The graduating veterinarian has many exciting and challenging careers from which to choose, all of direct service to society.

SHORTAGE OF VETERINARIANS

In 1970, only 13.2 veterinarians were available for every 100,000 persons in the United States. In light of the many recent and anticipated developments in veterinary medicine, however, it has been estimated that by 1980, 17.5 veterinarians will be required per 100,000 persons in the nation. This would require the availability of over 41,000 veterinarians by that date. Yet it is now estimated that, under the most favorable circumstances, only 35,000 of these needed veterinarians will be in active practice by 1980 — a net shortage of over 6,000 veterinarians. New England's and New Jersey's share of this national shortage is anticipated to be over 1,500 veterinarians, approximately equal to the number of actual practitioners in this seven-state region today. Early signs of this shortage are already evident as approximately five job openings await each current graduate of a veterinary college.

The training of veterinarians in the United States is currently the responsibility of only 18 colleges of veterinary medicine located in 17 states. Together these colleges can currently enroll fewer than 1,600 new students annually; classrooms are filled to capacity and thousands of qualified students are annually being denied a place. The one new school under development, in Louisiana, has had to delay its opening until 1974. And although some expansion of the present colleges is planned, the availability of funds for such expansion is dubious. Given the present and planned educational opportunities in the nation, therefore, there appears little likelihood of meeting the impending regional, let alone national, deficiency of veterinarians unless rapid steps are taken to expand such opportunities.

INTERESTED STUDENTS TURNED AWAY

For every student accepted by each of these veterinary colleges today, an average of five applicants must be turned away. New England and New Jersey residents are even further handicapped, however, since: (1) veterinary colleges give first priority to their own state residents and (2) regional contractual agreements between these colleges and certain states without veterinary colleges guarantee that second priority falls to the residents of these particular states. New Jersey has recently signed two contracts which have resulted in a modest increase in the number of its residents being admitted for veterinary education; New England has no such agreements.

Among the 18 colleges of veterinary medicine, only those at Cornell University and the University of Pennsylvania have regularly offered much hope for aspiring New England and New Jersey veterinarians. Despite increases in the size of their entering classes, however, these schools too have had to cut back on the number of out-of-state students admitted. The result of this situation is that very few New England or New Jersey residents can currently gain access to veterinary education. Scores have their applications denied each year and hundreds are discouraged from even applying.

OTHER REGIONAL NEEDS

In addition to professional training, the citizens and practicing veterinarians in the New England states and New Jersey are also currently being denied a variety of other services regularly provided by veterinary schools. Continuing education programs, for example, are generally offered to maintain and increase the competency of the practitioner. Extension activities ensure that recent developments in animal health care are effectively disseminated to the man on the street. And local animal research and the availability of local veterinary clinical faculty and facilities for consultations and referrals allow for the more sophisticated diagnosis and treatment of animal diseases and injuries.

REGIONAL COLLEGE NEEDED

The need and justification for a veterinary medical school to serve New England and New Jersey rests, therefore, on five quite simple premises:

- New England and New Jersey face a critical shortage of veterinarians by 1980.
- Motivated and qualified New England and New Jersey students are currently being denied the opportunity to pursue a career in veterinary medicine.
- The medical/scientific community in the New England states and New Jersey provides not only a foundation for such a college, but also the interdisciplinary links necessary for a truly contemporary college of veterinary medicine.
- Practicing veterinarians in these seven states are currently being denied the continuing education programs and referral services that a regional college would provide.
- Shared construction and/or operating costs make such a regional college economically and logistically feasible for these seven states.

MAJOR RECOMMENDATIONS

A regional college of veterinary medicine holding a strong relationship to the existing medical community is, therefore, as logical as it is necessary. In order to meet the critical present and future need for veterinarians in New England and New Jersey, while affording new education, research and continuing education opportunities for the seven-state region in this essential medical field, the major recommendations of this report are:

- *That a regional college of veterinary medicine be established within New England or New Jersey to provide an educational program leading to the doctor of veterinary medicine degree particularly for residents of these seven states.*

- *That the proposed college be cooperatively founded and supported by the New England states and New Jersey.*
- *That the initial capitalization and continuing operational funding of the college be equitably shared by the New England states and New Jersey.*
- *That the proposed regional college of veterinary medicine be closely allied with a medical school whose library, research and clinical facilities will be available as a necessary complement to the veterinary medical program.*
- *That the functions of the proposed veterinary college include professional education and research, continuing education of veterinarians, consultation and referral services, and extension activities.*

By providing these services to the region's current and future practitioners, a regional veterinary college would not only ensure better veterinary service, but also better medical and health service for the residents of New England, New Jersey and the nation.

1. INTRODUCTION

Veterinary medicine is the health profession that applies the principles of the biomedical sciences to the prevention, care and alleviation of disease and injury in animals. The profession is also vitally concerned with the protection of human health through the prevention and control of diseases transmissible from animals and animal products to man, through research in the biomedical sciences, and through the instruction of future health professionals in areas such as comparative medicine. Its basic concern is the protection and improvement of the health and economic welfare of the nation — indeed, of all nations.

In order to meet the rising demands for veterinary medical services, it is estimated that the United States will need over 41,000 veterinarians by 1980 compared to the approximately 25,500 active in the profession in 1970. At present, however, professional education in veterinary medicine is provided by only 18 colleges located in 17 states, and the one additional school planned has had to delay enrolling its first class until 1974. Based on the present and anticipated capacity of these schools to educate future veterinarians, and based upon the availability of adequate state and federal funding, only 35,000 of these needed veterinarians are expected to be available in 1980 — a net shortage of over 6,000.

As serious as this anticipated national shortage is, however, the situation in the New England states and New Jersey is even more critical. In 1970, there were only 8.3 veterinarians available for every 100,000 residents in this seven-state region — five fewer than the national average (Table 1). By the end of the present decade, over 3,800 practicing veterinarians will be needed in these seven-states compared to the 1,587 available in 1970; however, the most optimistic projections show that only 2,300 will be available given present training capacities — a net shortage of over 1,500 veterinarians in New England and New Jersey. Indeed, by 1980 New England's requirements alone will surpass the 2,300 veterinarians it is projected will be available to serve all seven states.

The second college of veterinary medicine in the nation, the Boston Veterinary Institute, was founded in Massachusetts in 1854, but that state has not had a training center for veterinary medicine since 1947. None of the other New England states nor New Jersey has ever had one (Table 2). Thus, although scores of qualified New England and New Jersey students apply to veterinary school annually, most are denied the opportunity to become veterinarians because the existing colleges give first priority to in-state students and because of the stiff competition for the few out-of-state places that are provided. This situation is further aggravated by the existence of various regional agreements that further preclude consideration of New England and New Jersey students.[1] The net result is that in the face of a critical shortage of

[1]Paradoxically, New England residents receive low priority at many veterinary schools because none of the New England states are part of a regional agreement while New Jersey residents receive low priority at several such schools because New Jersey has recently signed two such agreements. This is explained further in Chapter 4.

Table 1. Rank and Number of Veterinarians per 100,000 Population by State, 1970

State[1]	Veterinarians per 100,000 Population		Number of Veterinarians December 31, 1970[2]	Population 1970[3]
	Rank	Ratio		
IOWA	1	43.7	1,234	2,825,041
South Dakota	2	32.9	219	666,257
Nebraska	3	31.6	469	1,483,791
KANSAS	4	28.1	633	2,249,071
COLORADO	5	27.8	614	2,207,259
Montana	6	27.8	193	694,409
Wyoming	7	27.4	91	332,416
Idaho	8	24.0	171	713,008
MINNESOTA	9	21.3	812	3,805,069
Vermont	10	20.7	92	444,732
WASHINGTON	11	18.7	636	3,409,169
Nevada	12	18.0	88	488,738
OKLAHOMA	13	17.1	437	2,559,253
Maryland	14	17.0	668	3,922,399
MISSOURI	15	16.9	792	4,677,399
North Dakota	16	16.8	104	617,761
INDIANA	17	16.0	831	5,193,669
Oregon	18	16.0	334	2,091,385
Wisconsin	19	15.7	694	4,417,933
TEXAS	20	15.2	1,705	11,196,730
Delaware	21	14.8	81	548,104
New Mexico	22	14.8	150	1,016,000
Arizona	23	14.4	255	1,772,482
GEORGIA	24	14.0	642	4,589,575
CALIFORNIA	25	13.4	2,667	19,953,134
ALABAMA	26	13.3	459	3,444,165
Florida	27	13.1	886	6,789,443
Virginia	28	12.7	590	4,648,494
ILLINOIS	29	12.5	1,390	11,113,976
New Hampshire	30	12.1	89	737,681
OHIO	31	11.9	1,267	10,652,017
Utah	32	11.9	126	1,059,273
MICHIGAN	33	11.6	1,030	8,875,083
Arkansas	34	11.4	219	1,923,295
Kentucky	35	11.4	366	3,219,311
District of Columbia	–	11.1	84	756,510
Maine	36	10.4	103	993,663
Mississippi	37	10.1	223	2,216,912
Hawaii	38	9.2	71	769,913
Tennessee	39	9.0	354	3,924,164
PENNSYLVANIA	40	8.9	1,048	11,793,909
NEW YORK	41	8.8	1,602	18,241,266
Louisiana	42	8.8	319	3,643,180
Connecticut	43	8.4	256	3,032,217
New England	–	8.4	995	11,847,186
New England and New Jersey	–	8.3	1,587	19,015,350
North Carolina	44	8.3	422	5,082,059
Alaska	45	8.3	25	302,173
New Jersey	46	8.3	592	7,168,164
South Carolina	47	8.1	211	2,590,516
Massachusetts	48	7.1	406	5,689,170

Table 1. (continued)

State[1]	Veterinarians per 100,000 Population		Number of Veterinarians December 31, 1970[2]	Population 1970[3]
	Rank	Ratio		
West Virginia	49	5.3	93	1,744,237
Rhode Island	50	5.2	49	949,723
United States		13.2	26,892	203,235,298

[1]States with cc · .jes of veterinary medicine in caps.

[2]AVMA. See HEALTH RESOURCES STATISTICS, 1971, DHEW Pub. No. (HSM) 72-1509, 1971 Edition, National Center for Health Statistics, U.S. Dept. of Health, Education and Welfare, February 1972. Includes active and inactive veterinarians.

[3]U.S. Bureau of the Census, Census of Population: 1970, GENERAL POPULATION CHARACTERISTICS, Final Report PC(1)-B1, U.S. Summary, U.S. Government Printing Office, Washington, D.C., 1972.

veterinarians in these seven states, hundreds of New England and New Jersey students who are interested in the veterinary profession are discouraged each year from even attempting to attend veterinary school by the overwhelming odds against them.

A serious deficiency exists in the medical-scientific community of the Northeast — a deficiency made all the more dramatic by the fact that New England and New Jersey command among the most outstanding educational-medical-scientific resources in the nation in their world renowned institutions for higher education, medical training and scientific research. This potential for developing an outstanding capability in veterinary medicine while forging a strong link with human medicine exists but remains relatively untapped in these seven states.

Table 2. Extinct Colleges of Veterinary Medicine in New England and New Jersey

Name	Established	Closed	Graduates
Boston Veterinary Institute	1854	1860	0[1]
Harvard University	1882	1902	128
Middlesex University (Waltham, Mass.)	1938	1947	243

[1]Authorities differ as to the number of bona fide graduates, if any, of this college.

2. TODAY'S VETERINARIAN

> It is becoming increasingly difficult to separate veterinary from human medicine because the goals, qualifications and identities of individuals in both professions are so similar. They are both essential components of biomedical science — that segment of knowledge, running from molecular biology to clinical medicine, dealing with the principles of health and disease in living systems. A biomedical principle may be veterinary medical if the ultimate objective is an animal while the same principle may be medical if the ultimate recipient happens to be human. Medical pioneer Sir William Osler was indeed correct when, commenting on the relationship of veterinary and human medicine, he states "there is only one medicine".
>
> *Veterinary Medicine: Its Requirements and Responsibilities in Relation to The Public Health*, American Veterinary Medical Association

The increasingly apparent relationship between veterinary and human medicine may be seen in the varied activities of veterinarians that have a direct bearing on human health. Today's veterinarian plays a major role in consumer protection through the development of health programs that protect against diseases transmitted through food. Similarly, control of animal diseases that can be communicated to man (zoonoses) and research into the causes, treatment and prevention of diseases that are common to both man and animal also form major areas of endeavor in veterinary medicine. Nearly every member of the veterinary medical profession, whether engaged in private practice, research, regulatory work or any of the other specialty areas, constantly encounters disease conditions in animals of which a better understanding contributes to biomedical science and the welfare of mankind.

CONSUMER PROTECTION

The protection of livestock and poultry, and in turn the protection of man who relies on these important sources of protein, has long been the responsibility of the veterinarian through the prevention and treatment of animal diseases. Veterinarians also directly protect the consumer from such infections as trichinosis and salmonella through food inspection and regulation. In New England and New Jersey alone, veterinarians are responsible for the care of over 25-million head of livestock and poultry valued at over 300-million dollars and for supervising the inspection of approximately 650-million dollars worth of livestock and poultry food products annually. (See Appendix A, Tables A-1 to A-5.)

The province of the veterinarian can no longer be construed even in the most popular sense as limited to the animal hospital or livestock farm. Along with other members of the population he has moved off the farm to deal with a range of problems no less relevant to his profession by being urbanized, joining with colleagues in the other medical and environmental sciences.

More animal protein is an issue that veterinarians and other biomedical scientists are confronting together in the face of rising population demands for food. Genetic and environmental research become of paramount significance

as ways are found to increase the nutritional value of foods without creating new conditions of protein waste and destruction. And the alarm has only just been sounded over the human corruption of food processing through chemical and radioactive intervention in the environment.

PUBLIC HEALTH

Not yet readily acknowledged by the general public is the close relationship between human and animal diseases. Under varying circumstances, some 175 animal diseases and infections are known to be communicable to man. Veterinarians in public health programs work to control and prevent such diseases as typhus, rabies, encephalitis, tuberculosis and other such zoonoses. Clearly, insofar as animals are a source of both nourishment and relaxation for human populations, so can their diseases threaten human survival.

A world growing smaller by supersonic leaps increases this problem as the introduction of "exotic" diseases from other countries endangers livestock and, in turn, man. In the 1960's, several of the world's most devastating livestock diseases spread for the first time to new parts of the globe. For example, African Swine Fever, against which an effective vaccine has yet to be found, appeared in Europe in 1967 and was subsequently reported as near to the United States as Cuba. Although not communicable to man, this is the most serious disease threatening the United States swine industry today. And Venezuelan Equine Encephalomyelitis, which is borne by mosquitos, actually reached the United States in 1971 killing thousands of horses in the Southwest before being brought under control; a milder version of this virus is transmissible to man. Through its research and regulatory efforts, the veterinary profession safeguards this nation and others from the potential hazards of diseases such as these.

BIOMEDICAL RESEARCH

Today's veterinarian is also actively involved in biomedical research of direct importance to human health. For every disease of man, a similar and sometimes identical disease exists in some animal species. The study of "animal models" of human conditions such as leukemia, multiple sclerosis and heart and respiratory diseases has, therefore, become a vital function of the veterinary profession. Moreover, an ever-increasing number of veterinarians are required to supervise the humane treatment and proper care of the laboratory animals essential for these and other types of research.

PRIVATE PRACTICE

The private practice of veterinary medicine is, of course, the role of the majority of veterinarians, and will probably remain so (Table 3). Indeed, it is the private practitioner who directly protects the animal population, and

Table 3. Number of U.S. Veterinarians by Major Activity, Actual as of January 1, 1970 and Estimated Need by 1980[1]

Major Activity[2]	1970[3] Number	1970[3] Percent	1980[4] Number	1980[4] Percent	Percent Change 1970 to 1980
Food animal practice	6,242	24.1	6,242	14.9	0.0
Small animal practice	10,931	42.2	21,862	52.2	+100.0
Equine practice	804	3.1	1,608	3.8	+100.0
Laboratory animal practice	342	1.3	704	1.7	+105.8
Zoo animal practice	40	0.2	80	0.2	+100.0
Wildlife animal practice	14	0.1	50	0.1	+257.1
Public health	276	1.1	569	1.4	+106.2
Military veterinary medicine (exclusive of laboratory animal medicine and research)	770	3.0	462	1.1	- 40.0
Regulatory veterinary medicine (other than meat inspection)	1,227	4.7	1,871	4.5	+ 52.5
Meat inspection	1,885	7.3	1,885	4.5	0.0
Industrial veterinary practice (exclusive of laboratory animal medicine)	506	2.0	1,407	3.4	+178.1
Teaching and research (exclusive of laboratory animal medicine, public health, and industrial veterinary practice)	1,611	6.2	3,222	7.7	+100.0
Other veterinary practice	477	1.8	767	1.8	+ 60.8
Retired	777	3.0	1,166	2.8	+ 50.1
TOTAL[5]	25,902	100.1	41,895	100.1	+ 61.7

[1]Adapted from NEW HORIZONS FOR VETERINARY MEDICINE, National Academy of Sciences, Washington, D.C., 1972.

[2]This table approximates the distribution of veterinarians by principal practice activity. In fact, few veterinarians are involved in a single activity to the exclusion of all others. To that extent the apportionment of each individual to one or another classification is artificial. For example, of the veterinarians engaged in private practice, 50 percent are engaged in mixed practice; that is, they are community practitioners who provide a variety of veterinary services.

[3]As of January 1, 1970. Thus the total reported here differs from the 26,892 reported in Table 1 as of December 31, 1970.

[4]Estimated by the Committee on Veterinary Medical Research and Education of the National Academy of Sciences based upon the estimated population increase, anticipated changes in the American life style, and the changing character of the veterinary profession. Although derived independently, the NAS figure of 41,895 is extremely close to the 41,427 derived in Table 11 based upon the generally agreed upon need for 17.5 veterinarians per 100,000 population in 1980.

[5]Percents do not total to 100.0 due to rounding.

thereby also protects the human population, through the detection and treatment of animal diseases — whether these animals be large or small, food source or recreational.

While the veterinarian is, perhaps, most popularly thought of as treating companion animals such as cats and dogs, actually only about one in four veterinarians treat small animals *exclusively*.[2] Although the companion animal

[2]Table 3 would suggest that a higher proportion than one in four veterinarians is engaged in small animal practice because of the inclusion of veterinarians engaged in mixed practices as well as those treating small animals exclusively. (See footnote 2, Table 3).

practice has shown the greatest relative growth in recent years, the community or mixed practice still is most common among private practitioners. The treatment of companion animals, including horses, is, of course, a major concern of a growing segment of the nation's population.[3] The practical importance of guide and guard dogs is well established, and the psychological value of house pets, while not totally understood, is recognized as being of definite importance to human mental health and well-being. Indeed, as the quality of human health care has improved, so have the nation's companion animal owners come to expect concomitant improvement in the care of these animals.

UNTAPPED OPPORTUNITIES

Veterinary medicine offers, therefore, an ever growing variety of professional opportunities. Government service in the Department of Agriculture, the animal testing of drugs and vaccines in the pharmaceutical industries, specialization in the care of laboratory animals, environmental research including aerospace study, and food animal research to meet population expansion through stepped up production of nourishing foods, are all increasingly important areas of specialization in the veterinary profession. Increasing numbers of veterinarians are also being employed to instruct future physicians, veterinarians and public health workers in areas such as comparative medicine, pathology, epidemiology and preventative medicine. And man's last frontier, the sea, has opened up an exciting and virtually untapped array of opportunities for the veterinarian in marine science and medicine.

This spectrum of opportunities in veterinary medicine is almost totally reflected in the professional activities of veterinarians in New England and New Jersey today (Table 4). However, New England and New Jersey currently have a critical shortage of veterinary manpower, and the prospects of improving this situation appear bleak indeed given current and anticipated training capacities and the small chance for residents of these seven states to attend a veterinary school. As the concerns of veterinary medicine become increasingly applicable to contemporary life problems — manmade and natural — the New England states and New Jersey can no longer settle for having among the lowest ratios of veterinarians to population of the nation (Table 1).

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[3]Lisack indicates, for example, that 25.7% of all U.S. households own a dog, 9.1% a cat and another 10.4% both a dog and a cat. Also, that "there is a ratio of one horse to about every 27 people", and that ". . . the horse population may double in the decade of the 70's." See *Veterinary Medical Manpower Trends in Indiana with Some National Comparisons,* Manpower Report 1971-2, Office of Manpower Studies, Purdue University, 1971. See also Appendix A. Tables A-5 to A-8.

Table 4. Specialty Area and Type of Employer of Veterinarians in New England and New Jersey, January 1970[1]

Type of Practice / *Specialty Area*[2]	*College or University*	*Federal Government*	*International Government*	*State or Local Government*	*Armed Forces*	*Self Employed*	*Priv. Practice Employee*	*Retired*	*Industry Employee*	*Other*	*Unknown*	*TOTALS*
Large Animal (LA) Practice	4	–	–	–	–	36	10	–	1	3	–	54
Exclusively Bovine	1	–	–	–	–	6	1	–	–	–	–	8
Exclusively Equine	3	–	–	–	–	17	5	–	–	1	–	26
Exclusively Porcine	–	–	–	–	–	–	–	–	–	–	–	–
LA – all species	–	–	–	–	–	13	4	–	1	2	–	20
Mixed Practice	1	2	–	1	–	276	75	–	–	2	18	375
LA – over 50%	–	1	–	–	–	41	9	–	–	–	1	52
LA and SA – 50/50	–	–	–	–	–	76	25	–	–	1	4	106
SA – over 50%	1	1	–	1	–	159	41	–	–	1	13	217
Small Animal (SA) Practice												
SA – exclusively	3	1	–	3	–	378	106	1	2	27	20	541
Regulatory Veterinary Medicine	–	43	–	23	–	1	–	2	2	–	1	72
Veterinary Public Health	1	1	–	8	2	1	–	–	1	–	–	14
Military Veterinary Service	–	2	1	–	29	–	–	–	–	–	–	32
Other Classes	78	13	–	5	3	8	2	26	90	10	3	238
Exclusively Poultry	1	2	–	1	–	–	–	–	3	–	–	7
Anatomy	–	–	–	–	–	–	–	–	–	–	–	–
Biochemistry	2	1	–	–	–	–	–	–	1	–	–	4
Microbiology	4	1	–	1	–	–	–	2	3	–	–	11
Parasitology	–	–	–	–	–	–	1	–	3	–	–	4
Pathology	28	2	–	–	–	1	1	–	20	3	–	55
Pharmacology	2	–	–	–	–	–	–	–	1	–	–	3
Physiology	4	–	–	1	1	1	–	–	3	–	–	10
Radiology	–	–	–	–	–	–	–	–	–	1	–	1
Toxicology	2	1	–	–	–	–	–	–	12	–	–	15
Surgery	3	–	–	–	–	2	–	–	–	2	1	8
Fur Bearing Animals	–	–	–	–	–	–	–	–	1	–	–	1
Lab Animal Medicine	14	–	–	–	2	2	–	–	5	1	–	24
Zoo Animals	–	–	–	–	–	–	–	–	–	–	–	–
Extension	4	1	–	–	–	–	–	–	–	1	–	6
Diagnostic Vet. Medicine	2	–	–	1	–	1	–	–	–	–	–	4
Pathology, Avian	4	1	–	–	–	–	–	–	6	–	–	11
Pathology, Clinical	–	–	–	–	–	–	–	–	1	–	–	1
Opthalmology	–	–	–	–	–	1	–	–	–	1	–	2
Nutrition	1	–	–	–	–	–	–	–	3	–	–	4
Clinician	3	–	–	–	–	–	–	–	2	–	–	5
Retired	–	1	–	–	–	–	–	24	–	–	–	25
Other Vet. Medicine	4	3	–	1	–	–	–	–	26	1	2	37
UNKNOWN	1	–	–	2	2	9	2	1	4	–	25	46
TOTALS	88	62	1	2	36	709	195	30	100	42	67	1372

[1]1970 AVMA DIRECTORY. Derived from geographic index of veterinarians based on information reported by individual veterinarians. Included are all members of the AVMA and those non-members who responded to the 1970 DIRECTORY verification study. (See also Tables A-9 and A-10.)

[2]Type of practice does not correspond to "Major Activity" as reported in Table 3. The U.S. figures reported in Table 3 were derived by the NAS committee by recatagorizing data originally presented as above.

3. VETERINARY MEDICAL EDUCATION

ONLY 18 COLLEGES

The professional training of U.S. residents to fill the varied and challenging roles of today's and tomorrow's veterinarians is currently the responsibility of only 18 colleges of veterinary medicine located in 17 states; together they can currently enroll fewer than 1,600 new students annually (Table 5). Ten of these schools were in operation by World War I with an additional seven having been founded between 1945 and 1949; the last veterinary school to have opened in the U.S. was at Purdue University in 1957. Fifteen of these veterinary schools are constituent units of public universities, but even the three private institutions — Tuskegee Institute, Cornell University and the University of Pennsylvania — receive state support for their veterinary programs.

Table 5. Students Enrolled in U.S. Colleges of Veterinary Medicine, 1972-73[1]

Colleges	1st Year	2nd Year	3rd Year	4th Year	Total 1972-73	Total 1971-72
Auburn University (Ala.)	115	111	103	92	421	408
Tuskegee Institute (Ala.)	45	36	39	16	136	121
California, University of	94	85	86	79	344	334
Colorado State University	93	85	82	79	339	303
Georgia, University of	76	67	68	60	271	257
Illinois, University of	86	75	78	62	301	283
Purdue University	72	66	64	55	257	239
Iowa State University	92	79	75	70	316	298
Kansas State University	94	83	84	78	339	323
Michigan State University	116	104	95	–	315	294
Minnesota, University of	73	64	59	61	257	250
Missouri, University of	72	64	60	62	258	251
Cornell University	65	64	59	59	247	242
Ohio State University	130	119	120	94	463	420
Oklahoma State University	60	53	47	43	203	194
Pennsylvania, University of	103	89	77	79	348	321
Texas A&M University	128	128	126	–	382	384
Washington State University	66	56	59	61	242	227
Total Enrollment U.S. Colleges	1,580	1,428	1,381	1,050	5,439	5,149[2]

[1] AVMA.

[2] Of these, 1,453 were first-year students.

EXPANSION SLOW

Several of the existing veterinary colleges have plans for expansion, but the enrollment increases anticipated are still not sufficient to meet the growing demand for places or the increasing national need for veterinarians (Tables 11, A-14 and A-15). Furthermore, substantial assistance from the federal government would be necessary to actualize current expansion plans — an unlikely possibility in the immediate future.

The only new veterinary school currently under actual development in the nation, at Louisiana State University, was to have opened in the fall of 1972, but is now slated to enroll its first class in 1974. When opened, this, the 19th college of veterinary medicine in the U.S., will be regionally oriented, with the original plan setting aside two-thirds of the first 32 spaces for Louisiana residents and the remaining third reserved for residents of other Southern states. Proposed schools in Florida, Texas and North Carolina are in various phases of "discussion", but again these schools would, if established, undoubtedly serve primarily the Southern states. And although a feasibility study for a school of veterinary medicine in Wisconsin was completed in 1969, the creation of such a school was not assigned a high priority by that state.

STATE AND REGIONAL PRIORITIES

Because of their state support, veterinary schools generally tend to give first priority to residents of the states in which they are located, thus severely limiting the study opportunities for residents of the remaining states. The existence of regional agreements in veterinary medicine (Chapter 4) tends to further limit the number of spaces available at these schools for residents of states with neither a school nor a regional agreement. This is a particularly discouraging state of affairs for residents of New England which has neither a college nor an agreement. And while New Jersey has recently signed two agreements with veterinary schools, this has not automatically increased the options open to its residents; several of the schools with whom the state does not contract have assigned a low priority for admission to New Jersey residents, feeling that New Jersey now "has a veterinary school" as a result of these agreements. Indeed, only two schools — the New York State Veterinary College at Cornell University and the School of Veterinary Medicine of the University of Pennsylvania — have regularly provided professional education for aspiring New England and New Jersey veterinarians. (See, for example, Table 6.)

> In the seven years I have been here I cannot recall a graduate coming from New England although there may have been one or two. Some apply but preference is normally given to Washington residents and to residents of states in our regional compact.
>
> J. A. Henderson, *Dean*
> College of Veterinary Medicine
> Washington State University

PRE-VETERINARY REQUIREMENTS

Veterinary colleges require a minimum of two years of college training in the physical and biological sciences prior to admission to the four-year professional curriculum. Universities which have veterinary colleges usually offer prescribed two-year pre-veterinary programs to meet the specific requirements of their particular colleges. Veterinary schools outside the Northeast

Table 6. Students from Home State and from New England and New Jersey Entering Each U.S. College of Veterinary Medicine, 1972-73[1]

College	Total First-Year Students	From Within State		From New England		From New Jersey		From New England and New Jersey	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
Alabama-Auburn	115	33	28.7	0	–	0	–	0	–
Alabama-Tuskegee	45	5	11.1	0	–	0	–	0	–
California	94	91	96.8	0	–	0	–	0	–
Colorado State	93	54	58.1	0	–	0	–	0	–
Georgia	76	29	38.2	0	–	0	–	0	–
Illinois	86	83	96.5	1	1.2	1	1.2	2	2.3
Indiana-Purdue	72	63	87.5	4	5.6	2	2.8	6	8.3
Iowa State	92	70	76.1	0	–	3	3.3	3	3.3
Kansas State	94	69	73.4	1	1.1	0	–	1	1.1
Michigan State	116	98	84.5	7	6.0	3	2.6	10	8.6
Minnesota	73	62	84.9	0	–	0	–	0	–
Missouri	72	61	84.7	1	1.4	3	4.2	4	5.6
New York-Cornell	65	53	81.5	7	10.8	1	1.5	8	12.3
Ohio State	130	105	80.8	2	1.5	5	3.8	7	5.4
Oklahoma State	60	45	75.0	0	–	0	–	0	–
Pennsylvania	103	80	77.7	7	6.8	5	4.9	12	11.7
Texas A & M	128	119	93.0	0	–	0	–	0	–
Washington State	66	35	53.0	0	–	1	1.5	1	1.5
TOTAL	1,580	1,155	73.1	30	1.9	24	1.5	54	3.4

[1] AVMA. See Table A-12 for a complete breakdown of the geographic origin of 1972-73 first-year students.

Table 7. Survey of Freshman Veterinary Classes, 1970[1]

College	Students[2]	Male	Female	Average Age	% In-State	% Holding Degree	Avg. No. Yrs. For Non-degree Holders	% Pre-Vet Work At Same School	Cumulative Grade Point[3]	Avg. No. Schools Applied
Auburn (Ala)	120	114	6	22.8	41.5	50.6	3.13	39.2	2.96	1.3
Tuskegee (Ala)	33	29	4	22.5	30.3	67.0	2.45	25.1	2.80	2.6
California	80	71	9	23.8	93.7	61.5	3.1	72.5	3.18	1.1
Colorado State	NA	–	–	–	–	–	–	–	–	–
Georgia	NA	–	–	–	–	–	–	–	–	–
Illinois	72	64	8	22.2	97.0	27.8	2.6	58.4	4.12/5 3.29/4	1.3
Purdue (Ind)	60	54	6	21.3	88.5	13.3	2.23	86.6	5.12/6 3.41/4	1.07
Iowa State	57	52	5	21.7	80.5	–	2.35	86.0	3.27	1.3
Kansas State	NA	–	–	–	–	–	–	–	–	–
Michigan State	44	39	5	21.9	79.5	22.8	2.35	79.5	3.14	1.66
Minnesota	NA	–	–	–	–	–	–	–	–	–
Missouri	61	56	5	22.0	80.5	34.4	2.73	80.5	3.03	1.4
Cornell (N.Y.)	42	38	4	21.8	71.5	50.0	2.67	64.5	3.44	1.2
Ohio State	110	98	12	22.4	78.3	43.6	2.88	63.5	3.17	1.5
Oklahoma State	44	40	4	23.0	61.8	31.8	2.84	47.7	2.96	1.3
Pennsylvania	76	60	16	23.4	72.5	73.6	3.00	5.3	3.19	2.3
Texas A & M	128	–	–	–	–	27.3	2.57	65.5	3.28	–
Washington State	54	47	7	23.2	44.4	53.6	2.52	42.5	3.11	1.16

[1]SURVEY TABULATIONS OF FRESHMAN VETERINARY CLASSES, Iowa State University, Pre-Veterinary Club, 1971 (mimeo).

[2]Number of students does not always correspond to the total number of first-year students in 1970-71. NA = not available.

[3]On a four-point scale unless otherwise noted.

region frequently prefer that applicants have completed their pre-veterinary program on the same campus although completion of the pre-veterinary curriculum on a campus does not guarantee admission to the professional school. (The percent of 1970 entering veterinary students who had completed their pre-veterinary work on the same campus is shown in Table 7.)

Students preparing for veterinary school are generally advised to spend a minimum of three years in a pre-veterinary or pre-medical program.[4] Courses required for admission are usually available at any college that offers basic science courses in chemistry, physics and biology. For those veterinary schools with strict entrance requirements in animal science, however, pre-veterinary work can best be completed on a campus which includes a college of agriculture.

In 1970-71, an in-state student paid from about $550 to $2,700 anually for his professional training, exclusive of personal expenses; for an out-of-state student, the range was from $1,050 to $3,400 for those gaining admission[5] (Table 8). To the extent that New England and New Jersey students must travel to find places in programs, their travel and other personal expenses also go up accordingly. Additional expense is accrued where such students have been required to complete their pre-veterinary programs on the home campus of the particular professional program in which they wish to participate. Financial expediency clearly influences pre-veterinary and veterinary plans; therefore, New England and New Jersey students frequently establish residency in a state with a pre-veterinary/veterinary medical program in order not only to enhance their chances of admission but also to effect substantial cash savings.

CONTINUING EDUCATION

Veterinary medical education is actually a three stage process: pre-veterinary medicine, professional education and continuing education. In addition to professional programs, therefore, the existing colleges of veterinary medicine provide a variety of services for both the practicing veterinarians and the general citizenry of the states in which they are located. Continuing education programs, for example, are generally offered to maintain and increase the competency of the practitioner in both general and special areas of practice. These programs take the form of short courses, seminars, workshops and conferences, and are offered throughout the school year by members of the faculty and other qualified personnel appointed for

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[4]One veterinary school already requires three years of college work for all applicants. Also, an increasing percentage of first-year students have actually completed their bachelors degree, as illustrated in Table 7.

[5]Out-of-state students enrolled in a veterinary college through a regional agreement are, however, assessed only the in-state tuition. In effect, therefore, the several hundred dollar differential between in- and out-of-state tuition affects only students from states with neither a college nor a regional agreement.

Table 8. First-year Student Charges and Enrollment at U.S. Colleges of Veterinary Medicine

Institution	Tuition, 1970-71		Other Student Charges 1970-71[1]	First Year Students, 1972-73			
					Residents of		
	Resident	Non-Resident		Total	N.E.	N.J.	N.E. & N.J.
Auburn (Ala.)	$ 0	$ 450	$1,075	115	0	0	0
Tuskegee (Ala.)	450	1,100	580	45	0	0	0
California	0	1,200	1,040	94	0	0	0
Colorado State	270	1,152	411	93	0	0	0
Georgia	0	1,800	927	76	0	0	0
Illinois	246	954	299	86	1	1	2
Purdue (Ind.)	0	905	970	72	4	2	6
Iowa State	0	630	975	92	0	3	3
Kansas State	556	1,186	574	94	1	0	1
Michigan State	855	1,938	300	116	7	3	10
Minnesota	624	1,548	786	73	0	0	0
Missouri	0	800	1,005	72	1	3	4
Cornell (N.Y.)	400	600	675	65	7	1	8
Ohio State	770	1,870	625	130	2	5	7
Oklahoma State	550	1,800	400	60	0	0	0
Pennsylvania	1,750	2,350	950	103	7	5	12
Texas	150	600	443	128	0	0	0
Washington State	309	522	1,023	66	0	1	1
TOTALS				1,580	30	24	54

[1]Fees, equipment, books, and other supplies required of all first-year students. Does not include student costs for travel and other personal expenses.

that purpose. About 175 such programs were offered by 16 colleges in 1969-70, and were attended by nearly 12,000 persons. Several states have already passed, or are considering passing, legislation to require veterinarians to participate in such programs for a specified number of hours as a condition of license renewal.

Although the animal and veterinary science departments of the state universities in New England and New Jersey attempt to fulfill the continuing education needs of the region's practitioners, they are constrained by a lack of clinical personnel and other necessary resources from doing so in more than a limited fashion. Similar constraints are also in effect as these universities attempt to disseminate information on recent developments in animal health care to the man in the street through their extension activities. These services are both more effectively and more economically provided by a college of veterinary medicine.

OTHER SERVICES

Three other important services that are regularly provided by colleges of veterinary medicine are also lacking in New England and New Jersey: local animal disease research, consultations and referrals. Although the veterinary colleges in New York and Pennsylvania engage in many research activities of both national and local importance, disease conditions may reach serious proportions in New England or New Jersey that offer little interest to these neighboring states; the recent increased incidence of heartworm in dogs in New England is an example.

In addition to their research and continuing education activities, however, the clinical faculty at these colleges become an invaluable resource to local practitioners for consultations. Cornell University, for example, fields several hundred telephone consultations annually from New York State veterinarians. The availability of a local veterinary medical facility also provides a referral service for patients requiring sophisticated diagnostic, medical or surgical procedures. At present, practitioners in New England and New Jersey must send horses requiring bone and abdominal surgery, small animals requiring ocular and vertebral surgery, and difficult skin and cardiology cases to either Cornell University or the University of Pennsylvania. A regional veterinary college could provide all of these services to the region's practitioners and thereby ensure better veterinary service for the region's citizens.

4. REGIONAL AGREEMENTS FOR VETERINARY EDUCATION

With only 18 colleges of veterinary medicine to provide professional training opportunities for the residents of the 50 states, these 18 institutions must be regarded as national resources despite their state support and preference for in-state students. As states without a veterinary college have faced a growing shortage of veterinary manpower, despite increased interest in the veterinary profession, they have had two options open to them: (1) rely upon the admission of their residents to the existing colleges or (2) establish their own educational facility. The former is the least expensive, but it is also the least effective method of providing greater opportunities for veterinary medical education — especially in the face of increasing competition for the limited number of spaces available. Clearly, reliance upon existing institutions is a viable solution only if enrollments are increased and/or there is assurance that a state's residents can and will be accommodated.

AID TO STUDENTS?

Given the bleak prospects for significant expansion of the existing facilities, any increase in the absolute number of spaces available at the existing schools will be minimal at best within the immediate future. Attempts to increase veterinary educational opportunities by direct aid to students, while assisting individual students, do not open up additional spaces. The Study Committee on the Feasibility of a College of Veterinary Medicine in the State of Wisconsin described that state's experience in this regard as follows:

> The state's policy of non-resident tuition rebates (to a maximum of $500) to students enrolled in veterinary medicine has been in effect since 1966. Currently 82 Wisconsin residents are receiving financial aid through the program. IT SHOULD BE NOTED THAT THIS HAS NOT INCREASED THE NUMBER OF WISCONSIN RESIDENTS ACCEPTED BY COLLEGES OF VETERINARY MEDICINE. (Emphasis in original).

THE SOUTHERN EXPERIENCE

In lieu of constructing their own veterinary colleges, therefore, or to forestall such construction, many states have moved over the years to establish higher admission priorities for their residents at the existing colleges through the pattern of interstate or regional contracts illustrated in Table 9 and Figure 1. Various Southern states, for example, have regional agreements, through the Southern Regional Education Board (SREB), with the veterinary colleges at Auburn University, the University of Georgia, Oklahoma State University, Tuskegee Institute and Texas A & M University. Under this program, the above institutions serve as "regional" educational centers for the South with each of these schools pledged to admit a quota of qualified students from the contracting Southern states. Similar arrangements exist between the Western states and the veterinary colleges at the University of California,

Table 9. Colleges of Veterinary Medicine and States with which They Have a Regional Education Agreement in Veterinary Medicine[1]

1. Auburn University	— Florida, Kentucky, Louisiana, Mississippi, North Carolina, Tennessee
2. Tuskegee Institute	— Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia
3. University of California	— Alaska, Arizona, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Wyoming
4. Colorado State University	— Alaska, Arizona, Hawaii, Idaho, Montana, Nebraska, Nevada, New Mexico, Oregon, Utah, Wyoming
5. University of Georgia	— Maryland, North Carolina, South Carolina, Virginia
6. University of Illinois	
7. Purdue University	
8. Iowa State University	— Nebraska, North Dakota, Oregon
9. Kansas State University	— Nebraska, North Dakota
10. Michigan State University	
11. University of Minnesota	
12. University of Missouri	
13. Cornell University	
14. Ohio State University	— Florida, Kentucky, Maryland, New Jersey, North Carolina, Tennessee, Virginia, West Virginia
15. Oklahoma State University	— Arkansas, Louisiana, Nebraska, North Carolina, North Dakota, West Virginia
16. University of Pennsylvania	
17. Texas A & M University	— Louisiana
18. Washington State University	— Alaska, Arizona, Hawaii, Idaho, Montana, Nevada, New Jersey, New Mexico, Oregon, Utah, Wyoming

[1]Louisiana State University has a college of veterinary medicine under development; the school plans to open in 1974. At least one-third of the entering class spaces will be available for the use of other Southern states through the Southern Regional Education Board.

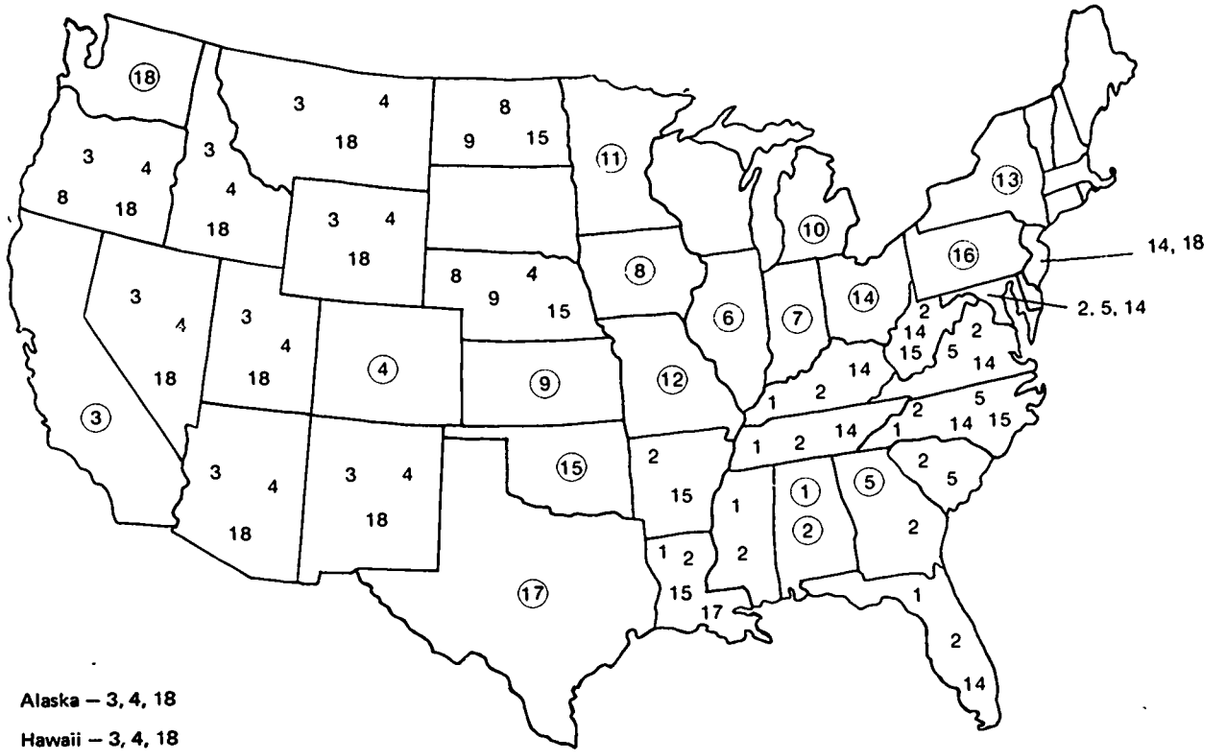
Colorado State University and Washington State University through the Western Interstate Commission for Higher Education (WICHE).

Under these arrangements, an accepted student pays his own tuition, but at the resident rather than non-resident rate. The contracting state pays a flat fee to the institution for reserving the space. During the first 20 years of operation of the SREB program, some 8,000 places were reserved for veterinary medical students from contracting Southern states and more than 11 million dollars in payments was transmitted across state lines in the South.

Such monies may be used, however, only for the operation and improvement of instructional programs and/or for increasing student capacity in *existing* facilities. Unfortunately, such agreements are not — nor were they intended to be — a mechanism for expanding facilities; they are simply a means for the interstate sharing of existing facilities. A Special Committee of the SREB described the South's experiences under this arrangement as follows:

> In the last four or five years the larger number of college students, plus increasingly heavy demands for veterinary medical services, have resulted in much larger pre-veterinary classes. The five SREB veterinary medical schools have more student demand than they can currently handle. The veterinary

Figure 1. Colleges of Veterinary Medicine and Regional Education Programs in Veterinary Medicine



Alaska — 3, 4, 18

Hawaii — 3, 4, 18

Circled numbers indicate existing colleges of veterinary medicine. Other numbers indicate colleges with which the state has a regional agreement.

medical school classrooms in the South are filled. In each SREB school a large number of applicants are competing for the limited number of spaces available. The number of applicants increases each year. All the SREB veterinary medical colleges haveexpanded — some more than others — and have shared their expanded capacity with SREB as best they could. But each SREB contracting state desires more spaces than are now allocated, and substantial numbers of qualified young people are being turned away at a time when the need is for more graduates.

Accordingly, several southern states have found it necessary to make arrangements with Ohio State University directly (not involving SREB) in order to secure additional spaces for the training of their residents in this area of serious manpower shortage in the South. Unlike the SREB contracts, Ohio State University does not guarantee a quota of spaces for residents of these states. These arrangements do, however, ensure that applicants from these states will be given consideration *before* other non-Ohio residents and that those students accepted will be charged only the prevailing in-state tuition, with the sending state providing a cost-of-education subsidy to the University. (A sample memorandum of agreement with Ohio State University appears in Appendix B.)

OTHER AGREEMENTS

Similar arrangements exist between individual states and individual colleges of veterinary medicine across the nation. New Jersey has recently signed two such agreements, but no such opportunity is afforded New England students at present.[6] Ohio State University has expressed a willingness to enter into an agreement(s) with the New England states under the same conditions prevailing for other contracting states (including New Jersey), but as yet no state in New England has concluded such an agreement.

Since no new spaces are directly created through such agreements, two important points should be noted. First, since quotas are generally not guaranteed, such arrangements can only be seen as stop-gap measures that may — or may not — provide professional education for a few additional residents of the contracting state. For example, the number of additional students from New England that might be enrolled in this manner would certainly not significantly affect the veterinary manpower shortage facing New England. Second, signing such an agreement might — as has been New Jersey's experience — further prejudice the remaining institutions against a state's residents since the need for educating those individuals is now being met in another way. (This was briefly reviewed in Chapter 3, page 21.)

The implications for New England and New Jersey thus become critical as potential places for residents of these states increasingly vanish under pressures to serve students who reside in the home state of the veterinary

[6]NEBHE does, however, administer a program to expand higher educational opportunities in various other fields of study through the interstate use of existing higher educational facilities. This program is described in Appendix C.

colleges and through priorities established by contractual obligations between particular institutions and clusters or compacts of states.

> . . . all selectees have been residents of Texas and states which have regional contracts. NOne have come frOm the New England states.
>
> Alvin A. Price. *Dean*
> College of Veterinary Medicine
> Texas A & M University

In a profession where there are (on the average) more than five positions available for every graduate, such increasing denial of opportunity to qualified and motivated young people would appear to fly in the face of the most simple logic.

5. CRITICAL SHORTAGE OF VETERINARIANS

NATIONAL DEFICIT

Approximately 27,000 veterinarians were located in the United States in 1970, although only about 25,500 are estimated to have been active in their profession. Stated another way, there were about 13.2 veterinarians in the nation per 100,000 population. Based upon the current supply and demand, as well as new developments in veterinary medicine, however, it is anticipated that by 1980 there should be 17.5 veterinarians per 100,000 population[7] or over 41,000 veterinarians to serve an estimated U.S. population of 237 million. Given present and projected educational capabilities and future replacement needs due to deaths, it is estimated in Table 10 that only 35,000 active veterinarians will be available by 1980. As Table 11 illustrates, this will result in a national shortage of at least 6,000 professionally prepared personnel in 1980.

Table 10. Estimated Supply of Veterinarians in the United States, 1970-80[1]

Year	*Graduates of U.S. Veterinary Schools*	*Losses from the Profession due to Deaths*	*Veterinarians, December 31*	
			Total	*Active[2]*
1970	1,206	–	26,900	25,500
1975	6,471[3]	1,870[3]	31,500	29,900
1980	7,627[3]	2,200[3]	36,900	35,000

[1]See Table A-15. The estimates here are rounded and therefore are not equal to those in Table A-15.

[2]Exact data on the number who are active in the profession are not available. The number active is here estimated as 95 percent of the total.

[3]Five-year cumulative figure.

REGIONAL NEED

Projections for New England and New Jersey indicate a situation even more critical than that for the U.S. With a total population of 19 million, there are currently only 1,587 veterinarians or 8.3 per 100,000 population in these

[7]Requirements for veterinary manpower were presented in the AVMA statement in March 1968 at the U.S. Senate Hearings on the Health Manpower Act of 1968. Needs are based on comprehensive studies, such as the 1960 and 1961 reports prepared for the U.S. Senate Committee on Government Operations, which consider the nature and significance of veterinary medicine in relation to veterinary activities of agencies of the Federal, State and local governments, of private groups, and of inter-governmental organizations. Additional information appears in the 1966 Hearings on the Construction of Veterinary Medical Facilities and the Health Professions Personnel bills before the Congress. The findings of the National Academy of Sciences' Committee on Veterinary Medical Research and Education also confirm these overall requirements for veterinary manpower, as illustrated in Table 3.

Table 11. Number of Veterinarians by Year in the United States: Projected Need and Predicted Shortage[1]

Year	U.S. Population (1000's)	Veterinarians Available		Veterinarians per 100,000 Population		Projected Need (17.5/ 100,000)	Net Shortage[2]
		Total	Active	Total	Active		
1900	75,995	9,000 (est.)		11.8			
1910	85,228	12,000 (est.)		14.1			
1920	106,022	12,238		11.5			
1930	123,202	11,093		9.0			
1940	132,165	11,241		8.5			
1950	151,326	14,597		9.6			
1960	179,323	20,456		11.4			
1970	203,235	26,892	25,500	13.2	12.5	35,566	10,066
1975	218,177[3]	31,500	29,900	14.4	13.7	38,181	8,281
1980	236,725[3]	36,900	35,000	15.6	14.8	41,427	6,427

[1]For 1900 to 1960, see VETERINARY MEDICINE EDUCATION IN WISCONSIN, Report of the Study Committee on the Feasibility of Establishing a College of Veterinary Medicine in the State of Wisconsin, February 1969. For 1970, see Table 1. For 1975 and 1980, see Table 10 or A-15.

[2]Projected need minus estimated number of active veterinarians available.

[3]U.S. Bureau of the Census. CURRENT POPULATION REPORTS, Series P-25, No. 470, "Projections of the Population of the United States, by Age and Sex: 1970 to 2020," U.S. Government Printing Office, Washington, D.C., 1971.

seven states — five fewer than the national ratio and less than half as many as prescribed as necessary by the end of the present decade.

Based on national projections for the number of new veterinarians graduating annually and on the assumption that New England and New Jersey can continue to recruit these new veterinarians as successfully as during the recent past, approximately 2,300 veterinarians will be available in this seven-state region in 1980 to serve an estimated population of 22 million[8] (Tables 12 and A-16). While these estimates indicate that 10.5 veterinarians would then be available per 100,000 population in the region — compared to only 6.3 in 1970 — this figure is not only still far short of the 17.5 recommended as necessary by the end of the decade, but is also still well below the 1970 national ratio of 13.2, which ratio will itself have increased to 15.6 by 1980.

Table 12 and Figure 2 show the projected shortage of veterinarians in New England and New Jersey by 1980, given three possible "goals" or assumptions regarding the need for veterinarians in these states. If it is assumed that the recommended national goal of 17.5 veterinarians per 100,000 pop-

[8]While the regional loss to the profession due to deaths was also estimated in deriving these figures (see Table A-16), it was not possible to estimate the migration of veterinarians (which does not affect gross/national projections but which does have a strong influence upon state and regional estimates) due to the lack of data. Furthermore, these figures are based upon the most optimistic estimates of the number of graduating veterinarians and upon a very optimistic assumption regarding the region's ability to attract these graduates. Obviously, therefore, these figures present the best picture of how many veterinarians will be available by 1980, and all subsequent estimates of the shortage of veterinarians likely by 1980 are conservative ones.

Table 12. Number of Veterinarians in New England and New Jersey: Projected Need and Predicted Shortage based upon Three "Needs" Assumptions

New England and New Jersey

Year	Population (1,000's)[1]	Vets. Available[2] Number	Per 100,000	Projected Need to Attain 1970 U.S. ratio (13.2)	Proj. U.S. ratio that Year[3]	Ideal ratio (17.5)[1]	Net Shortage Based Upon Need For 1970 U.S. ratio (13.2)	Proj. U.S. ratio that Year	Ideal ratio (17.5)
1970	19,015	1,587	8.3	2,510	2,510	3,328	923	923	1,741
1975	20,413	1,924	9.4	2,695	2,939	3,573	771	1,015	1,649
1980	22,114	2,316	10.5	2,919	3,450	3,871	603	1,134	1,555

New England Only

Year	Population (1,000's)[1]	Vets. Available[2] Number	Per 100,000	Projected Need to Attain 1970 U.S. ratio (13.2)	Proj. U.S. ratio that Year[3]	Ideal ratio (17.5)[1]	Net Shortage Based Upon Need For 1970 U.S. ratio (13.2)	Proj. U.S. ratio that Year	Ideal ratio (17.5)
1970	11,847	995	8.4	1,564	1,564	2,074	569	569	1,079
1975	12,630	1,213	9.6	1,667	1,819	2,211	454	606	998
1980	13,600	1,468	10.8	1,795	2,122	2,381	327	654	913

[1]See Table A-17.

[2]Actual for 1970. See Table A-16 for 1975 and 1980.

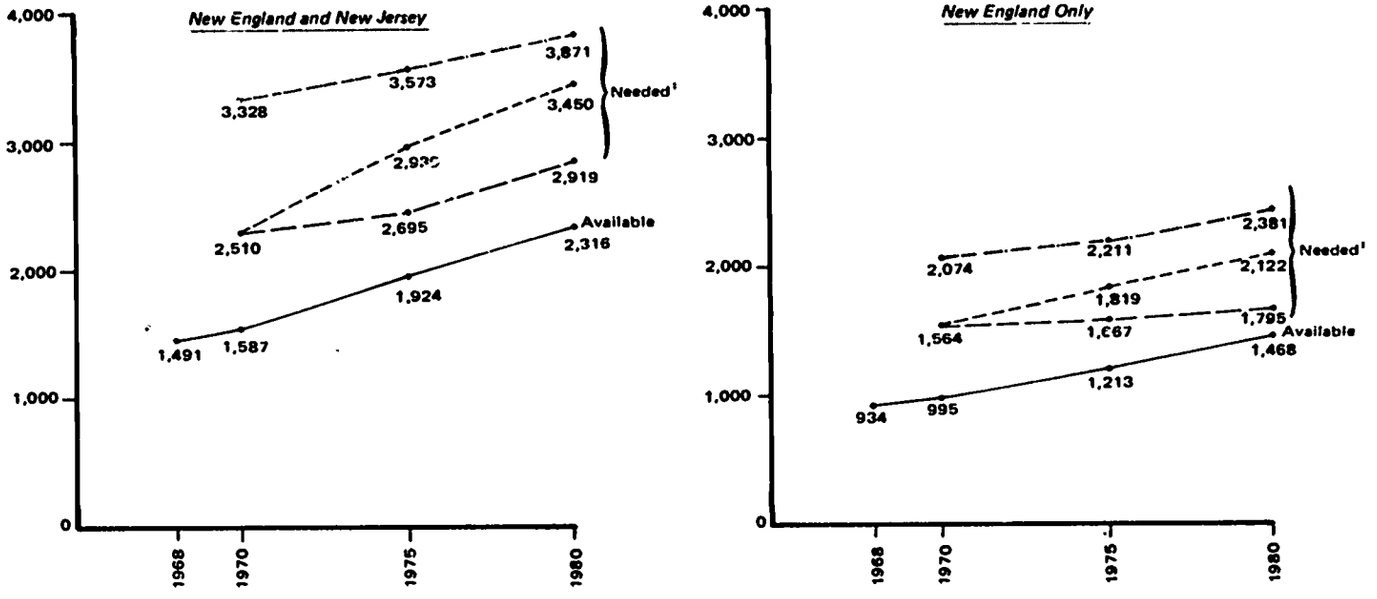
[3]See Table 11. Based upon estimated total veterinarians to be available in the U.S.: 13.2 veterinarians per 100,000 population for 1970; 14.4 for 1975; and 15.6 for 1980.

ulation should also pertain in this region by 1980, then 3,871 veterinarians will be required — 1,555 more than are projected will actually be available. On the other hand, if it is assumed that the ratio in the region need only equal the actual national ratio in any given year — even though that average is less than the recommended ratio — then in 1980, 3,450 veterinarians would be necessary to attain the estimated national ratio of 15.6 that year. Under these circumstances, the 2,316 veterinarians projected to be available in New England and New Jersey falls 1,134 short of the goal. Finally, if this region were to set the rather modest goal of attaining the 1970 national average of 13.2 by 1980, a net shortage of 603 veterinarians is projected.

WHAT CAN BE DONE?

As Table 13 shows, over nine percent of the United States population resides in New England and New Jersey, yet under six percent of the nation's veterinarians are practicing in these seven states. Even more disconcerting, however, is the fact that only 54 residents from these states were admitted to a U.S. veterinary school in 1972; and while this represents a modest increase of two over the number admitted in 1970, the actual percent of the U.S. first year students coming from these states actually decreased from 3.6

Figure 2. Number of Veterinarians in New England and New Jersey, 1968-1980



[1]Three different assumptions were applied to calculate need (see Table 12). The first (broken line) was that only the current U.S. ratio of 13.2 veterinarians per 100,000 should be attained in the region. The second (dotted line) was that the estimated U.S. ratio for each year should also pertain in the region: 13.2 in 1970, 14.4 in 1975 and 15.6 in 1980. The third (alternating dots and dashes) was that the ideal ratio, 17.5, should be met.

Table 13. New England and New Jersey Population, Number of Veterinarians and First-year Veterinary Students as a Percent of United States Totals

	Population, 1970 (in Thousands)	*Number of Veterinarians December, 1970*[1]	*Veterinarians Per 100,000 Population 1970*[2]	*First-Year Students*	
				1970-71[2]	*1972-73*[3]
United States	203,185	26,892	13.2	1,430	1,580
New England & New Jersey	19,015	1,587	8.3	52	54
as % of U.S.	9.4	5.9	–	3.6	3.4
New Jersey	7,168	592	8.3	17	24
New England Only	11,847	995	8.4	35	30
as % of U.S.	5.7	3.7	–	2.4	1.9
Connecticut	3,032	256	8.4	8	8
Maine	994	103	10.4	8	3
Massachusetts	5,689	406	7.1	12	11
New Hampshire	738	89	12.1	4	2
Rhode Island	950	49	5.2	1	4
Vermont	445	92	20.7	2	2

[1]See Table 1.

[2]J.A.V.M.A., Vol. 158, No. 4, February 15, 1971.

[3]AVMA. See Table A-12.

percent to 3.4 percent because of the expansion in entering classes during this period.

Unless significantly greater numbers of New England and New Jersey residents are accepted by veterinary schools in the future, regional progress toward the national goal of 17.5 veterinarians per 100,000 population will be increasingly contingent upon the recruitment of persons from outside the region, whether recent graduates or experienced veterinarians. The successful recruitment of such persons will, of course, become increasingly difficult given the national shortage of veterinarians, and a job market which already presents each graduating veterinarian with an average of five openings from which to choose. Even if successful, only modest progress toward the national standard is likely with a shortage of over 1,500 veterinarians predicted in 1980 given the most optimistic assumptions regarding the ability of these seven states to attract new graduates. Indeed, the 2,316 veterinarians who it is estimated will be available in the *seven* states in 1980 would not quite meet the projected need of only the six New England states that year (2,381).

At the conclusion of a two year study of veterinary medical research and education in the United States (which confirmed the anticipated national shortage of veterinarians) a committee of the National Academy of Sciences recently recommended:

> . . . that there be still further expansion of existing colleges or more new ones built, or both, so as to reduce the anticipated deficit. *The need for emergency action later, when the situation may become more acute, can be avoided and considerable financial saving realized by deliberately confronting the facts and taking appropriate, prompt action.* WE FURTHER RECOMMEND that state legislatures and the federal government provide the funds for expansion and improvement of facilities for existing colleges and for sufficient new ones to alleviate the shortage. (Emphasis added.)
>
> *New Horizons for Veterinary Medicine.*
> Committee on Veterinary Medical Research and Education

6. AN ALARMING WASTE

What, then, has been the impact on New England's and New Jersey's aspiring veterinarians of a pattern of access to education wherein:

- Veterinary schools give first preference to state residents;
- Regional agreements reserve most remaining spaces in existing and future schools for residents of particular states;
- Limited state and federal funds severely reduce the possibility of existing institutions being able to significantly increase present enrollments; and
- Proposals for new veterinary schools in a number of states appear to be indefinitely postponed.

2ND IN POPULATION; 47TH IN RESIDENTS ADMITTED

California is the only state with a population in excess of that of the New England states and New Jersey combined. Every individual state with a population of 8 million or greater has its own veterinary school and has had more of its residents entering a veterinary school than New England and New Jersey. Furthermore, as Table 14 shows, several states with populations *significantly lower* than that of New England and New Jersey, e.g. Minnesota, Kansas and Colorado, have their *own* schools of veterinary medicine, and they train more of their own residents each year than the enrollment of New England and New Jersey residents in all 18 veterinary colleges in the nation.

As Table 15 shows, during the period from 1967 to 1969, an average of only .27 entering veterinary students per 100,000 population were from New England or New Jersey. Forty-six individual states exceeded this figure, and the state of Kansas (which has its own veterinary college) ranked first with ten times that number of students (2.73) admitted per 100,000 population.

TWO OFFER RELIEF — BUT FOR HOW LONG?

Most New England and New Jersey residents apply to veterinary programs at Cornell University (New York) and/or the University of Pennsylvania. These schools have offered the greatest hope of acceptance to these aspiring veterinarians in the past and have, in fact, traditionally provided these seven states with a significant share of their veterinary manpower (Table 16). These schools too, however, are constrained as to the numbers of students they can accept.

> During the past eight years we have been able to accept only one out of every seven applicants . . . What it means is that there are a great many young people who would like to study veterinary medicine and who are being denied that opportunity. No Committee on Admissions enjoys the task of shattering the career objectives of six young people for every one that is admitted.
>
> George C. Poppensiek, *Dean*
> New York State Veterinary College
> Cornell University

Table 14. Rank and Population by State (1970), Number of Residents Entering a Veterinary School (1970-71, 1972-73) and Geographical Distribution of Veterinarians in the United States (Dec. 31, 1970)

State[1]	Population 1970[2] Rank	Population 1970[2] Number	Number of Residents Entering a U.S. Veterinary School 1970-71[3]	Number of Residents Entering a U.S. Veterinary School 1972-73[4]	Number of Veterinarians Dec. 31, 1970[5]
CALIFORNIA	1	19,953,134	84	91	2,067
New England and New Jersey	–	19,015,350	52	54	1,587
NEW YORK	2	18,241,266	55	58	1,602
New England	–	11,847,186	35	30	995
PENNSYLVANIA	3	11,793,909	59	82	1,048
TEXAS	4	11,196,730	122	121	1,705
ILLINOIS	5	11,113,976	80	86	1,390
OHIO	6	10,652,017	100	106	1,267
MICHIGAN	7	8,875,083	84	98	1,030
New Jersey	8	7,168,164	17	24	592
Florida	9	6,789,443	30	34	886
Massachusetts	10	5,689,170	12	11	406
INDIANA	11	5,193,669	60	63	831
North Carolina	12	5,082,059	19	23	422
MISSOURI	13	4,677,399	51	62	792
Virginia	14	4,648,494	18	22	590
GEORGIA	15	4,589,575	23	31	642
Wisconsin	16	4,417,933	32	26	694
Tennessee	17	3,924,164	15	20	354
Maryland	18	3,922,399	15	20	668
MINNESOTA	19	3,805,069	48	63	812
Louisiana	20	3,643,180	22	18	319
ALABAMA	21	3,444,165	38	38	459
WASHINGTON	22	3,409,169	29	35	636
Kentucky	23	3,219,311	24	21	366
Connecticut	24	3,032,217	8	8	256
IOWA	25	2,825,041	63	70	1,234
South Carolina	26	2,590,516	12	12	211
OKLAHOMA	27	2,559,253	33	45	437
KANSAS	28	2,249,071	77	69	633
Mississippi	29	2,216,912	19	20	223
COLORADO	30	2,207,259	33	54	614
Oregon	31	2,091,385	14	8	334
Arkansas	32	1,923,295	7	11	219
Arizona	33	1,772,482	10	11	255
West Virginia	34	1,744,237	11	5	93
Nebraska	35	1,483,791	16	25	469
Utah	36	1,059,273	6	8	126
New Mexico	37	1,016,000	10	8	150
Maine	38	993,663	8	3	103
Rhode Island	39	949,723	1	4	49
Hawaii	40	769,913	1	3	71
District of Columbia	–	756,510	2	1	84
New Hampshire	41	737,681	4	2	89
Idaho	42	713,008	12	6	171
Montana	43	694,409	16	13	183
South Dakota	44	666,257	4	11	219
North Dakota	45	617,761	3	6	104
Delaware	46	548,104	3	2	81

Table 14. (continued)

State[1]	Population 1970[2] Rank	Population 1970[2] Number	Number of Residents Entering a U.S. Veterinary School 1970-71[3]	Number of Residents Entering a U.S. Veterinary School 1972-73[4]	Number of Veterinarians Dec. 31, 1970[5]
Nevada	47	488,738	4	2	88
Vermont	48	444,732	2	2	92
Wyoming	49	332,416	0	5	91
Alaska	50	302,173	1	1	25
United States		203,235,298	1,417	1,568	26,892

[1]State with colleges of veterinary medicine in caps.

[2]1970 Census of population. See Table 1.

[3]J.A.V.M.A., Vol. 158, No. 4, February 15, 1971.

[4]AVMA. See Table A-12.

[5]AVMA. See Table 1.

Table 15. Rank and Average Number of Residents per 100,000 Population Entering a U.S. Veterinary School in 1967, 1968 and 1969[1]

State[2]	1969 Population (x 100,000)[3]	Average Number Entering Students Per Year/100,000 Rank	Average Number Entering Students Per Year/100,000 Ratio
KANSAS	22.93	1	2.73
IOWA	27.74	2	2.42
Wyoming	3.15	3	2.09
COLORADO	20.43	4	2.03
Nebraska	14.39	5	1.48
Montana	6.93	6	1.44
MINNESOTA	36.47	7	1.36
OKLAHOMA	25.20	8	1.24
MISSOURI	46.25	9	1.18
INDIANA	50.61	10	1.14
TEXAS	109.77	11	1.09
ALABAMA	35.58	12	1.04
MICHIGAN	87.39	13	.89
Nevada	4.49	14	.89
Idaho	7.03	15	.85
WASHINGTON	32.76	16	.81
Mississippi	23.44	17	.78
OHIO	105.88	18	.71
New Mexico	10.06	19	.69
ILLINOIS	109.91	20	.67
South Dakota	6.56	21	.65
North Dakota	6.27	22	.57
Oregon	20.08	23	.56
Maryland	37.54	24	.53
GEORGIA	45.68	25	.53
Utah	10.34	26	.51
Wisconsin	42.21	27	.47
New Hampshire	7.02	28	.47
Kentucky	32.20	29	.46
Louisiana	37.26	30	.45
Florida	61.51	31	.44
Delaware	5.34	32	.43

Table 15. (continued)

State[2]	1969 Population (X 100,000)[3]	Average Number Entering Students Per Year/100,000 Rank	Ratio
Tennessee	39.75	33	.43
CALIFORNIA	193.00	34	.40
PENNSYLVANIA	117.28	35	.38
South Carolina	26.64	36	.38
Virginia	49.95	37	.36
Arizona	16.63	38	.36
Connecticut	29.63	39	.33
North Carolina	51.22	40	.33
West Virginia	18.02	41	.33
Rhode Island	9.14	42	.32
Arkansas	19.86	43	.31
Maine	9.76	44	.30
NEW YORK	180.78	45	.30
District of Columbia	8.09	–	.28
New Jersey	70.93	46	.27
New England & New Jersey	185.42	–	.27
New England	114.49	–	.26
Vermont	4.25	47	.23
Massachusetts	54.69	48	.19
Hawaii	7.80	49	.16
Alaska	2.74	50	.10
United States	1,998.62	–	.73

[1]Adapted from NEW HORIZONS FOR VETERINARY MEDICINE, National Academy of Sciences, Washington, D.C., 1972.

[2]States with colleges of veterinary medicine in caps.

[3]Estimate, see STATISTICAL ABSTRACT OF THE UNITED STATES, 1970.

As a further example of the increasing difficulty New England and New Jersey residents face in gaining access to veterinary school, it is useful to review recent application and first-year enrollment data for these two schools in particular in more detail.

New England and New Jersey applicants to these institutions face stiff competition from other out-of-state students as well as in-state applicants. In 1971, for example, 157 New England and New Jersey applicants to the University of Pennsylvania School of Veterinary Medicine competed with 198 other out-of-state applicants and 224 in-state applicants. At Cornell, 129 New England and New Jersey applicants competed with 130 other out-of-state applicants and 350 in-state applicants. The University of Pennsylvania could only accept 26 out-of-state students that year (including 14 from New England and New Jersey) in an ente. ing class of 87. Cornell accepted 13 out-

Table 16. Where and When New England and New Jersey Veterinarians Received Their Professional Training, January 1, 1972[1]

Institutions	Total DVM's each inst. Number	%	Year DVM Received 1970+	1960-69	1950-59	1940-49	1930-39	1920-29	1910-19	1900-09
Pennsylvania	353	22.7	38	106	78	66	55	6	3	1
Cornell	343	22.1	34	124	79	59	34	10	3	–
Michigan State	199	12.8	20	74	49	45	7	4	–	–
Ohio State	104	6.7	13	27	17	14	23	8	2	–
Canadian Inst.'s	81	5.2	7	6	23	21	19	3	2	–
Kansas State	67	4.3	10	19	13	13	9	3	–	–
Foreign Inst.'s	63	4.1	1	12	31	17	2	–	–	–
Middlesex[2]	50	3.2	–	–	–	50	–	–	–	–
Illinois	39	2.5	13	21	5	–	–	–	–	–
Iowa State	39	2.5	2	11	7	8	7	3	1	–
Texas A&M	30	1.9	5	3	2	16	4	–	–	–
Colorado State	27	1.7	4	11	10	1	1	–	–	–
Auburn	23	1.5	3	4	7	4	5	–	–	–
Oklahoma State	20	1.3	1	7	12	–	–	–	–	–
Purdue	19	1.2	5	14	–	–	–	–	–	–
Washington State	19	1.2	1	11	4	1	2	–	–	–
Tuskegee	18	1.2	2	15	1	–	–	–	–	–
California	13	0.8	3	7	3	–	–	–	–	–
Georgia	12	0.8	2	7	3	–	–	–	–	–
Missouri	12	0.8	2	8	2	–	–	–	–	–
Minnesota	10	0.6	3	5	2	–	–	–	–	–
Ohio[2]	3	0.2	–	–	–	1	1	–	–	1
Chicago[2]	2	0.1	–	–	–	–	–	–	2	–
Kansas City[2]	2	0.1	–	–	–	–	–	–	2	–
Indiana[2]	1	0.1	–	–	–	–	–	1	–	–
McKillup[2]	1	0.1	–	–	–	–	–	–	–	1
New York – American[2]	1	0.1	–	–	–	–	–	–	1	–
U.S. College of Vet. Surgeons[2]	1	0.1	–	–	–	–	–	–	1	–
TOTAL N.E. & N.J.	1,552		169	492	348	316	169	38	17	3
% Rcvd. Each Year			10.9	31.7	22.4	20.4	10.9	2.4	1.1	0.2
New England Only	971		109	311	202	206	103	24	13	3
% Rcvd. Each Year			11.2	32.0	20.8	21.2	10.6	2.5	1.4	0.3

[1]1972 AVMA DIRECTORY. Includes only those veterinarians who supplied the necessary information. See also Table A-18.

[2]No longer in existence.

of-state (8 from New England and New Jersey) students in an entering class of 65 (Table 17).

Table 17. Student Applications to Cornell University and The University of Pennsylvania, 1971-72[1]

	Pennsylvania		*Cornell*	
	Applications	*Accepted*	*Applications*	*Accepted*
Total	579	87	609	65
In-State	224	61	350	52
Out-of-State	355	26	259	13
New England and New Jersey	157	14	129	8
Connecticut	23	2	26	2
Maine	4	0	10	2
Massachusetts	42	8	33	1
New Hampshire	9	1	10	0
New Jersey	73	3	42	3
Rhode Island	4	0	3	0
Vermont	2	0	5	0

[1]STATEMENT OF NEED FOR VETERINARY MEDICAL EDUCATION IN MASSACHUSETTS, Department of Veterinary and Animal Sciences, College of Agriculture, University of Massachusetts, Amherst, January 12, 1971 (mimeo; updated July 29, 1971). New Jersey data obtained from Cornell University and The University of Pennsylvania in correspondence dated January 13, 1973 and February 9, 1973 respectively.

Furthermore, as Table 18 shows, while the University of Pennsylvania has significantly increased the size of its entering veterinary class over the

Table 18. Composition of Entering Veterinary Classes at Cornell University and The University of Pennsylvania, 1968-69 to 1972-73[1]

	New York State Veterinary College at Cornell University				
	1968	*1969*	*1970*	*1971*	*1972*
Size of Entering Class	60	60	60	65	65
In-State	40	40	45	52	53
Out-of-State	20	20	15	13	12
New England & New Jersey	15	14	11	8	8
New England Only	12	13	9	5	6
New Jersey	3	1	2	3	2

	School of Veterinary Medicine, University of Pennsylvania				
	1968	*1969*	*1970*	*1971*	*1972*
Size of Entering Class	78	78	82	87	101
In-State	43	40	58	61	80
Out-of-State	35	38	24	26	21
New England & New Jersey	17	21	17	14	13
New England Only	9	11	10	11	8
New Jersey	8	10	7	3	5

[1]STATEMENT OF NEED FOR VETERINARY MEDICAL EDUCATION IN MASSACHUSETTS, Department of Veterinary and Animal Sciences, College of Agriculture, University of Massachusetts, Amherst, January 12, 1971 (mimeo); updated August 15, 1972 (departmental memo). New Jersey data obtained from Cornell University and the University of Pennsylvania in correspondence dated January 13, 1973 and February 9, 1973 respectively.

past five years, this has been primarily to accommodate more Pennsylvania residents. And Cornell, which has been able to expand its entering class by only a modest amount, has been forced to significantly cut back the number of out-of-state students admitted, with a further reduction anticipated.

Finally, since most New England and New Jersey residents who apply to the University of Pennsylvania also apply to Cornell, Table 19 presents data on the number of residents from each of these states applying to only the former from 1968-69 to 1972-73. During those five years, both the total number of applicants and the number from New England and New Jersey have doubled. The size of the entering class increased by only about one-third during this period, however, and the number of first year students from New England and New Jersey actually decreased by about one-quarter.

Table 19. New England and New Jersey Residents Applying to and Accepted by The School of Veterinary Medicine at The University of Pennsylvania, 1968-1972[1]

			New England and New Jersey Residents			*New England Residents Only*		
Year	*Total Applications*	*Size of Entering Class*	*Applied*	*Accepted*	*Rejected*	*Applied*	*Accepted*	*Rejected*
1968	363	78	103	17	86	54	9	45
1969	442	78	119	21	98	58	11	47
1970	479	82	129	17	112	70	10	60
1971	579	87	157	14	143	84	11	73
1972	798	101	210	13	197	112	8	104

New England and New Jersey Applicants by State

Year	*CT*	*ME*	*MA*	*NH*	*RI*	*VT*	*NJ*	*Total*
1968	18	4	20	4	6	2	49	103
1969	13	5	25	6	7	2	61	119
1970	18	7	31	4	7	3	59	129
1971	23	4	42	9	4	2	73	157
1972	36	7	45	7	10	7	98	210

[1]STATEMENT OF NEED FOR VETERINARY MEDICAL EDUCATION IN MASSACHUSETTS, Department of Veterinary and Animal Sciences, College of Agriculture, University of Massachusetts, Amherst, January 12, 1971 (mimeo); up-dated August 15, 1972 (departmental memo). New Jersey data obtained from the University of Pennsylvania in correspondence dated February 9, 1973.

Of course, the University of Pennsylvania is still able to accept more students from New England and New Jersey than Cornell University, but it is also more expensive, requiring an estimated total of $5,200 (in 1971-72) for the first year of veterinary college.

> Many more veterinarians will be needed to meet anticipated future needs. Presently only two veterinary schools — University of Pennsylvania and Cornell University — operate in the most densely populated area of the country. Steps must be taken to encourage greater enrollment in veterinary schools, for expansion of this facility at the University of Pennsylvania, and to consider the possible establishment of a third school of veterinary medicine for the eastern seaboard.
>
> *Report of the Governor's Committee on Agriculture*
> Commonwealth of Pennsylvania

GETTING WORSE, NOT BETTER

It is difficult to see how opportunities for New England and New Jersey residents to attend these two schools can be expected to improve. And the national pattern of veterinary school preference for state residents is much more stringent than the admissions policies in New York and Pennsylvania.

Table 20. Number and Percent of First-year Veterinary Students from States with a College of Veterinary Medicine, with a Regional Education Agreement in Veterinary Medicine, and with neither a College nor an Agreement, 1972-1973[1]

States with a College of Vet. Med.	*First-Year Students*	*States with a Reg. Agree. in Vet. Med.*	*First-Year Students*	*States with Neither*	*First-Year Students*
Alabama	38	Alaska	1	*Connecticut*	8
California	91	Arizona	11	O.C.	1
Colorado	54	Arkansas	11	Oelaware	2
Georgia	31	Florida	34	*Maine*	3
Illinois	86	Hawaii	3	*Massachusetts*	11
Indiana	63	Idaho	6	*New Hampshire*	2
Iowa	70	Kentucky	21	*Rhode Island*	4
Kansas	69	Louisiana	18	S. Oakota	11
Michigan	98	Maryland	20	*Vermont*	2
Minnesota	63	Mississippi	20	Wisconsin	26
Missouri	62	Montana	13		
New York	58	Nebraska	25	TOTAL	70
Ohio	106	Nevada	2		
Oklahoma	45	*New Jersey*	24		
Pennsylvania	82	New Mexico	8		
Texas	121	N. Carolina	23		
Washington	35	N. Oakota	6		
		Oregon	8		
TOTAL	1,172	S. Carolina	12		
		Tennessee	20		
		Utah	8		
		Virginia	22		
		W. Virginia	5		
		Wyoming	5		
		TOTAL	326		
% First-Year Students	*74.7*		*20.8*		*4.5*

TOTAL FIRST-YEAR STUOENTS FROM THE 50 STATES ANO O.C.[2] 1,568

[1] AVMA. (See also Table A-12.)

[2] Does not include 3 students from Puerto Rico or 5 from outside the U.S. Also, data on the geographic origin of 4 first-year students were not available.

A much greater capacity to educating veterinarians is needed in the eastern part of the United States. We receive hundreds of inquiries concerning application to the veterinary school each year from residents of eastern seaboard states. Our admissions policies at the present time prevent our consideration for admission of these students

William E. Brock, *Dean*
College of Veterinary Medicine
Oklahoma State University

These and other comments from veterinary medical schools across the country reflect the same pattern of preference for applicants who are state residents — about 75% of their enrollments — or residents of states contracting with the schools for spaces — another 21% of their space (Table 20).

> Eligibility to attend this School of Veterinary Medicine requires residence in one of the six Southeastern states with whom we contract for services.
>
> J E. Greene. *Dean*
> School of Veterinary Medicine
> Auburn University

Table 21. Number of Applications[1] to U.S. Colleges of Veterinary Medicine, 1968-69 to 1972-73[2]

	Applications					*First-Year Enrollment*
Colleges[3]	*1968-69*	*1969-70*	*1970-71*	*1971-72*	*1972-73*	*1972-73*
A	107	135	170	259	376	45
B	262	301	304	300	475	115
C	311	316	350	464	608	93
O	387	489	535	715	675	94
E	341	408	439	460	498	86
F	140	145	181	490	540	76
G	321	354	377	426	531	92
H	201	198	230	248	351	72
I	265	278	289	391	468	116
J	469	503	491	487	620	94
K	350	350	375	428	591	72
L	226	189	202	247	320	73
M	352	491	492	875	870	130
N	333	385	448	609	588	65
O	363	442	479	579	798	103
P	100[4]	100[4]	100[4]	140	184	60
Q	406	307	351	411	574	66
R	443	467	507	500[5]	523	128
TOTAL	5,377	5,858	6,320	8,029	9,590	1,580

[1]Applications, not applicants. While many applicants undoubtedly apply to more than one institution, it is impossible at the present time to determine the (unduplicated) number of applicants.

[2]Obtained from institutions in response to a telephone survey conducted by the New England Board of Higher Education.

[3]Several institutions asked that this data be reported in a confidential manner because of the possibility of misinterpreting application trends at a single institution. Thus, letters are used instead of names to identify colleges.

[4]Actual figure not available. One hundred estimated by NEBHE in light of succeeding experience at this institution.

[5]Actual figure not available. Five hundred estimated by NEBHE based upon number of applications for preceding and succeeding years.

The frustration of the qualified New England or New Jersey applicant is, of course, still further aggravated by the fact that across the nation for every qualified candidate accepted into a professional program, five applications are turned down (Table 21). Furthermore, in supplying data on the number of applicants to the College of Veterinary Medicine at the University of Georgia, Dr. Lester M. Crawford notes that:

These figures do not include any applications from outside the region served by the University of Georgia (Georgia, Maryland, North Carolina, South Carolina and Virginia). Potential applicants from other states and foreign countries are actively discouraged. Nonetheless, the total extra-regional requests for applications totaled 3,246 in 1971.

This pattern too is common at veterinary schools throughout the nation and thus, in addition to those who apply and are rejected, countless others from New England, New Jersey and other states without schools or regional agreements are annually advised not to even submit an application.

REGION'S STUDENTS PENALIZED

The Committee on Veterinary Medical Research and Education of the National Academy of Sciences offered the following comment and recommendation regarding current admissions patterns:

> The resulting uneven distribution is undesirable in the sense that it denies veterinary medical education to many, and that state funds are invested in educating out-of-state students who do not subsequently remain in the state that contributed to their training.
>
> WE RECOMMEND that efforts be made to equalize the opportunity for enrollment. *The wisdom of establishing cooperative programs should be explored. States without colleges of veterinary madicine* and that do not participate in regional compacts *must realize that they penalize prospective veterinary students unless they take positive steps to provide for such education.* A more equal distribution of opportunity would be achieved by full cost reimbursement to educational institutions by the states of origin of the students. (Emphasis added.)

The shortage of professional training opportunities for the residents of New England and New Jersey has created an alarming waste of potential veterinary talent and manpower in these seven states, to say nothing of the almost complete frustration of the professional aspirations of hundreds of qualified young people.

7. NEEDED: A VETERINARY COLLEGE TO SERVE NEW ENGLAND AND NEW JERSEY

STUDENT INTEREST

The numbers of New England and New Jersey students applying to the veterinary programs at Cornell University and the University of Pennsylvania cannot, of course, be construed as a complete description of the number of residents of these states who are interested in a career in veterinary medicine. New England's and New Jersey's colleges and universities offer a full range of programs in agriculture and the physical sciences which serve as appropriate preparation for professional programs in veterinary medicine.[9] There are, therefore, many students who attempt to enter other schools across the country, bleak as their prospects are. More important, perhaps, are those students in undergraduate programs, such as animal science, who are discouraged from even pursuing their career objectives — qualified students whose failure to seek entrance into the veterinary profession is mainly a function of coming from New England or New Jersey and the lack of an appropriate professional program in these states. As one Animal Science department chairman has commented:

> It is our firm conviction that when young scholars are highly motivated and academically qualified they should have an educational vehicle to accomplish their career goals. At the present time, students from New England are seriously prejudiced, and the future looks increasingly grim as these out-of-state schools tend to accept more of their in-state students.
>
> Thomas W. Fox, *Chairman*
> Department of Animal and Veterinary Science
> University of Massachusetts

The history of New England and New Jersey applicants to the University of Pennsylvania veterinary program (Table 19) indicates that, while no one of these states could probably justify a veterinary college for its residents alone, the seven states together could easily provide a qualified student body more than adequate for a regional college's initial entering class. If consideration is also given to the total *potential* pool of applicants — the above group, plus other qualified but discouraged students in agricultural and pre-veterinary programs in New England and New Jersey, plus other undergraduate science majors who might develop an interest in becoming veterinarians, plus residents of other states seeking a career in veterinary medicine — the picture changes appreciably. It is not inconceivable that upward

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[9]The strength of these offerings at public institutions in New England is augmented by the fact that qualified New England residents can easily enroll in the appropriate offerings elsewhere in the region through the New England Regional Student program (described in Appendix C) if they are not available in their own state. This precedent of resource sharing, particularly in agriculture and the sciences, lays strong ground for a regional program in veterinary medicine cooperatively founded and supported.

of 500 applicants would emerge for an entering class of 60 to 80 students, approximating entering classes of other veterinary colleges in the country.[10]

REGIONAL NEEDS

The need and justification for a veterinary medical school to serve New England and New Jersey rests, therefore, on five quite simple premises:

- New England and New Jersey face a critical shortage of veterinarians by 1980.
- Motivated and qualified New England and New Jersey students are currently being denied the opportunity to pursue a career in veterinary medicine.
- The medical/scientific community in the New England states and New Jersey provides not only a foundation for such a college but also the interdisciplinary links necessary for a truly contemporary college of veterinary medicine.
- Practicing veterinarians in these seven states are currently being denied the continuing education programs and referral services that a regional college would provide.
- Shared construction and/or operating costs make such a regional college economically and logistically feasible for these seven states.

NATIONAL SUPPORT

In addition, the veterinary medical school deans around the nation have voiced their support for establishment of a school in the Northeast, indicating no fear of competition and, in fact, some relief at the prospect of no longer having to discourage and/or turn away qualified New England and New Jersey students. For example, Dr. Jack J. Stockton, Dean of the School of Veterinary Science and Medicine at Purdue University, has written:

> Each year we get many applications from what appear to be exceptionally fine students in the New England area. It's rather heartbreaking to have to turn down many of our out-of-state applicants and surely on the basis of need, the desire on the part of students, and the number of well trained and well qualified applicants available it should be perfectly obvious to those in positions making decisions that a school in the New England area would more than repay this investment.

A NECESSITY

Professional training, the continuing education of practicing veterinarians, consultation services and extension activities are clearly best

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[10]Consider Louisiana State University, which hopes to admit its first veterinary class in early 1974. LSU has not yet begun soliciting applications because of the uncertainty of the exact opening date; nonetheless, an average of 15 inquiries is received daily from around the nation.

provided on a local basis. A veterinary college to serve New England and New Jersey would provide essential training opportunities for the seven-state region's current and future practitioners, research vital to the region's health and other necessary veterinary services for the region's citizens. A regional college of veterinary medicine, holding a strong relationship to the existing medical/scientific community, is as necessary as it is logical.

8. RECOMMENDATIONS

Consideration of the status of veterinary medicine in New England and New Jersey clearly points to a need for more veterinarians than can be provided under current conditions. Yet a pool of aspiring veterinarians can be identified in these seven states whose career objectives are thwarted only by the fact that they are New England and New Jersey residents.

It is recommended, therefore:

- *That a regional college of veterinary medicine be established within New England or New Jersey to provide an educational program leading to the doctor of veterinary medicine degree particularly for residents of these seven states.*
- *That the proposed college be cooperatively founded and supported by the New England states and New Jersey.*
- *That the capitalization of the college be a regional effort.*
- *That the operating costs for the college, once established, be shared equitably by the New England states and New Jersey.*
- *That a formula(s) be devised assuring equitable participation by the seven states in capitalization and operational funding of the college.*
- *That the proposed regional college of veterinary medicine be closely allied with a medical school whose library, research and clinical facilities will be available as a necessary complement to the veterinary medical program.*
- *That these allied medical institutions be located so as to facilitate ready accessibility to the region.*
- *That the functions of the proposed veterinary college include, in addition to professional education and research, the continuing education of veterinarians, consultation services, a local referral facility and extension activities.*

Establishment of a college of veterinary medicine to serve New England and New Jersey will necessitate thorough study of a number of factors. It is further recommended, therefore:

- *That the New England Board of Higher Education undertake a study or studies to determine:*
  - *— The optimal location for the college.*
  - *— The capital and operating costs of an appropriate college, taking into account regional needs and current regional resources.*
  - *— Possible sources of funding — state, federal, and private — currently or likely to be available and the pertinent eligibility requirements for such funding.*
  - *— An equitable formula(s) for shared participation in the capitalization and operational funding of the college by the New England states and New Jersey.*
- *That a thorough study of existing veterinary college curricula be conducted through the New England Board of Higher Education to determine*

trends in educational practices. Such a study should be undertaken with a view toward establishing a contemporary program that will afford the college a firm but flexible curriculum to meet the present and future needs of the profession.

Until such a college has been established, New England and New Jersey residents will find it increasingly difficult to gain entry to existing colleges. It is also recommended, therefore:

- *That the New England states, through the New England Board of Higher Education, undertake to secure contractual arrangements with those colleges of veterinary medicine willing to accept New England residents under such arrangements. (Ohio State University, for example, has expressed such willingness. Under the terms of their proposed contract [see Appendix B], however, they will not guarantee a fixed quota of New England residents. Such arrangements, therefore, can at best be seen as a stop-gap measure to provide a minimal increase in the number of educational opportunities open to New England residents until a regional college is established).*
- *That New Jersey continue its own efforts in securing such contractual spaces for its residents (with the same note as above applying).*

Finally, it is recommended:

- *That the New England Board of Higher Education bring the findings and recommendations of the present and all future related reports to the attention of appropriate state and national officials and professional associations, to include:*
  - *Officials in the Department of Health, Education, and Welfare; the Department of Agriculture; and the National Institutes of Health;*
  - *Congressional committees;*
  - *Members of Congress;*
  - *The Governor of each New England state and New Jersey;*
  - *The president of each institution of higher education in these seven states;*
  - *The heads of the higher education planning agencies in these states;*
  - *The deans of the existing and planned colleges of veterinary medicine; end,*
  - *All eppropriate professional end ley organizations.*

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APPENDICES

A. SUPPLEMENTARY TABLES

Table A-1. Cash Receipts from Livestock and Products, 1970 and Value of Livestock and Poultry, January 1, 1971.

State[1]	Cash Receipts from Livestock and Products, 1970[2] ($1,000)	Rank	Value of Livestock & Poultry, Jan. 1, 1971[3] ($1,000)	Rank	Production and Inventory Value of Livestock and Poultry[4] ($1,000)	Rank
United States	29,595,347	–	23,765,015	–	53,360,362	–
New England & New Jersey	648,751	–	301,060	–	949,811	–
New Jersey	96,920	43	48,888	43	145,808	44
New England	551,831	–	252,172	–	804,003	–
Connecticut	102,871	41	43,120	45	145,991	43
Maine	162,128	39	47,229	44	209,357	40
Massachusetts	86,693	44	39,425	46	126,118	45
New Hampshire	41,496	47	21,133	47	62,629	48
Rhode Island	10,659	49	4,732	49	15,391	49
Vermont	147,984	40	96,533	40	244,517	39
ALABAMA	534,547	20	340,727	25	875,274	22
Alaska	3,108	50	3,213	50	6,321	50
Arizona	373,227	26	226,359	35	599,586	31
Arkansas	566,281	19	318,807	29	885,088	21
CALIFORNIA	1,790,167	3	1,142,409	5	2,932,576	3
COLORADO	921,689	10	679,020	12	1,600,709	12
Delaware	98,440	42	10,442	48	108,882	46
District of Columbia	–	–	–	–	–	–
Florida	395,644	25	335,432	26	731,076	26
GEORGIA	710,612	17	407,018	22	1,117,630	17
Hawaii	41,097	48	50,487	42	91,584	47
Idaho	304,337	30	366,144	24	670,481	28
ILLINOIS	1,298,782	7	761,468	11	2,060,250	9
INDIANA	838,149	11	497,060	18	1,335,209	14
IOWA	2,856,412	1	1,763,270	2	4,619,682	1
KANSAS	1,223,200	8	1,182,068	4	2,405,268	6
Kentucky	513,744	21	526,737	16	1,040,481	18
Louisiana	275,667	32	294,361	30	570,028	33
Maryland	267,853	34	109,849	39	377,702	37
MICHIGAN	482,568	23	381,263	23	863,831	25
MINNESOTA	1,373,087	6	911,149	9	2,284,236	7
Mississippi	513,168	22	438,801	20	951,969	20
MISSOURI	1,128,560	9	1,001,454	7	2,130,014	8
Montana	365,990	28	658,758	13	1,024,748	19
Nebraska	1,445,488	4	1,263,450	3	2,708,938	4
Nevada	65,975	46	124,668	38	190,643	41
New Mexico	369,937	27	254,206	33	624,143	30
NEW YORK	815,015	13	554,873	14	1,369,888	13
North Carolina	625,072	18	243,827	34	868,899	24
North Dakota	263,214	35	446,336	19	710,250	27
OHIO	768,127	16	513,077	17	1,281,204	16
OKLAHOMA	824,051	12	856,759	10	1,680,810	11
Oregon	268,127	33	319,064	28	587,191	32
PENNSYLVANIA	777,152	15	527,971	15	1,305,123	15
South Carolina	180,337	38	124,898	37	305,235	38
South Dakota	811,484	14	935,622	8	1,747,106	10
Tennessee	438,083	24	433,432	21	871,515	23
TEXAS	1,945,745	2	2,138,620	1	4,084,365	2
Utah	182,469	37	200,606	36	383,075	36
Virginia	334,692	29	293,174	31	627,866	29
WASHINGTON	291,086		278,918	32	570,004	34

Table A-1. (continued)

State[1]	Cash Receipts from Livestock and Products, 1970[2] ($1,000)	Rank	Value of Livestock & Poultry, Jan. 1, 1971[3] ($1,000)	Rank	Production and Inventory Value of Livestock and Poultry[4] ($1,000)	Rank
West Virginia	84,486	45	87,095	41	171,581	42
Wisconsin	1,379,087	5	1,120,160	6	2,499,247	5
Wyoming	199,940	36	335,387	27	535,327	35

[1]States with colleges of veterinary medicine in caps.

[2]FARM INCOME SITUATION JULY 1971, Economic Research Service, U.S.O.A. Includes meat animals, dairy products, poultry and eggs, etc.

[3]1971 LIVESTOCK AND POULTRY INVENTORY, Statistical Reporting Service, U.S.D.A. Aggregate values for five species: cattle, hogs, sheep, chickens, and turkeys; excludes turkeys for Arizona, Florida, Idaho, Montana, New Mexico, Wisconsin and Wyoming to avoid disclosing individual operations. Hog and pig values of December 1, 1970.

[4]Combined cash receipts from livestock and products (1970) and value of livestock and poultry (January 1, 1971).

Table A-2. Number and Value of Livestock and Poultry on New England and New Jersey Farms, January 1, 1971[1,2]

	Number of Head on Farms, in Thousands						
	Cattle and Calves	Hogs and Pigs[1]	Sheep and Lambs	Chickens	Turkeys	Total, Three Species[3]	Total, Five Species[4]
United States	114,568	67,540	19,560	442,783	7,462	201,668	651,913
New England and New Jersey	933	257.5	49.7	23,715	39.7	1,240	24,995
New Jersey	125	121.0	8.5	4,451	10.0	255	4,716
New England Only	808	136.5	41.2	19,264	29.7	985	20,279
Connecticut	119	9.5	4.8	4,949	5.0	133	5,087
Maine	141	10.0	15.0	8,459	–	166	8,625
Massachusetts	114	89.0	8.1	2,831	19.3	211	3,061
New Hampshire	71	12.0	5.3	1,801	4.1	88	1,893
Rhode Island	12	10.0	1.8	460	.8	24	484
Vermont	351	6.0	6.2	764	.5	363	1,128
	Value, in Thousands of Dollars						
	Cattle and Calves	Hogs and Pigs[1]	Sheep and Lambs	Chickens	Turkeys	Total, Three Species[3]	Total, Five Species[4]
United States	21,146,490	1,578,677	462,906	537,352	39,590	23,188,073	23,765,015
New England and New Jersey	251,365	7,475	974	40,972	274	259,814	301,060
New Jersey	37,500	3,570	191	7,567	60	41,261	48,888
New England Only	213,865	3,905	783	33,405	214	218,553	252,172
Connecticut	33,320	271	91	9,403	35	33,682	43,120
Maine	33,135	305	255	13,534	–	33,695	47,229
Massachusetts	31,350	2,537	162	5,237	139	34,049	39,425
New Hampshire	17,750	360	111	2,882	30	18,221	21,133
Rhode Island	3,540	255	34	897	6	3,829	4,732
Vermont	94,770	177	130	1,452	4	95,077	96,533

[1]Hogs and pigs as of December 1, 1970.

[2]1971 LIVESTOCK AND POULTRY INVENTORY, Statistical Reporting Service, U.S.D.A.

[3]Includes cattle, hogs and sheep.

[4]Includes cattle, hogs, sheep, chickens, and turkeys.

Table A-3. New England and New Jersey Cash Receipts from Farm Marketing, 1970[1]

	Livestock and Products		Crops		Total
	($1,000)	% Total	($1,000)	% Total	($1,000)
United States	29,595,347	60.1	19,635,874	39.9	49,231,221
New England and New Jersey	648,751	60.2	429,233	39.8	1,077,984
New Jersey	96,920	38.8	152,838	61.2	249,758
New England Only	551,831	66.6	276,395	33.4	828,226
Connecticut	102,871	61.7	63,967	38.3	166,838
Maine	162,128	63.7	92,291	36.3	254,419
Massachusetts	86,693	51.4	81,904	48.6	168,597
New Hampshire	41,496	76.2	12,931	23.8	54,427
Rhode Island	10,659	51.1	10,194	49.5	20,853
Vermont	147,984	90.7	15,108	9.3	163,092

[1]FARM INCOME SITUATION JULY 1971, Economic Research Service, U.S.D.A.

Table A-4. New England and New Jersey Cash Receipts from Livestock and Livestock Products, by Commodity, 1970[1]

(In Millions of Dollars)

Commodity	New England and New Jersey[2]	N.J.	New England[2] Only	Conn.	Maine	Mass.	N.H.	R.I.	Vt.
Milk	338.7	46.9	291.8	47.1	42.2	48.3	23.3	5.2	125.8
Eggs	167.6	27.6	140.0	41.9	56.4	21.4	12.0	3.4	4.8
Broilers	59.8	2.4	57.4	3.8	51.8	1.3	.3	.3	.01
Cattle and Calves	52.6	9.4	43.2	6.6	8.1	7.3	4.1	1.0	16.2
Hogs	13.1	6.3	6.8	.6	.5	4.1	.7	.4	.4
Chickens, excl. Broilers	7.3	1.0	6.3	1.8	2.5	.9	.6	.2	.2
Turkeys	3.4	.8	2.6	.7	.04	1.6	.2	.08	.06
Sheep and Lambs	.5	.07	.4	.05	.2	.09	.04	.02	.06
Other Livestock/Poultry	5.8	2.4	3.4	.5	.4	1.7	.3	.1	.4
TOTAL RECEIPTS[2]	648.8	96.9	551.8	102.8	162.1	86.7	41.5	10.7	148.0

[1] FARM INCOME REPORT: 1970 NEW ENGLAND FARM INCOME, Statistical Reporting Service, New England Regional Office, U.S.D.A., August 1971. FARM INCOME SITUATION JULY 1971, Economic Research Service, U.S.D.A. 1971 NEW JERSEY AGRICULTURAL STATISTICS, New Jersey Crop Reporting Service, New Jersey Dept. of Agriculture, August 1972.

[2] Rows and columns may not total exactly due to rounding.

Table A-5. Number of Livestock in New England and New Jersey, 1970

State	Number of Livestock, in Thousands				
	Horses[1]	Cattle & Calves[2]	Hogs & Pigs[2]	Sheep & Lambs[2]	Total
United States	7,200	114,568	67,540	19,560	208,868
New England & New Jersey	144.3[3]	933	257.5	49.7	1,384.5[3]
New Jersey	32.8	125	121	8.5	287.3
New England Only	111.5[3]	808	136.5	41.2	1,097.2[3]
Connecticut	40.0	119	9.5	4.8	173.3
Maine	25.0	141	10.0	15.0	191.0
Massachusetts	23.0	114	89.0	8.1	234.1
New Hampshire	NA[4]	71	12.0	5.3	88.3
Rhode Island	6.0	12	10.0	1.8	29.8
Vermont	17.5	351	6.0	6.2	380.7

[1]Estimated U.S. Figure for 1970, see Lisack, VETERINARY MEDICAL MANPOWER TRENDS IN INDIANA WITH SOME NATIONAL COMPARISONS, Manpower Report 71-2, Office of Manpower Studies, Purdue University, 1971. New England and New Jersey figures provided by the respective state departments of agriculture.

[2]Cattle and calves, sheep and lambs as of January 1, 1971; Hogs and pigs as of December 1, 1970. See 1971 LIVESTOCK AND POULTRY INVENTORY, Statistical Reporting Service, U.S.D.A.

[3]Does not include the horse count for New Hampshire, which has not conducted a recent horse census.

[4]Not available.

Table A-6. Ratio of Veterinarians to Livestock in New England and New Jersey, 1970

State	Number of Veterinarians[1]	Number of Livestock[2]	Ratio of Veterinarians to Livestock[3]
United States	26,892	208,868	1:7,767
New England & New Jersey	1,587	1,384.5[4]	1:872
New Jersey	592	287.3	1:485
New England Only	995	1,097.2[4]	1:1,103
Connecticut	256	173.3	1:677
Maine	103	191.0	1:1,854
Massachusetts	406	234.1	1:577
New Hampshire	89	88.3[4]	1:992
Rhode Island	49	29.8	1:608
Vermont	92	380.7	1:4,138

[1]AVMA. See Table 1.

[2]Including horses, cattle and calves, hogs and pigs, and sheep and lambs. See Table A-5.

[3]Based upon the total number of veterinarians available. As Table A-9 shows, however, the number of veterinarians engaged in primarily large animal practice actually varies a great deal from state to state, closely in relationship to the number of livestock present in the state.

[4]New Hampshire has not conducted a recent horse census. Thus the horse count for New Hampshire is not included in this figure.

Table A-7. Estimate of the Number of Small Companion Animals in New England and New Jersey, 1970

State	Population, 1970	Number of Small Animals[1]		
		Dogs	Cats	Both
New England and New Jersey	19,015,350	2,089,599	1,125,170	3,214,769
New Jersey	7,168,164	787,710	424,152	1,211,862
New England only	11,847,186	1,301,889	701,018	2,002,907
Connecticut	3,032,217	333,211	179,421	512,632
Maine	993,663	109,194	58,797	167,991
Massachusetts	5,689,170	625,184	336,637	961,821
New Hampshire	737,681	81,064	43,650	124,714
Rhode Island	949,723	104,365	56,197	160,562
Vermont	444,732	48,871	26,316	75,187

[1]Based on Lisack's calculations that in 1970 the ratios of small animals to man were 1 dog per 9.1 people and 1 cat per 16.9 people for the U.S. See VETERINARY MEDICAL MANPOWER TRENDS IN INDIANA WITH SOME NATIONAL COMPARISONS, Manpower Report 71-2, Office of Manpower Studies, Purdue University, 1971.

Table A-8. Ratio of Veterinarians to Small Animals in New England and New Jersey, 1970

Type Animals	Number of Animals			Ratio of Veterinarians to Animals[3]		
	N.E. & N.J.[1]	N.E. Only[1]	U.S.[2]	N.E. & N.J.	N.E. Only	U.S.
Dogs	2,089,599	1,301,889	22,497,123	1:1,317	1:1,308	1:837
Cats	1,125,170	701,018	12,152,186	1:709	1:705	1:452
Dogs and Cats	3,214,769	2,002,907	34,649,309	1:2,026	1:2,013	1:1,288

[1]See Table A-7.

[2]J. P. Lisack. See VETERINARY MEDICAL MANPOWER TRENDS IN INDIANA WITH SOME NATIONAL COMPARISONS, Manpower Report 71-2, Office of Manpower Studies, Purdue University, 1971.

[3]Based on the availability of 1,587 veterinarians in New England and New Jersey, 995 in New England only and 26,892 in the United States (see Table 1).

Table A-5 Type of Practice of Veterinarians in New England, New Jersey and the United States, January 1970[1]

	Private Practice			Other Practice					
	Large Animal	*Mixed Practice*	*Small Animal*	*Regulatory Veterinary Medicine*	*Veterinary Public Health*	*Military Veterinary Services*	*Other Classes[2]*	*Unknown*	*Total*
United States	1,416	7,424	5,758	1,443	360	833	3,790	970	21,994
% of total	*6.4*	*33.8*	*26.2*	*6.6*	*1.6*	*3.8*	*17.2*	*4.4*	*100.0*
New England & New Jersey[3]	54	375	541	72	14	32	238	46	1,372
% of total	*3.9*	*27.3*	*39.4*	*5.3*	*1.0*	*2.3*	*17.4*	*3.4*	*100.0*
New Jersey	23	80	231	23	8	14	112	17	508
% of total	*4.5*	*15.8*	*45.5*	*4.5*	*1.6*	*2.8*	*22.0*	*3.3*	*100.0*
New England Only	31	295	310	49	6	18	126	29	864
% of total	*3.6*	*34.1*	*35.9*	*5.7*	*.7*	*2.1*	*14.6*	*3.3*	*100.0*
Connecticut	5	77	98	7	2	1	33	9	232
% of total	*2.2*	*33.2*	*42.2*	*3.0*	*.9*	*.4*	*14.2*	*3.9*	*100.0*
Maine	1	42	9	13	1	1	11	5	83
% of total	*1.2*	*50.6*	*10.8*	*15.7*	*1.2*	*1.2*	*13.3*	*6.0*	*100.0*
Massachusetts	8	83	165	15	2	15	57	7	352
% of total	*2.3*	*23.6*	*46.9*	*4.2*	*.6*	*4.2*	*16.2*	*2.0*	*100.0*
New Hampshire	7	41	17	2	–	1	10	3	81
% of total	*8.6*	*50.6*	*21.0*	*2.5*	–	*1.2*	*12.4*	*3.7*	*100.0*
Rhode Island	2	9	14	2	1	–	7	–	35
% of total	*5.7*	*25.7*	*40.0*	*5.7*	*2.9*	–	*20.0*	–	*100.0*
Vermont	8	43	7	10	–	–	8	5	81
% of total	*9.9*	*53.1*	*8.6*	*12.3*	–	–	*9.9*	*6.2*	*100.0*

[1] 1970 AVMA DIRECTORY.

[2] Includes retired veterinarians.

[3] See Table A-11 for complete breakdown of New England and New Jersey veterinarians by specialty area.

Table A-10. Type of Employer of Veterinarians in New England and New Jersey, January 1970[1]

Type of Employer	Totals N.E. & N.J.	Totals New England	Conn.	Me.	Mass.	N.H.	R.I.	Vt.	N.J.
Self Employed	709	474	133	45	179	56	17	44	235
Private Practice Employee	195	118	38	8	45	10	5	12	77
College or University	88	69	22	3	29	5	6	4	19
Federal Government	62	41	8	11	13	0	1	8	21
International Government	1	–	–	–	–	–	–	–	1
State/Local Government	42	26	4	4	8	2	3	5	16
Armed Forces	36	21	2	1	16	1	0	1	15
Industry Employee	100	21	8	4	7	2	0	0	79
Retired	30	19	3	1	9	3	1	2	11
Other	42	30	0	1	27	1	1	0	12
Unknown	67	45	14	5	19	1	1	5	22
TOTALS	1,372	864	232	83	352	81	35	81	508

[1]1970 AVMA DIRECTORY.

Table A-11. Specialty Area and Type of Practice of Veterinarians in New England and New Jersey, January 1970[1]

Type of Practice/ Specialty Area	Totals N.E. & N.J.	Totals New England	Conn.	Me.	Mass.	N.H.	R.I.	Vt.	N.J.
Large Animal Practice	54	31	5	1	8	7	2	8	23
Exclusively Bovine	8	5	2	–	–	–	–	3	3
Exclusively Equine	26	13	2	1	4	4	2	–	13
Exclusively Porcine	–	–	–	–	–	–	–	–	–
LA – all species	20	13	1	–	4	3	–	5	7
Mixed Practice	375	295	77	42	83	41	9	43	80
LA – over 50%	52	43	4	7	3	5	–	24	9
LA and SA – 50/50	106	83	21	13	25	8	2	14	23
SA – over 50%	217	169	52	22	55	28	7	5	48
Small Animal Practice SA – exclusively	541	310	98	9	165	17	14	7	231
Regulatory Veterinary Medicine	72	49	7	13	15	2	2	10	23
Veterinary Public Health	14	6	2	1	2	–	1	–	8
Military Veterinary Service	32	18	1	1	15	1	–	–	14
Other Classes	238	126	33	11	57	10	7	8	112
Exclusively Poultry	7	4	1	2	1	–	–	–	3
Anatomy	–	–	–	–	–	–	–	–	–
Biochemistry	4	2	1	–	1	–	–	–	2
Microbiology	11	8	2	–	3	1	2	–	3
Parasitology	4	–	–	–	–	–	–	–	4
Pathology	55	35	14	3	17	–	–	1	20
Pharmacology	3	3	1	–	–	–	–	2	–
Physiology	10	5	–	–	5	–	–	–	5
Radiology	1	1	–	–	1	–	–	–	1
Toxicology	15	4	2	–	2	–	–	–	11
Surgery	8	4	1	–	3	–	–	–	4
Fur Bearing Animals	1	1	–	–	–	1	–	–	–
Lab Animal Medicine	24	17	3	–	9	3	1	1	7
Zoo Animals	–	–	–	–	–	–	–	–	–
Extension	6	4	1	–	1	–	1	1	2
Diagnostic Vet. Med.	4	2	–	1	–	1	–	–	2
Pathology, Avian	11	7	1	4	1	–	1	–	4
Pathology, Clinical	1	1	–	–	1	–	–	–	–
Opthalmology	2	1	–	–	1	–	–	–	1
Nutrition	4	1	–	–	1	–	–	–	3
Clinician	5	2	2	–	–	–	–	–	3
Retired	25	16	2	1	6	3	2	2	9
Other Vet. Med.	37	8	2	–	4	1	–	1	29
Unknown	46	29	9	5	7	3	–	5	17
TOTALS	1,372	864	232	83	352	81	35	81	508

[1]1970 AVMA DIRECTORY. Derived from geographic index of veterinarians based on professional specialty codes reported by individual veterinarians.

Table A-12. Geographic Origin of First-year Students Enrolled in U.S. Colleges of Veterinary Medicine, 1972-73[1]

Student's Home State[2]	All Colleges	Auburn	Tuskegee	California	Colorado State	Georgia	Illinois	Purdue	Iowa State	Kansas State	Michigan State	Minnesota	Missouri	Cornell	Ohio State	Oklahoma State	Pennsylvania	Texas A&M	Washington State
ALABAMA	38	33	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alaska	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Arizona	11	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Arkansas	11	—	2	—	—	—	—	1	—	—	—	—	1	—	—	7	—	—	—
CALIFORNIA	91	—	—	91	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
COLORADO	54	—	—	—	54	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Connecticut	8	—	—	—	—	—	—	2	—	—	1	—	—	1	1	—	3	—	—
District of Columbia	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Delaware	2	—	—	—	—	—	—	—	—	—	1	—	—	1	—	—	—	—	—
Florida	34	22	8	—	—	—	—	—	—	—	—	—	—	1	3	—	—	—	—
GEORGIA	31	—	2	—	—	29	—	—	—	—	—	—	—	—	—	—	—	—	—
Hawaii	3	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Idaho	6	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	5
ILLINOIS	86	—	—	—	—	—	83	—	2	—	—	—	—	—	—	—	—	—	—
INDIANA	63	—	—	—	—	—	—	63	—	—	—	—	—	—	—	—	—	—	—
IOWA	70	—	—	—	—	—	—	—	70	—	—	—	—	—	—	—	—	—	—
KANSAS	69	—	—	—	—	—	—	—	—	69	—	—	—	—	—	—	—	—	—
Kentucky	21	16	1	—	—	—	—	—	—	—	—	—	—	1	3	—	—	—	—
Louisiana	18	4	2	—	—	—	—	—	—	—	—	—	—	—	—	3	—	9	—
Maine	3	—	—	—	—	—	—	—	—	1	1	—	—	1	—	—	—	—	—
Maryland	20	—	4	—	—	12	—	—	—	1	—	—	—	—	1	—	2	—	—
Massachusetts	11	—	—	—	—	—	1	—	—	—	2	—	1	4	—	—	3	—	—
MICHIGAN	98	—	—	—	—	—	—	—	—	—	98	—	—	—	—	—	—	—	—
MINNESOTA	63	—	—	—	—	—	—	—	1	—	—	62	—	—	—	—	—	—	—
Mississippi	20	17	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
MISSOURI	62	—	—	—	—	—	—	—	—	—	1	—	61	—	—	—	—	—	—
Montana	13	—	—	1	5	—	—	—	—	—	—	—	—	—	—	—	—	—	7
Nebraska	25	—	—	—	8	—	—	—	2	10	—	—	3	—	—	2	—	—	—
Nevada	2	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
New Hampshire	2	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—

New Jersey[4]	24	–	–	–	–	–	1	2	3	–	3	–	3	–	5	–	5	–	1
New Mexico	8	–	–	–	5	–	–	–	–	–	–	–	–	–	–	–	–	–	3
NEW YORK	58	–	–	–	–	–	–	–	–	–	–	–	–	53	–	–	5	–	–
North Carolina	23	5	3	–	–	10	–	–	–	–	–	–	–	–	3	2	–	–	–
North Dakota	6	–	–	–	–	–	–	–	2	1	1	2	–	–	–	–	–	–	–
OHIO	106	–	1	–	–	–	–	–	–	–	–	–	–	–	105	–	–	–	–
OKLAHOMA	45	–	–	–	–	–	–	–	–	–	–	–	–	–	–	45	–	–	–
Oregon	8	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	6
PENNSYLVANIA	82	–	–	–	–	–	–	–	–	–	1	–	–	1	–	–	80	–	–
Rhode Island	4	–	–	–	–	–	–	1	–	–	2	–	–	–	–	–	1	–	–
South Carolina	12	–	2	–	–	10	–	–	–	–	–	–	–	–	–	–	–	–	–
South Dakota	11	–	–	–	1	–	–	–	3	6	–	–	1	–	–	–	–	–	–
Tennessee	20	18	1	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–
TEXAS	121	–	1	–	–	–	–	–	1	–	–	–	–	–	–	–	–	119	–
Utah	8	–	–	1	4	–	–	–	–	1	–	–	–	–	–	–	–	–	2
Virginia	22	–	2	–	–	15	–	–	1	–	–	–	–	–	3	–	1	–	–
Vermont[4]	2	–	–	–	–	–	–	1	–	–	1	–	–	–	–	–	–	–	–
WASHINGTON	35	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	35
West Virginia	5	–	1	–	–	–	–	–	–	–	–	–	–	–	3	1	–	–	–
Wisconsin	26	–	–	–	–	–	1	2	7	2	2	9	2	–	–	–	1	–	–
Wyoming	5	–	–	1	3	–	–	–	–	–	–	–	–	–	1	–	–	–	–
Puerto Rico	3	–	1	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–
Outside U.S.	5	–	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total First-Year Students[3]	1,580	115	45	94	93	76	86	72	92	94	116	73	72	65	130	60	103	128	66

[1]AVMA.

[2]States with colleges of veterinary medicine in caps.

[3]Columns may not total due to missing data.

[4]One resident each from New Jersey, New York, and Vermont was also enrolled at the University of Montreal School of Veterinary Medicine, Quebec, Canada.

Table A-13. Number of Graduates from U.S. Veterinary Schools by Years, 1900-1972[1]

1900 – 131	1924 – 128	1948 – 192
1901 – 141	1925 – 126	1949 – 554
1902 – 227	1926 – 121	1950 – 792
1903 – 244	1927 – 109	1951 – 752
1904 – 337	1928 – 116	1952 – 804
1905 – 364	1929 – 124	1953 – 899
1906 – 451	1930 – 170	1954 – 679
1907 – 458	1931 – 189	1955 – 819
1908 – 566	1932 – 232	1956 – 822
1909 – 592	1933 – 233	1957 – 841
1910 – 763	1934 – 268	1958 – 850
1911 – 837	1935 – 324	1959 – 855
1912 – 752	1936 – 277	1960 – 827
1913 – 643	1937 – 274	1961 – 829
1914 – 689	1938 – 376	1962 – 816
1915 – 703	1939 – 424	1963 – 810
1916 – 769	1940 – 452	1964 – 887
1917 – 790	1941 – 511	1965 – 875
1918 – 883	1942 – 542	1966 – 915
1919 – 219	1943 – 812	1967 – 1010
1920 – 394	1944 – 761	1968 – 1076
1921 – 273	1945 – 585	1969 – 1165
1922 – 192	1946 – 548	1970 – 1201
1923 – 223	1947 – 398	1971 – 1240
		1972 – 1245

[1]AVMA.

Table A-14. Number of U.S. Schools of Veterinary Medicine, Students and Graduates: 1949-50 through 1979-80[1]

Academic Year	*Number of Schools*	*Number of Students*		*Number of Graduates*
		Total	*First Year*	
1949-50 ...	17	3,132	–	695
1960-61 ...	18	3,497	983	824
1963-64 ...	18	3,727	1,059	834
1964-65 ...	18	3,864	1,139	874
1965-66 ...	18	4,128	1,243	912
1966-67 ...	18	4,378	1,301	952
1967-68 ...	18	4,615	1,311	1,086
1968-69 ...	18	4,747	1,311	1,166
1969-70 ...	18	4,863	1,339	1,206
Projections:				
1970-71 ...	18	5,057	1,436	1,240
1971-72 ...	18	5,180	1,446	1,252
1972-73 ...	19[2]	5,339	1,511	1,278
1973-74 ...	19	5,709	1,720	1,346
1974-75 ...	19	5,891	1,720	1,355
1975-76 ...	19	6,087	1,735	1,427
1976-77 ...	19	6,228	1,735	1,550
1977-78 ...				1,550
1978-79 ...				1,550
1979-80 ...				1,550

[1]Bureau of Health Professions Education and Manpower Training, National Institutes of Health, U.S. Department of Health, Education and Welfare, Bethesda, Maryland. See NEW HORIZONS FOR VETERINARY MEDICINE, National Academy of Sciences, Washington, D.C., 1972.

[2]The Louisiana State University was originally expected to enroll its first class of veterinary students in 1972-73; that opening is now anticipated for late in the academic year 1973-74.

Table A-15. Estimating the Supply of Veterinarians in the United States, 1970-1980

Year	Graduates of U.S. Veterinary Schools[1]	Losses from the Profession due to Deaths[2]	Net Increase	Total Veterinarians, December 31
1970	1,206	–	–	26,892[3]
1971	1,240	350	890	27,782
1972	1,252	361	891	28,673
1973	1,278	373	905	29,578
1974	1,346	385	961	30,539
1975	1,355	397	958	31,497
1976	1,427	409	1,018	32,515
1977	1,550	427	1,123	33,638
1978	1,550	437	1,113	34,751
1979	1,550	452	1,098	35,849
1980	1,550	466	1,084	36,933

[1]See Table A-14.

[2]Annual deaths were estimated conservatively as 1.3 percent of those in the profession, based on gains and losses between 1964 and 1967 AVMA published totals. See NEW HORIZONS FOR VETERINARY MEDICINE, National Academy of Sciences, Washington, D.C., 1972.

[3]Actual for 1970. See Table 1. Includes active and inactive veterinarians.

Table A-16. Estimating the Supply of Veterinarians in New England and New Jersey, 1970-1980

Year	New Graduates Locating in the Region[1]		Losses from the Profession Due to Death[2]		Net Increase		Total Available Dec. 31	
	N.E. & N.J.	N.E. Only	N.E. & N.J.	N.E. Only	N.E. & N.J.	N.E. Only		
1970	83	54	–	–	–	–	1,587	995
1971	86	55	21	13	65	42	1,652	1,037
1972	87	56	21	13	66	43	1,718	1,080
1973	88	57	22	14	66	43	1,784	1,123
1974	93	60	23	15	70	45	1,854	1,168
1975	94	60	24	15	70	45	1,924	1,213
1976	99	64	25	16	74	48	1,998	1,261
1977	107	69	26	16	81	53	2,079	1,314
1978	107	69	27	17	80	52	2,159	1,366
1979	107	69	28	18	79	51	2,238	1,417
1980	107	69	29	18	78	51	2,316	1,468

[1]The 1972 AVMA DIRECTORY indicates that, among the 1,552 reporting, 169 of the veterinarians in New England and New Jersey had graduated in 1970 or 1971; for New England only, 109 of the 971 reporting had graduated in one of those years (see Table 16). As Table A-14 shows, a total of 1,206 D.V.M.'s were awarded in the United States in 1970 and 1,240 in 1971. Thus, 6.91% of the graduates those two years located in New England or New Jersey; considering New England only, 4.46% of those graduates chose this six-state region. Although these percentages appear to be much higher than those for the 50's or 60's, they are applied here to the estimated number of graduates for 1972 through 1980 (see Table A-15) in order to estimate the number of new veterinarians likely to establish their practice in New England or New Jersey.

[2]Annual deaths were estimated conservatively as 1.3 percent as in Table A-15.

Table A-17. Veterinarians Needed in New England and New Jersey to attain Ratio of 17.5/100,000 Population

State	1970 Actual No. of Vets[1]	1970[2] Population (1,000's)	1970[2] Vets Needed	1975[3] Population (1,000's)	1975[3] Vets Needed	1980[3] Population (1,000's)	1980[3] Vets Needed	1985[3] Population (1,000's)	1985[3] Vets Needed	1990[3] Population (1,000's)	1990[3] Vets Needed
New England and New Jersey	1,597	19,015	3,328	20,413	3,573	22,114	3,871	24,025	4,205	25,887	4,531
New Jersey	592	7,168	1,254	7,783	1,362	8,514	1,490	9,338	1,634	10,152	1,777
New England	995	11,847	2,074	12,630	2,211	13,600	2,381	14,687	2,571	15,735	2,754
Connecticut	256	3,032	531	3,314	580	3,645	638	4,015	703	4,377	766
Maine	103	994	174	1,010	177	1,043	183	1,084	190	1,122	196
Massachusetts	406	5,689	996	6,022	1,054	6,439	1,127	6,907	1,209	7,354	1,287
New Hampshire	89	738	129	814	142	902	158	1,000	175	1,096	192
Rhode Island	49	950	166	992	174	1,053	184	1,119	196	1,181	207
Vermont	92	445	78	478	84	518	91	562	98	605	106

[1] AVMA. See Table 1.

[2] Actual population count.

[3] Projected population (as of 12-6-72) obtained from the U.S. Bureau of the Census, Regional Office, Boston.

Table A-18. Institutions where New England and New Jersey Veterinarians received their Professional Training[1]

Institutions	N.E. and N.J.	N.J.	N.E. only	Conn.	Maine	Mass.	N.H.	R.I.	Vt.
Pennsylvania	353	179	174	47	9	81	20	7	10
Cornell	343	97	246	74	29	64	26	9	44
Michigan State	199	70	129	32	17	51	13	5	11
Ohio State	104	32	72	13	7	39	9	1	3
Canadian Institutions	81	14	67	13	17	13	13	3	8
Kansas State	67	39	28	9	3	10	–	5	1
Foreign Institutions	63	31	32	12	5	10	–	3	2
Middlesex[2]	50	4	46	6	–	37	3	–	–
Illinois	39	10	29	10	4	10	2	1	2
Iowa State	39	21	18	5	1	9	–	2	1
Texas	30	17	13	1	–	6	–	5	1
Colorado State	27	9	18	4	2	10	1	–	1
Auburn	23	11	12	4	–	4	3	1	–
Oklahoma State	20	8	12	2	1	9	–	–	–
Purdue	19	7	12	3	1	5	–	2	1
Washington State	19	6	13	3	1	7	1	1	–
Tuskegee	18	11	7	1	–	6	–	–	–
California	13	3	10	–	–	9	1	–	–
Georgia	12	3	9	1	1	7	–	–	–
Missouri	12	6	6	2	–	3	1	–	–
Minnesota	10	2	8	3	1	3	–	1	–
Ohio[2]	3	–	3	1	–	1	–	–	1
Chicago[2]	2	–	2	1	–	1	–	–	–
Kansas City[2]	2	–	2	–	1	1	–	–	–
Indiana[2]	1	–	1	–	–	1	–	–	–
McKillup[2]	1	–	1	–	–	1	–	–	–
New York American[2]	1	1	–	–	–	–	–	–	–
U.S. College of Veterinary Surgeons[2]	1	–	1	–	–	1	–	–	–
TOTALS	1,552	581	971	247	100	399	93	46	86

[1]1972 AVMA DIRECTORY. Includes only those veterinarians who supplied this information.

[2]No longer in existance.

Table A-19. Rank and Number of Veterinarians by State and Number of Veterinarians per 100,000 Population, 1970, with Rankings for Population (1970), Farm Receipts from Livestock and Products (1970), and Value of Livestock and Poultry (January 1, 1971)

State[1]	Number of Vets December 31, 1970. Rank	Number[2]	Vets Per 100,000 Population[2]	Ranking Among the Fifty States[3] Pop.[4]	Receipts[5]	Value[6]
CALIFORNIA	1	2,667	13.4	1	3	5
TEXAS	2	1,705	15.2	4	2	1
NEW YORK	3	1,602	8.8	2	13	14
New England & New Jersey	–	1,587	8.3	(2)[3]	(18)[3]	(30)[3]
ILLINOIS	4	1,390	12.5	5	7	11
OHIO	5	1,267	11.9	6	16	17
IOWA	6	1,234	43.7	25	1	2
PENNSYLVANIA	7	1,048	8.9	3	15	15

Table A-19. (continued)

State[1]	Number of Vets December 31, 1970. Rank	Number[2]	Vets per 100,000 Population[2]	Ranking Among the Fifty States[3] Pop.[4]	Receipts[5]	Value[6]
MICHIGAN	8	1,030	11.6	7	23	23
New England	–	995	8.4	(3)[3]	(20)[3]	(34)[3]
Florida	9	886	13.1	9	25	26
INDIANA	10	831	16.0	11	11	18
MINNESOTA	11	812	21.3	19	6	9
MISSOURI	12	792	16.9	13	9	7
Wisconsin	13	694	15.7	16	5	6
Maryland	14	668	17.0	18	34	39
GEORGIA	15	642	14.0	15	17	22
WASHINGTON	16	636	18.7	22	31	32
KANSAS	17	633	28.1	28	8	4
COLORADO	18	614	27.8	30	10	12
New Jersey	19	592	8.3	8	43	43
Virginia	20	590	12.7	14	29	31
Nebraska	21	469	31.6	35	4	3
ALABAMA	22	459	13.3	21	20	25
OKLAHOMA	23	437	17.1	27	12	10
North Carolina	24	422	8.3	12	18	34
Massachusetts	25	406	7.1	10	44	46
Kentucky	26	366	11.4	23	21	16
Tennessee	27	354	9.0	17	24	21
Oregon	28	334	16.0	31	33	28
Louisiana	29	319	8.8	20	32	30
Connecticut	30	256	8.4	24	41	45
Arizona	31	255	14.4	33	26	35
Mississippi	32	223	10.1	29	22	20
Arkansas	33	219	11.4	32	19	29
South Dakota	34	219	32.9	44	14	8
South Carolina	35	211	8.1	26	38	37
Montana	36	193	27.8	43	28	13
Idaho	37	171	24.0	42	30	24
New Mexico	38	150	14.8	37	27	33
Utah	39	126	11.9	36	37	36
North Dakota	40	104	16.8	45	35	19
Maine	41	103	10.4	38	39	44
West Virginia	42	93	5.3	34	45	41
Vermont	43	92	20.7	48	40	40
Wyoming	44	91	27.4	49	36	27
New Hampshire	45	89	12.1	41	47	47
Nevada	46	88	18.0	47	46	38
District of Columbia	–	84	11.1	–	–	–
Delaware	47	81	14.8	46	42	48
Hawaii	48	71	9.2	40	48	42
Rhode Island	49	49	5.2	39	49	49
Alaska	50	25	8.3	50	50	50
United States	–	26,892	13.2	–	–	–

[1]States with colleges of veterinary medicine in caps.

[2]See Table 1.

[3]Shown in parentheses for NEW ENGLAND and NEW ENGLAND AND NEW JERSEY are the relative rankings. For example, (2) indicates that only one individual state ranked ahead of the multistate region.

[4]1970 Census of Population. See Table 12.

[5]Farm receipts from livestock and products in 1970. See Table A-1.

[6]Value of livestock and poultry as of January 1, 1971. See Table A-1.

B. SAMPLE MEMORANDUM OF AGREEMENT WITH OHIO STATE UNIVERSITY

MEMORANDUM OF AGREEMENT

THIS AGREEMENT, made and entered into this _____ day of _____, 1970, by and between the GOVERNING BOARD for the STATE OF , party of the first part, and the BOARD OF TRUSTEES of THE OHIO STATE UNIVERSITY, party of the second part,

WITNESSETH, that:

WHEREAS, pursuant to the laws of the State of the Governing Board of has control, management and supervision of the financial, business and educational affairs of ; and

WHEREAS, pursuant to such laws the Governing Board is authorized to contract with any institution outside the State that offers training in Veterinary Medicine, by the terms of which the Governing Board may obligate itself to pay to such institution a stated amount per year for each _____ student the institution will agree to accept for education in Veterinary Medicine; and

WHEREAS, pursuant to the laws of the State of Ohio the Board of Trustees of The Ohio State University has control and supervision of the financial, business and educational affairs of The Ohio State University, and is authorized to receive the payments to be made by the party of the first part as hereinafter mentioned;

NOW, THEREFORE, in consideration of the premises and the further considerations hereinafter mentioned it is mutually agreed by and between the parties hereto as follows:

1. The party of the second part agrees to enroll in its College of Veterinary Medicine those students whose qualifications are judged by The Ohio State University Office of Admissions such as to place them in a high enough priority for admission.

2. The party of the second part agrees to permit any student enrolled under this Agreement to continue his enrollment in its College of Veterinary Medicine until graduation, so long as he maintains the status of a student in good standing according to rules and regulations established for all students by the party of the second part.

3. The party of the first part agrees to pay to the party of the second part the sum of one thousand eight hundred dollars ($1,800) for each student who accepts an appointment for admission by the party of the second part as a student in Veterinary Medicine; and further agrees to pay one thousand eight hundred dollars ($1,800) per year for each student until his graduation for every subsequent school year at the start of which he is duly enrolled by the party of the second part as a student in Veterinary Medicine.

All yearly payments due under the provisions of this paragraph shall be paid to the party of the second part not later than November first of each year.

4. The party of the first part, on or before the first day of April of each year, will submit a certified list of students who in its opinion meet the entrance requirements for the study of Veterinary Medicine established by the party of the second part.

5. The party of the second part shall exercise final and exclusive authority over the admission of students so certified to it by the party of the first part, and may for any reason it deems sufficient refuse admission to any student so certified.

6. The party of the second part agrees to charge each student enrolled under this Agreement only such tuition and fees as are charged by it to students who are residents of Ohio.

7. The obligations of both parties to this Agreement shall at all times be conditioned upon the appropriation by the legislatures of both states of sufficient funds to enable such of the parties hereto to comply with its Agreement as herein set forth.

8. Each party reserves the right to terminate this Agreement as of the last day of June in any year by giving to the other party at least one year's notice of the desire to terminate the Agreement, but any such termination shall not affect the obligations of either party with respect to any student enrolled prior to the effective date of such notice.

IN TESTIMONY WHEREOF, the parties hereto, by proper resolution or order, have approved and ratified this Agreement, and have caused their names to be signed hereunto by their respective executive officers, and their official seals to be affixed hereto and attested by their respective secretaries, this day and year first above written.

GOVERNING BOARD
OF THE STATE OF

By _____

ATTEST: _____
Secretary

BOARD OF TRUSTEES,
THE OHIO STATE UNIVERSITY

By _____

ATTEST: _____
Secretary

C. NEW ENGLAND REGIONAL STUDENT PROGRAM

This Program is a partial answer to the limitations on opportunities for higher education imposed by state boundaries. It represents a serious effort by the six New England states to utilize, in the most economic way possible, all of the higher educational facilities in this region so as to maximize both the quality and accessibility of post-high school training for the region's citizens. In this process the Program not only helps to rationalize the allocation of scarce and costly resources by state governments and educational institutions, but it also directly saves participating students appreciable amounts of money by removing the barriers of state residency regulations and granting common status for tuition assessments at public institutions. At privately controlled institutions, it provides comparable relief to the student through the mechanism of state subsidy for the cost-of-education. It is an excellent example of the positive values of interstate cooperation.

The program has been administered from its beginning in 1957 by the New England Board of Higher Education, the official agency of the New England states for executing the activities authorized by the New England Higher Education Compact. In the course of its existence, the Program has provided the means whereby several thousands of New Englanders have achieved higher education and have thus developed both their own and the region's economic and cultural resources.

The Program operates at four instructional levels and under a variety of ground rules.

It provides access to two-year degree programs at state universities, state colleges and public two-year colleges and institutes. In the case of the state universities and state college, only those curricula not available in a home state are open to the Program. In the case of the public two-year colleges and institutes, *all* study programs are open.

A wide variety of regular baccalaureate degree programs are available at the six state universities, Southeastern Massachusetts University, Lowell Technological Institute and at most of the state colleges in New England on the basis of not being offered in a home state. The same ground-rule applies to the scores of master's and doctoral degree programs open at these same institutions.

In medicine the Program provides quotas of guaranteed places at the College of Medicine of the University of Vermont for qualified students from four of the six states; Connecticut does not participate. Students admitted to this phase of the Program pay only the in-state tuition, while the Board reimburses the University of Vermont for a major share of the cost-of-education.

In dentistry the Program provides for a quota of guaranteed places for students from the State of Maine admitted to the College of Dental Medicine at Tufts University. Participating students are accorded a tuition scholarship

covering a substantial part of that charge, while the Board reimburses Tufts University for part of the cost-of-education.

Persons wishing more details about this Program should contact the Board at its office at 40 Grove Street, Wellesley, Massachusetts 02181.

NOTES