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ABSTRACT

New England faces a critical shortage of over 1,200 veterinarians by 1980. In 1968 there were only 8.2 practicing veterinarians for every 100,000 New Englanders--5 fewer than the national average, and less than half as many as will be needed by the end of the present decade. The major problem arises from the fact that there has been no college of veterinary medicine in the New England states since 1947, and New Englanders applying for admission to colleges in other areas of the country are more often than not turned down because of in-state-preference admission procedures. It is therefore the proposal of this report that the 6 New England states should join forces and provide a college of veterinary medicine for the region. (HS)

A REPORT ON THE NEED FOR A COLLEGE OF VETERINARY MEDICINE IN NEW ENGLAND

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

1972

New England Board of Higher Education
20 Walnut Street
Wellesley, Massachusetts 02181

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Mr. Raymond G. Hewitt, *Director of Research*

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PREFACE

This report is the result of the interests over the past decade of a distinguished group of men and women all of whom have been concerned with the health and well-being of both our human and animal populations in New England. Moreover, they have been concerned with the necessity of providing sufficient educational opportunities for qualified New England students to prepare themselves for the profession of veterinary medicine.

Since the apparent lack of a sufficient number of study opportunities in all of the health professions—dentistry, medicine, nursing, and veterinary medicine—was an important factor in the establishment of the New England Board of Higher Education, it was natural that the Board early concerned itself with this problem. For over a decade, the Board has urged the establishment of a college of veterinary medicine in New England and has been an active participant in discussions among the state university presidents and other concerned citizens regarding the possibilities of such a college. As this report shows, the need for such a college has now become critical.

Because of the Board's past involvement in this matter, representatives of the veterinary medical associations in New England requested a meeting with the Board earlier this year to discuss the progress made toward the establishment of a college of veterinary medicine in the region. This research report was conceived at that meeting, held on May 12, 1971. It was also agreed that an Advisory Committee on Veterinary Medicine should be appointed by the Board to review the manuscript in process, to analyze the implications of the factual data, and to provide guidance for further efforts to establish such a regional college. That Committee was named in July. (See p. ii.)

The Advisory Committee has met and reviewed the findings and recommendations of this report. Its members agree unanimously that the evidence cited here clearly points to the need for more veterinarians in New England than can be expected to become available under existing conditions. They are also concerned over the lack of opportunity for those qualified students who cannot gain entry to existing veterinary programs simply because they are from New England. They have unanimously adopted the recommendations set forth in this report.

The Board extends its thanks to the members of the Advisory Committee for their assistance to date and looks forward to a continued and fruitful association with them. Also of invaluable help in compiling this report were

the deans of the 18 existing colleges of veterinary medicine, representatives of the American Veterinary Medical Association (AVMA), officials at the National Institutes of Health, the regional office of the U. S. Department of Agriculture, and various department chairmen, faculty members, and the pre-veterinary advisors at the six New England state universities. The representatives of the six state veterinary medical associations have not only provided generously of their time and experience, but their associations have underwritten part of the expense of conducting this study and reproducing this report. Finally, a note of thanks is extended to the NEBHE staff, particularly Raymond G. Hewitt and Stephen J. Fischer, who are responsible for compiling and producing this report in fairly short order.

The membership of the Advisory Committee and of the Board includes many distinguished individuals from varied fields of activity. This should give assurance that the recommendations of this report will receive careful consideration by the people of New England. For its part, the Board stands ready to cooperate, within the framework of its stated policy, with those groups working toward a solution of the region's veterinary medical manpower problems.

Through the sponsorship of studies such as this, the New England Board of Higher Education performs one of its primary functions—the identification of problems 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
Director
New England Board of Higher Education

December, 1971

CONTENTS

SUMMARY

New England faces a critical shortage of over 1,200 veterinarians by 1980. In 1968, there were only 8.2 practicing veterinarians for every 100,000 New Englanders—5 fewer than the national average, and less than half as many as will be needed by the end of the present decade. In spite of this shortage, however, hundreds of New England residents are denied the opportunity to attend a college of veterinary medicine each year.

In the face of such needs and demands, it is ironic that New England, where the second veterinary medical school in the nation was founded in 1854, and which is internationally known for its institutions of higher education and its medical / scientific competencies, has not had a college of veterinary medicine within its borders since 1947. This report seeks to document the need for and to present well-founded recommendations for the establishment of such a college on a regional basis—cooperatively founded and supported by the six New England states.

While the veterinarian is popularly thought of as treating companion 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 and veterinarians. The relationship between veterinary and human medicine is thus 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.

In 1968, only 13.4 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 41,000 veterinarians by that date. Yet it is now estimated that only 31,000 of these needed veterinarians will be in practice by 1980—a net shortage of 10,000 veterinarians. New England's share of this national shortage is anticipated to be some 1,200 veterinarians, a figure which alone is greater than the number of practitioners in

the region today. Early signs of this shortage are already evident as approximately five job openings await each current graduate of a veterinary college.

Yet 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 currently can enroll only about 1,400 new students annually; classrooms are filled to capacity and thousands of qualified students are annually being denied a place. Only one new school is under development, in Louisiana, and the anticipated expansion of present colleges is minimal at best. Given the present and planned training opportunities in the nation, there appears little likelihood of meeting the impending regional, let alone national, deficiency of veterinarians unless rapid steps are taken to expand such opportunities.

For every student accepted by each of these veterinary colleges today, five must be turned away. New England 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. Among the 18 colleges of veterinary medicine, only two have regularly offered much hope for aspiring New England veterinarians, those at Cornell University and the University of Pennsylvania. The result of this situation is that very few New Englanders can currently gain access to this training. Scores have their applications denied each year and hundreds are discouraged from even applying.

It is also noteworthy that New York and Pennsylvania, the states where most New Englanders have traditionally gained admission, both have relatively small numbers of their state residents entering veterinary school despite their own low ratios of veterinarians to population. It is questionable how much longer these two states can deny access to their own residents in order to provide training opportunities for others, including New Englanders.

In addition to professional training, New England's citizens and practicing veterinarians 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 diagnosis and treatment of more sophisticated animal diseases and injuries.

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

- New England faces a critical shortage of veterinarians by 1980.

- Motivated and qualified New England students are currently being denied the opportunity to pursue a career in veterinary medicine.
- New England's medical / scientific community provides not only a foundation for such a college, but also the inter-disciplinary links necessary for a truly contemporary college of veterinary medicine.
- New England's practicing veterinarians are currently being denied the continuing education programs and referral services that a local college would provide.
- Shared construction and / or operating costs make such a regional college economically and logistically feasible for the six New England states.

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 New England's critical present and future needs for veterinarians, while affording new training, research, and continuing education opportunities for the 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 to provide professional preparation in veterinary medicine particularly for residents of the six New England states.
- That the proposed college be cooperatively founded and supported by the six New England states.
- That the initial capitalization and continuing operational funding of the college be equitably shared by the six New England states.
- That the proposed regional college of veterinary medicine be closely allied with a medical school whose 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 training and research, continuing education of practicing veterinarians, consultation and referral services, and extension activities.

All of these services are best provided on a local basis. A veterinary college in New England would provide these services to the region's current and future practitioners and thereby ensure better veterinary service for the region's citizens.

Table 1
RANK AND NUMBER OF VETERINARIANS PER 100,000 POPULATION BY STATE, DECEMBER 1968

State[1]	Veterinarians per 100,000 Population: Rank	Veterinarians per 100,000 Population: Ratio	Number of Veterinarians, December 31, 1968[2]	Population July 1, 1968 (1,000's)
IOWA	1	46.5	1,288	2,771
Nebraska	2	36.0	513	1,424
South Dakota	3	35.6	232	651
COLORADO	4	30.4	603	1,986
Wyoming	5	28.9	90	311
KANSAS	6	28.3	640	2,262
Montana	7	28.0	192	686
Idaho	8	25.3	177	699
MINNESOTA	9	22.6	824	3,642
Vermont	10	20.0	85	424
WASHINGTON	11	19.9	639	3,204
Nevada	12	18.7	82	439
OKLAHOMA	13	17.6	435	2,475
MISSOURI	14	17.5	801	4,583
INDIANA	15	16.9	856	5,051
Maryland	16	16.5	608	3,677
Wisconsin	17	16.4	692	4,218
North Dakota	18	16.3	100	614
Oregon	19	16.3	327	2,003
District of Columbia	—	15.1	119	790
New Mexico	20	15.1	149	990
Delaware	21	14.9	78	525
TEXAS	22	14.8	1,593	10,784
Arizona	23	14.3	233	1,631
Utah	24	13.7	141	1,029
CALIFORNIA	25	13.6	2,568	18,918
Florida	26	13.6	821	6,048
GEORGIA	27	13.6	605	4,452
ALABAMA	28	12.9	455	3,522
ILLINOIS	29	12.5	1,368	10,934
Virginia	30	12.3	544	4,412
New Hampshire	31	12.0	84	699
OHIO	32	12.0	1,265	10,564
MICHIGAN	33	11.2	973	8,720
Kentucky	34	11.1	351	3,160
Arkansas	35	10.9	216	1,976
Maine	36	10.4	100	963
Tennessee	37	9.3	366	3,940
Mississippi	38	9.2	214	2,321
NEW YORK	39	9.0	1,623	18,040
PENNSYLVANIA	40	8.9	1,046	11,709
Connecticut	41	8.3	244	2,951
North Carolina	42	8.3	415	5,006
New England	—	8.2	934	11,351
Louisiana	43	8.1	299	3,678
New Jersey	44	7.9	557	7,020
South Carolina	45	7.6	197	2,584
Alaska	46	7.5	18	241
Hawaii	47	7.0	51	727
Massachusetts	48	6.9	377	5,431
West Virginia	49	5.2	93	1,801
Rhode Island	50	5.0	44	883
United States[3]		13.4	26,391	197,571

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

[2]AVMA. See *Health Resources Statistics, 1969*, PHS Pub. No. 1509, National Center for Health Statistics, U. S. Dept. of Health, Education and Welfare, 1970. Includes Federal and non-Federal veterinarians, active and retired.

[3]If the United States population for December 31, 1968 (the date of the veterinarian count) is used instead of the July 1, 1968 figure, the ratio of veterinarians to 100,000 population is actually only 13.1.

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 at least 41,000 veterinarians by 1980 compared to the approximately 26,000 active in the profession in 1970. At present, however, professional training in veterinary medicine is provided by only 18 colleges located in 17 states. Based on the present and anticipated capacity of these schools to train future veterinarians, only 31,000 of the needed 41,000 veterinarians are expected to be available in 1980—a net shortage of 10,000.

As serious as this anticipated national shortage is, however, the situation in New England is even more critical. In 1968, there were only 8.2 veterinarians available for every 100,000 New Englanders—5 fewer than the national average. (See Table 1.) By the end of the present decade, over 2,300 practicing veterinarians will be needed in the region compared to the 934 available in 1968; however, projections show that only 1,100 will be available given present national training capacities—a net shortage of 1,200 veterinarians in New England alone.

The second college of veterinary medicine in the nation was founded in New England in 1854, but the region has not had a training center for veterinary medicine since 1947. (See Table 2.) Thus, although scores of qualified New England students apply to veterinary school annually, most are denied the opportunity to become veterinarians because first priority is given to in-state students by the existing colleges and because of the

Table 2
EXTINCT COLLEGES OF VETERINARY MEDICINE IN NEW ENGLAND

Name	*Established*	*Closed*	*Graduates*
Boston Veterinary Institute	1854	1860	0*
Harvard University	1882	1902	128
Middlesex University (Waltham, Mass.)	1838	1947	243

*Authorities differ as to the exact number of bona fide graduates, if any, of this college.

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 students. The net result is that in the face of a critical shortage of veterinarians in the region, hundreds of New England 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 New England—a deficiency made all the more dramatic by the fact that New England commands one of the most outstanding educational-medical-scientific resources in the nation in its 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 New England.

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. The 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 a better understanding of which contributes to biomedical science and the welfare of mankind.

The protection of livestock and poultry, and in turn the protection of man who relies on these important sources of protein, has long been a 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 alone, veterinarians are responsible for the care of over 20 million head of livestock and poultry valued at over a quarter of a billion dollars and for supervising the inspection of over a half billion dollars worth of livestock and poultry food products annually. (See Tables A-1 to A-4.)

The province of the veterinarian thus can no longer be construed even in the most popular sense as limited to the barnyard. 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 protein per pound 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 becomes 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.

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 contamination 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 1967–68 and has recently been reported as near to the United States as Cuba. Although not communicable to man, this is the most important disease threatening the U. S. swine industry today. Venezuelan Equine Encephalomyelitis did, however, reach the United States earlier this year and is transmissible to man. Born by mosquitoes, this virus killed thousands of horses in the Southwest before being brought under control. Through its research and regulatory efforts, the veterinary profession safeguards this and other nations from the potential hazards of diseases such as these.

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, heart disease, 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.

The private practice of veterinary medicine is, of course, still the role of the majority of veterinarians. (See Table A-7.) Indeed, it is the practitioner who directly protects the animal population, and thereby 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 1 in 4 veterinarians treat small animals exclusively. Although the companion animal 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 a major concern of a growing segment of the nation's population.[1] 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.

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 possible 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 New England's veterinarians. (See Table 3.) However, New England currently has a critical shortage of

[1]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 Lisack, J. P., *Veterinary Medical Manpower Trends in Indiana with Some National Comparisons*, Manpower Report 71-2, Office of Manpower Studies, Purdue University, 1971. (See also Tables A-5 and A-6.)

Table 3
SPECIALTY AREA AND TYPE OF EMPLOYER OF VETERINARIANS IN NEW ENGLAND

Type of Practice/ Specialty Area[1]	*College or University*	*Federal Government*	*State or Local Government*	*Armed Forces*	*Self Employed*	*Private Practice Employee*	*Retired*	*Industry Employee*	*Other*	*Unknown*	*Totals*
Large Animal Practice (LA)	2	—	—	—	23	4	—	—	2	—	31
Exclusively Bovine	—	—	—	—	5	—	—	—	—	—	5
Exclusively Equine	2	—	—	—	9	1	—	—	1	—	13
Exclusively Porcine	—	—	—	—	—	—	—	—	—	—	—
LA — All species	—	—	—	—	9	3	—	—	1	—	13
Mixed Practice (MP)	—	1	—	—	223	58	—	—	1	12	295
LA — over 50%	—	1	—	—	32	9	—	—	—	1	43
LA and SA — 50/50	—	—	—	—	62	16	—	—	1	4	83
SA — over 50%	—	—	—	—	129	33	—	—	—	7	169
Small Animal Practice (SA) SA — exclusively	1	1	2	—	215	55	1	2	20	13	310
Regulatory Veterinary Medicine (REG)	—	30	17	—	1	—	1	—	—	—	49
Veterinary Public Health (PH)	—	1	4	—	1	—	—	—	—	—	6
Military Veterinary Service (MVS)	—	1	—	17	—	—	—	—	—	—	18
Other Classes (OC)	65	7	2	4	4	—	17	17	8	3	126
Exclusively poultry	1	—	1	—	—	—	—	2	—	—	4
Anatomy	—	—	—	—	—	—	—	—	—	—	—
Biochemistry	2	—	—	—	—	—	—	—	—	—	2
Microbiology	4	1	—	—	—	—	2	1	—	—	8
Parasitology	—	—	—	—	—	—	—	—	—	—	—
Pathology	24	2	—	—	1	—	—	5	3	—	35
Pharmacology	2	—	—	—	—	—	—	1	—	—	3
Physiology	3	—	1	1	—	—	—	—	—	—	5
Radiology	—	—	—	—	—	—	—	—	1	—	1
Toxicology	2	—	—	—	—	—	—	2	—	—	4
Surgery	1	—	—	—	1	—	—	—	1	1	4
Fur Bearing Animals	—	—	—	—	—	—	—	1	—	—	1
Lab Animal Medicine	12	—	—	2	1	—	—	1	1	—	17
Zoo Animals	—	—	—	—	—	—	—	—	—	—	—
Extension	3	1	—	—	—	—	—	—	—	—	4
Diagnostic Vet. Med.	1	—	—	—	1	—	—	—	—	—	2
Pathology, Avian	4	1	—	—	—	—	—	2	—	—	7
Pathology, Clinical	—	—	—	—	—	—	—	1	—	—	1
Ophthalmology	—	—	—	—	—	—	—	—	1	—	1
Nutrition	1	—	—	—	—	—	—	—	—	—	1
Clinician	2	—	—	—	—	—	—	—	—	—	2
Retired	—	1	—	—	—	—	15	—	—	—	16
Other Vet. Med.	3	1	—	—	—	—	—	2	—	2	8
Unknown (UNK)	1	—	1	1	7	1	—	1	—	17	29
TOTALS	69	41	26	21	474	118	19	21	30	45	864

[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-member veterinarians who responded to the 1970 Directory verification survey. (See Table 1 for a more accurate count of the number of New England veterinarians and Table A-7 for a breakdown of veterinarians by type of practice, both as of December 31, 1968.)

veterinary manpower, and the prospects of improving this situation appear bleak indeed given current training capacities and the small chance for New Englanders 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 can no longer settle for having among the lowest ratios of veterinarians to population in the nation. (See Table 1.)

VETERINARY MEDICAL EDUCATION

The professional training of U. S. residents to fill the varied and challenging roles of today's veterinarian is currently the responsibility of only 18 colleges of veterinary medicine located in 17 states; together they can currently enroll about 1,400 new students annually. (See Table 4.) 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. None of these 18 existing veterinary colleges anticipate capital programs which will allow enrollment increases sufficient to meet the growing demand for places or the increasing national need for veterinarians.

The only new veterinary school under development in the nation in 1971 is at Louisiana State University, which plans to open in temporary facilities in the fall of 1972 with an entering class of 32; two-thirds of these spaces will be reserved for state residents with the remaining third reserved for the residents of other Southern states. Proposed schools in Florida, Texas, and North Carolina are in various phases of "discussion", but again

Table 4
STUDENTS ENROLLED IN U. S. COLLEGES OF VETERINARY MEDICINE, 1970–71[1]

Colleges	1st Year	2nd Year	3rd Year	4th Year	Total 1970-71	Total 1969-70
Auburn University (Ala.)	105	95	98	101	399	392
Tuskegee Institute (Ala.)	39	22	27	24	112	111
California, University of	85	80	82	83	330	318
Colorado State University	84	78	69	72	303	300
Georgia, University of	69	59	57	60	245	260
Illinois, University of	78	66	65	60	269	265
Purdue University (Ind.)	65	58	56	59	238	232
Iowa State University	80	74	68	71	293	295
Kansas State University	85	80	77	79	321	319
Michigan State University	105	97	93	—	295	283
Minnesota, University of	66	60	61	52	239	235
Missouri, University of	65	60	61	52	238	233
Cornell University (N.Y.)	65	59	60	61	245	221
Ohio State University	120	94	86	81	381	338
Oklahoma State University	49	44	50	46	189	189
Pennsylvania, University of	82	79	79	69	309	301
Texas A&M University	128	127	126	—	381	382
Washington State University	60	60	47	52	219	201
Total Enrollment U. S. Colleges	1,430	1,292	1,262	1,022	5,006	4,875

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

these schools would, if established, undoubtedly serve primarily the Southern states. Finally, a feasibility study for a school of veterinary medicine in Wisconsin was completed in 1969; however, that school was not assigned a high priority for the immediate future.

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 (see next section) 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. 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 veterinarians. (See Table 5.)

> 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

Table 5
STUDENTS FROM HOME STATE AND FROM NEW ENGLAND ENTERING EACH COLLEGE OF VETERINARY MEDICINE, 1970–71[1]

College	*Total First-Year Students*	*First-Year Students From Within State*		*First-Year Students From New England*	
		Number	*Percent*	*Number*	*Percent*
Alabama — Auburn	105	36	34.3	0	—
Alabama — Tuskegee	39	2	5.1	1	2.6
California	85	82	96.5	0	—
Colorado State	84	33	39.3	0	—
Georgia	69	22	31.9	0	—
Illinois	78	76	97.4	1	1.3
Indiana — Purdue	65	58	89.2	1	1.5
Iowa State	80	63	78.8	0	—
Kansas State	85	77	90.6	1	1.2
Michigan State	105	84	80.0	9	8.6
Minnesota	66	47	71.2	0	—
Missouri	65	50	76.9	0	—
New York — Cornell	65	45	69.2	10	15.4
Ohio State	120	95	79.2	2	1.7
Oklahoma State	49	32	65.3	0	—
Pennsylvania	82	58	70.7	10	12.2
Texas A & M	128	119	93.0	0	—
Washington State	60	29	48.3	0	—
TOTAL	1,430	1,008	70.5	35	2.4

[1] *J.A.V.M.A.*, Vol. 158, No. 4, February 15, 1971. (See Table A-10 for a complete breakdown of the geographic origin of 1970-71 first-year students.)

Table 6
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	51	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 number of first-year students as reported in Table 4. NA — not available.

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

Table 7
FIRST-YEAR STUDENT CHARGES AND ENROLLMENT AT U. S. COLLEGES OF VETERINARY MEDICINE, 1970–71

Institution	Tuition		Other Student Charges[1]	First-Year Students		Total Enrollment
	Resident	Non-Resident		Total	N.E. Residents	
Auburn (Ala.)	$ 0	$ 450	$1,075	105	0	399
Tuskegee (Ala.)	450	1,100	580	39	1	112
California	0	1,200	1,040	85	0	330
Colorado State	270	1,152	411	84	0	303
Georgia	0	1,800	927	69	0	245
Illinois	246	954	299	78	1	269
Purdue (Ind.)	0	905	970	65	1	238
Iowa State	0	630	975	80	0	293
Kansas State	556	1,186	574	85	1	321
Michigan State	855	1,938	300	105	9	295
Minnesota	624	1,548	786	66	0	239
Missouri	0	800	1,005	65	0	238
Cornell (N. Y.)	400	600	675	65	10	245
Ohio State	770	1,870	625	120	2	381
Oklahoma State	550	1,800	400	49	0	189
Pennsylvania	1,750	2,350	950	82	10	309
Texas	150	600	443	128	0	381
Washington State	309	522	1,023	60	0	219
Totals				1,430	35	5,006

[1]Fees, equipment, books, and other supplies required of all first-year students.

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 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. (See Table 6.)

Students preparing for veterinary school are generally advised to spend a minimum of three years in a pre-veterinary or pre-medical program.[2] 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.

An in-state student can expect to pay from about $550 to $2,700 annually for his professional training, exclusive of personal expenses; for an out-of-state student, the range is from $1,050 to $3,400 for those gaining admission.[3] (See Table 7.) To the extent that New England students must

[2]One veterinary school already requires three years of college work of all applicants. Also, an increasing percentage of first-year students have actually completed their bachelor's degrees. (See Table 6.)

[3]Out-of-state students enrolled in veterinary colleges through regional agreements (to be described in the next section) are assessed only the in-state tuition. In effect, therefore, the several hundred dollar differential between in- and out-of-state tuition effects only students from states, such as those in New England, with neither a college nor a regional agreement.

travel to find places in programs, their personal costs 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 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.

Veterinary medical education is actually, of course, a three-stage process: pre-veterinary medicine, professional training, and continuing education. In addition to professional training, 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 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 New England state universities 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 on the street through their extension activities. Both of these services are best provided by a local college of veterinary medicine.

Three other important services that are regularly provided by colleges of veterinary medicine are also lacking in New England: 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 often reach serious proportions in New England that offer little interest to these neighboring states; the increasing incidence of heartworm in dogs in New England is a recent 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 must send horses requiring bone and abdominal surgery, small animals requiring cataract and vertebral surgery, and difficult skin and cardiology cases to either Cornell University or the University of Pennsylvania. A veterinary college in New England could provide all of these services to the region's practitioners and thereby ensure better veterinary service for the region's citizens.

REGIONAL AGREEMENTS IN VETERINARY MEDICINE

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 training 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.

Given the bleak prospects for capital expansion reflected in written comments from veterinary school deans across the nation, any increase in the absolute number of spaces available at the existing schools will be minimal at best within the immediate future. And, attempts to increase veterinary training opportunities by direct aid to students, while assisting individual students, do not open up additional spaces. The Study Committee on the Feasibility of Establishing 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.)

In lieu of constructing their own veterinary colleges, therefore, or to forestall such construction, states have moved over the years to establish higher admissions priorities for their residents at the existing colleges through inter-state or regional contracts. (See Table 8 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 training 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, 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 20 years the SREB program has been operating, some 8,000 places have been reserved for veterinary medical students from contracting Southern states and more than 11 million dollars in payment have been transmitted across state lines in the South.

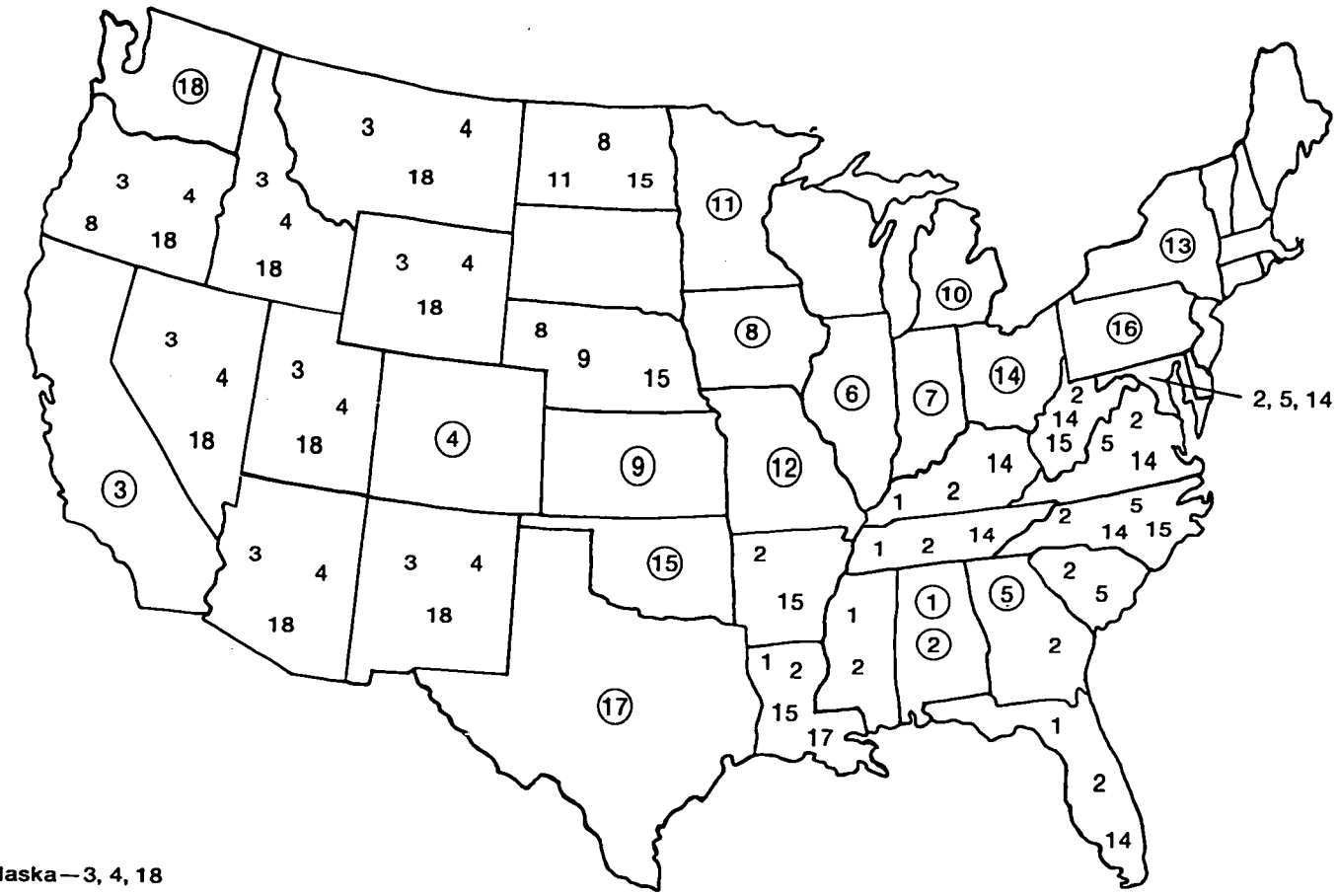
Such monies may be used, however, only for the operation and improvement of instructional programs and / or for increasing student capacity in *existing* facilities. Unfortunately, such agreements are not—nor were they intended to be—a mechanism for expanding facilities; they are simply a means for the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

Table 8
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, 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, 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
10. Michigan State University	
11. University of Minnesota	North Dakota
12. University of Missouri	
13. Cornell University	
14. Ohio State University	Florida, Kentucky, Maryland, 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 Mexico, Oregon, Utah, Wyoming

[1]Louisiana State University has a college of veterinary medicine under development; the school plans to open in temporary quarters in the fall of 1972. 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.

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. (See also Table 8.)

of the SREB has described recent 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 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 have expanded—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 (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. (See Appendix B.)

Although several similar arrangements exist between individual states and individual colleges of veterinary medicine across the nation, no such opportunity is afforded New England students.[4] Ohio State University has expressed a willingness to enter into an agreement with New England states under the same conditions prevailing for the Southern states, but as yet no state in New England has concluded such an agreement. Since, however, quotas are not guaranteed under this agreement, such arrangements can only be seen as stop-gap measures that may—or may not—provide professional training for a few additional New Englanders. The number of students that might be effected would certainly not significantly affect the veterinary manpower shortage facing New England.

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

[4]NEBHE does, however, administer a program to expand higher educational opportunities in other fields of study through the interstate use of existing higher educational facilities. (See Appendix C.)

In a profession where there are an average of 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.

Table 9

NUMBER OF VETERINARIANS BY YEAR IN THE UNITED STATES: PROJECTED NEED AND PREDICTED SHORTAGE[1]

Year	U. S. Population (1,000's)	Veterinarians Available	Veterinarians per 100,000 Population	Projected Need (17.5/100,000)	Net Shortage
1900	75,995	9,000[2]	11.8		
1910	85,228	12,000[2]	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	203,185	26,400	13.0	35,557	9,157
1975	220,000[2]	29,230[3]	13.3	38,500	9,270
1980	235,200[2]	31,221[3]	13.3	41,160	9,939
1985	251,000[2]	32,212[3]	12.8	43,925	11,713

[1]*Veterinary Medicine: Its Requirements and Responsibilities in Relation to the Public Health,* American Veterinary Medical Association, Joint Committee on Veterinary Education, February, 1971. See also *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.

[2]Estimate.

[3]Based upon current and projected output.

FUTURE NEED FOR VETERINARIANS

Approximately 28,000 veterinarians were located in the United States in 1970, although only about 26,000 are estimated to have been active in their profession. Stated another way, there were only about 13 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[5] or about 41,000 veterinarians to serve an estimated population of 235 million. Given present training capabilities—for example, only about 1,200 new veterinarians were graduated in 1970 (see Table A-11)—and future replacement needs due to deaths and retirement, it is estimated that only 31,000 veterinarians will be available by 1980, a shortage of approximately 10,000 professionally prepared personnel. (See Table 9.)

Projections for New England indicate a situation even more critical than that for the nation. With a population of almost 12 million, there are currently about 950 veterinarians, or 8 per 100,000 population, in the region—5 fewer than the national ratio and less than half as many as will

[5]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 intergovernmental organizations. Additional information appears in the 1966 Hearings on the Construction of Veterinary Medical Facilities and the Health Professions Personnel bills before the Congress. Subsequent studies, completed and in progress, have also tended to confirm these overall requirements for veterinary manpower.

Table 10
NUMBER OF VETERINARIANS IN NEW ENGLAND: PROJECTED NEED AND PREDICTED SHORTAGE

Year	N.E. Population (1,000's)	Veterinarians Available	Veterinarians Per 100,000 Population	Projected Need (17.5/100,000)	Net Shortage
1968	11,351	934	8.2		
1970	11,847	950	8.0	2,074	1,124
1975	12,470[1]	1,023[2]	8.2	2,182	1,159
1980	13,371[1]	1,093[2]	8.2	2,340	1,247
1985	14,369[1]	1,127[2]	7.8	2,515	1,388

[1]Estimate.

[2]Based upon the estimated number of veterinarians available in the U. S. (See Table 9), and the assumption that New England can retain the percentage of the national supply of veterinarians practicing in the region in 1968 (3.5%: see Table 11). This latter assumption seems realistic, and perhaps optimistic, since in 1962, the percentage of all U. S. veterinarians (21,565) practicing in New England (774) was actually 3.6 compared to 3.5 six years later in 1968. (See also Table A-12.)

be needed by the end of the present decade. By 1980, it is estimated that New England will require some 2,300 veterinarians to provide adequate professional services for an estimated population of over 13 million. (See Table A-12.) Yet, based on national projections and the assumption that New England will be successful in recruiting enough veterinarians to retain its current share of the national supply, only 1,100 practitioners will be available—a net shortage of 1,200. (See Table 10 and Figure 2.)

As Table 11 shows, 5.7% of the total United States population resides in New England; yet, only 3.5% of the nation's veterinarians are located in the region. Even more disconcerting, however, is the fact that only 35 (2.4%) of the first-year veterinary students in U. S. veterinary schools in 1970 were from New England. Unless significantly greater numbers of New England residents are accepted by veterinary schools in the future, maintenance of the region's current low ratio of 8.2 veterinarians per 100,000 population, let alone progress toward the national goal of 17.5 veterinarians per 100,000 population, is highly problematic.

Table 11
NEW ENGLAND POPULATION, NUMBER OF VETERINARIANS, AND FIRST-YEAR VETERINARY STUDENTS AS PERCENTS OF UNITED STATES TOTALS

	Population, 1970 (in Thousands)	Number of Veterinarians Dec. 1968[1]	Veterinarians Per 100,000 Population, 1968[2]	First-Year Students 1970-71[3]
United States	203,185	26,391	13.4	1,430
New England	11,847	934	8.2	35
N. E. as a % of U. S.	*5.7*	*3.5*	—	*2.4*
Connecticut	3,032	244	8.3	8
Maine	994	100	10.4	8
Massachusetts	5,689	377	6.9	12
New Hampshire	738	84	12.0	4
Rhode Island	950	44	5.0	1
Vermont	445	85	20.0	2

[1]AVMA. See *Health Resources Statistics, 1969*, PHS Pub. No. 1509, National Center for Health Statistics, U. S. Department of Health, Education and Welfare, 1970. Includes Federal and non-Federal, active and retired.

[2]Based on July 1, 1968 population. If December 31, 1968, U. S. population is used, the U. S. ratio is actually only 13.1.

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

Figure 2
NUMBER OF VETERINARIANS IN NEW ENGLAND, 1962–1985

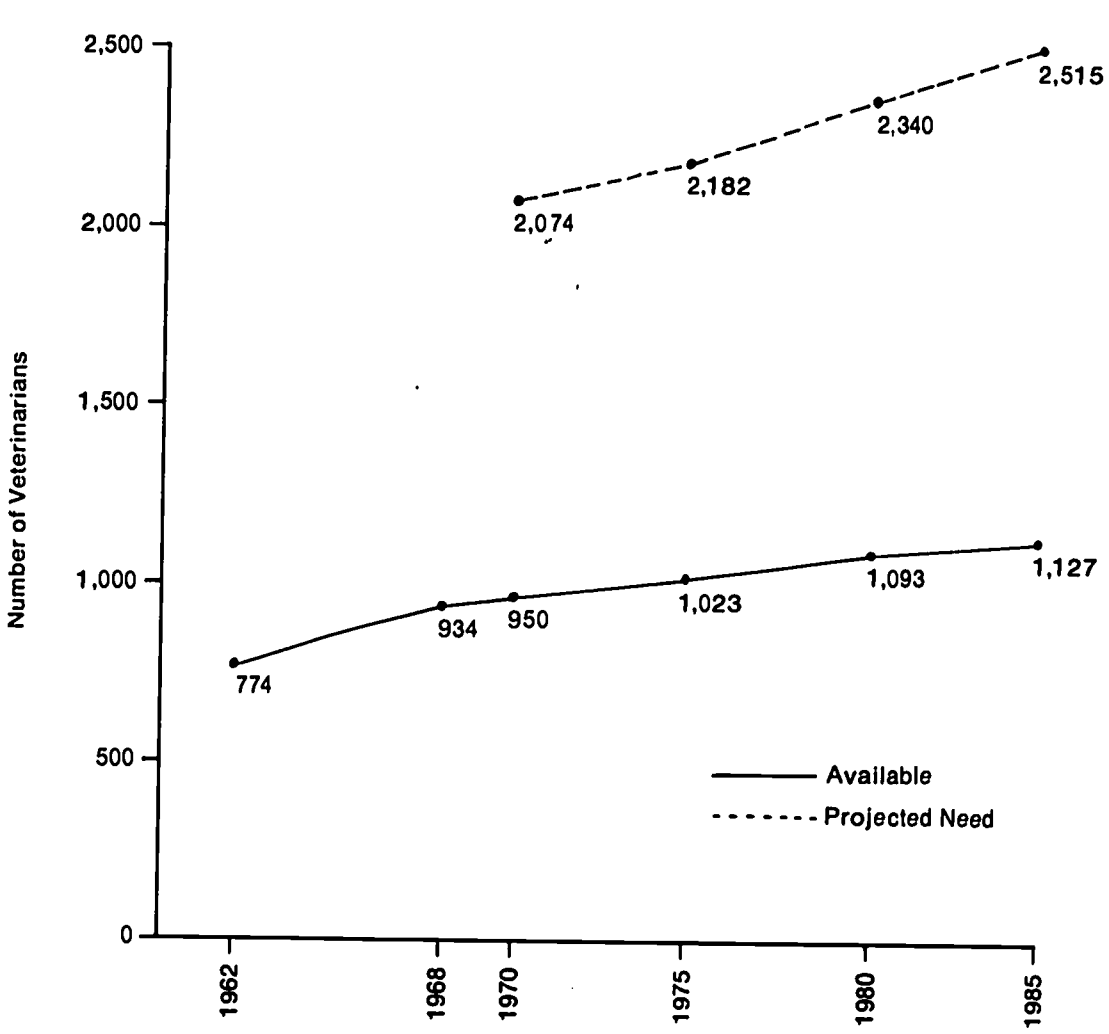


Table 12

RANK AND POPULATION BY STATE (1970), NUMBER OF RESIDENTS ENTERING A VETERINARY SCHOOL (1970–71), AND GEOGRAPHICAL DISTRIBUTION OF VETERINARIANS IN THE UNITED STATES

State[1]	Rank Among the 50 States	Population, 1970	Number of Residents Entering a Veterinary School, 1970-71[2]	Veterinarians Listed, 1970 AVMA Directory	
				Total Listed[3]	AVMA Members
CALIFORNIA	1	19,953,134	84	2,237	2,034
NEW YORK	2	18,190,740	55	1,314	1,203
New England	—	11,847,186	35	864	824
PENNSYLVANIA	3	11,793,909	59	851	763
TEXAS	4	11,196,730	122	1,345	1,211
ILLINOIS	5	11,113,976	80	1,153	1,083
OHIO	6	10,652,017	100	1,020	919
MICHIGAN	7	8,875,083	84	830	758
New Jersey	8	7,168,164	17	508	471
Florida	9	6,789,443	30	708	640
Massachusetts	10	5,689,170	12	352	336
INDIANA	11	5,193,669	60	682	624
North Carolina	12	5,082,059	19	350	315
MISSOURI	13	4,677,399	51	662	595
Virginia	14	4,648,494	18	464	424
GEORGIA	15	4,589,575	23	487	432
Wisconsin	16	4,417,933	24	558	494
Tennessee	17	3,924,164	15	288	265
Maryland	18	3,922,399	15	579	547
MINNESOTA	19	3,805,069	48	644	562
Louisiana	20	3,643,180	22	251	225
ALABAMA	21	3,444,165	38	358	316
WASHINGTON	22	3,409,169	29	517	455
Kentucky	23	3,219,311	24	303	289
Connecticut	24	3,032,217	8	232	226
IOWA	25	2,825,041	63	995	880
South Carolina	26	2,590,516	12	165	152
OKLAHOMA	27	2,559,253	33	365	332
KANSAS	28	2,249,071	77	513	470
Mississippi	29	2,216,912	19	174	156
COLORADO	30	2,207,259	33	520	482
Oregon	31	2,091,385	14	270	247
Arkansas	32	1,923,295	7	171	152
Arizona	33	1,772,482	10	208	184
West Virginia	34	1,744,237	11	76	69
Nebraska	35	1,483,791	16	380	342
Utah	36	1,059,273	6	104	95
New Mexico	37	1,016,000	10	129	121
Maine	38	993,663	8	83	78
Rhode Island	39	949,723	1	35	33
Hawaii	40	769,913	1	52	49
District of Columbia	—	756,510	2	93	89
New Hampshire	41	737,681	4	81	77
Idaho	42	713,008	12	140	134
Montana	43	694,409	16	158	150
South Dakota	44	666,257	4	179	170
North Dakota	45	617,761	3	88	82
Delaware	46	548,104	3	73	64
Nevada	47	488,738	4	72	66
Vermont	48	444,732	2	81	74
Wyoming	49	332,416	8	77	69
Alaska	50	302,173	1	19	19
United States		203,184,772	1,417	21,994	20,023

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

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

[3]*1970 AVMA Directory*. The total number of veterinarians listed consists of all AVMA members and those non-member veterinarians who responded to the 1970 Directory verification survey by October 1, 1969. The total (21,994) represents approximately 80% of the estimated 27,200 veterinarians in the U. S. as of December 31, 1969; 90-95%, or 25,200 of these 27,200 are estimated to have been active veterinarians. (See Table 1 for a more accurate breakdown of veterinarians by state as of December 31, 1968.)

NEW ENGLAND'S PLIGHT

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

- Veterinary schools give preference to state residents;
- Regional agreements reserve most remaining spaces in existing and future schools for residents of particular states;
- Limited funds for capital expansion 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?

New England, as a region, has had fewer residents entering a veterinary school than individual states with comparable populations. (See Table 12.) It is noteworthy that each of these states also has its own veterinary school with which to serve a population comparable to that of New England. Furthermore, several states with populations *lower* than that of New England, e.g., Alabama, Washington, Oklahoma, have their *own* schools of veterinary medicine, and they train more residents each year than the enrollment of New Englanders in all 18 veterinary colleges in the nation.

Most New England residents apply to veterinary programs at Cornell University in New York and/or the University of Pennsylvania. These schools have offered the greatest hope of acceptance to New England residents in the past and have traditionally provided New England with a significant share of its veterinary manpower. (See Table 13.) These schools too, however, are constrained as to the number of students they can accept. Indeed, compared to states of similar populations, New York and Pennsylvania also have relatively fewer residents being admitted to veterinary schools; therefore, Cornell University and the University of Pennsylvania are under increasing pressure to serve state residents first. (See Table 12.)

> 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

> 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 of Agriculture*
> Commonwealth of Pennsylvania

Table 13
WHERE AND WHEN NEW ENGLAND'S VETERINARIANS RECEIVED THEIR PROFESSIONAL TRAINING[1]

Institution	Total D.V.M.'s Each Inst.[2]	Year D.V.M. Received					
		1960-69	1950-59	1940-49	1930-39	1920-29	1910-19
Cornell	208	90	51	38	22	5	2
Pennsylvania	146	47	36	35	22	2	3
Michigan State	113	51	33	22	4	2	1
Canadian Inst's	57	7	15	15	16	2	1
Ohio State	56	14	8	9	19	4	1
Middlesex[3]	46	—	—	45	—	—	—
Foreign Inst's	31	6	13	8	4	—	—
Kansas State	21	10	3	5	3	—	—
Iowa State	19	8	3	2	5	1	—
Colorado State	15	5	8	1	1	—	—
Illinois	15	13	2	—	—	—	—
Washington State	15	10	3	1	1	—	—
California	12	10	2	—	—	—	—
Texas	12	4	—	8	—	—	—
Oklahoma State	11	4	7	—	—	—	—
Minnesota	9	6	3	—	—	—	—
Purdue	9	9	—	—	—	—	—
Auburn	8	1	3	2	2	—	—
Georgia	8	6	2	—	—	—	—
Tuskegee	6	5	1	—	—	—	—
Missouri	3	2	1	—	—	—	—
Chicago[3]	2	—	—	—	—	—	2
Kansas City[3]	1	—	—	—	—	—	1
U. S. College of Vet Surgeons[3]	1	—	—	—	—	—	1
TOTALS	824	308	194	191	99	16	12

[1] *1970 AVMA Directory*. Includes only active veterinarians who supplied information. (See also Table A-13.)
[2] Rows may not total due to missing data on year of graduation.
[3] No longer in existence.

As an example of the increasing difficulty New Englanders face in gaining access to veterinary school, it is useful to review recent experience at these two schools. Between 1965 and 1971, New England applications to the veterinary programs at Cornell University and the University of Pennsylvania have virtually doubled. Today, these applicants face increasing competition from other out-of-state students as well as from in-state applicants. In 1971, 84 New England applicants to the University of Pennsylvania School of Veterinary Medicine competed with 355 other out-of-state applicants and 224 in-state applicants. At Cornell, 87 New England applicants competed with 259 out-of-state applicants and 350 in-state applicants. The University of Pennsylvania could only accept 26 out-of-state students (including 11 from New England) in an entering class of 87. Cornell accepted 13 out-of-state (5 from New England) students in an entering class of 65. (See Tables 14 and 15.) Furthermore, the University of Pennsylvania, while accepting more students from New England than Cornell University, is also more expensive, requiring an estimated total of $5,200 for the first year of veterinary college.

It is difficult to see how opportunities for New England residents to attend these two schools can be expected to improve. Compounding the situation is a national pattern of veterinary school preference for state

Table 14
COMPOSITION OF ENTERING CLASSES AT CORNELL UNIVERSITY AND THE UNIVERSITY OF PENNSYLVANIA, 1969–1971[1]

	Pennsylvania			*Cornell*		
	1969	*1970*	*1971*	*1969*	*1970*	*1971*
Size of Entering Class	78	82	87	60	65	65
Resident	40	54	61	40	47	52
Non-Resident	38	28	26	20	18	13
New England	11	10	11	12	10	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); up-dated July 29, 1971. (See also Tables 15 and A-14.)

residents more stringent than the admissions policies in New York and Pennsylvania.

> 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 responses from veterinary medical schools across the country reflect the same pattern of preference for applicants who are state

Table 15
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 States	84	11	87	5
Connecticut	23	2	26	2
Maine	4	0	10	2
Massachusetts	42	8	33	1
New Hampshire	9	1	10	0
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. (See also Table A-14.)

residents—about 73% of their enrollments—or residents of states contracting with the schools for spaces—another 21% of their space. (See Table 16.)

> 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

The frustration of the qualified New England applicant is even further irritated by the fact that across the nation for every qualified candidate accepted into a professional program, five are turned away. (See Table 17.) And, the situation is even worse for New England's aspiring women veterinarians since women comprised only 12.0% of first-year and only 10.8% of

Table 16

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, 1970–71[1]

States with a College of Veterinary Medicine	*First-Year Students*	*States with a Regional Agreement in Veterinary Medicine*	*First-Year Students*	*States with Neither*	*First-Year Students*
Alabama	38	Alaska	1	*Connecticut*	8
California	84	Arizona	10	D. C.	2
Colorado	33	Arkansas	7	Delaware	3
Georgia	23	Florida	30	*Maine*	8
Illinois	80	Hawaii	1	*Massachusetts*	12
Indiana	60	Idaho	12	*New Hampshire*	4
Iowa	63	Kentucky	24	New Jersey	17
Kansas	77	Louisiana	22	*Rhode Island*	1
Michigan	84	Maryland	15	S. Dakota	4
Minnesota	48	Mississippi	19	*Vermont*	2
Missouri	51	Montana	16	Wisconsin	24
New York	55	Nebraska	16	Total	85
Ohio	100	Nevada	4		
Oklahoma	33	New Mexico	10		
Pennsylvania	59	N. Carolina	19		
Texas	122	N. Dakota	3		
Washington	29	Oregon	14		
Total	1,039	S. Carolina	12		
		Tennessee	15		
		Utah	6		
		Virginia	18		
		W. Virginia	11		
		Wyoming	8		
		Total	293		
% First-Year Students	*73.3*		*20.7*		*6.0*
TOTAL FIRST-YEAR STUDENTS[2]					1,417

[1] *J.A.V.M.A.*, Vol. 158, No. 4, February 15, 1971. (See also Table A-10.)
[2] Data on the geographic origin of 13 students were not available.

Table 17
NUMBER OF APPLICANTS TO 12 U. S. COLLEGES OF VETERINARY MEDICINE, 1969–70 TO 1971–72[1]

Institution	*Applicants*			*First-Year Enrollment*
	1969-70	*1970-71*	*1971-72*	*1970-71*
Auburn	—	—	—	105
Tuskegee	135	170	253	39
California	489	535	715	85
Colorado State	317	350	464	84
Georgia	164	180	260	69
Illinois	—	—	—	78
Purdue	198	238	249	65
Iowa State	354	377	426	80
Kansas State	208	205	182	85
Michigan State	276	320	270	105
Minnesota	—	—	—	66
Missouri	—	—	—	65
Cornell	385	449	609	65
Ohio State	492	637	885	120
Oklahoma State	—	—	—	49
Pennsylvania	442	479	579	82
Texas A & M	—	—	—	128
Washington State	307	351	410	60
Total 12 Colleges	3,767	4,291	5,302	854
Total 18 Colleges				1,430

[1]AVMA. Data had not yet been received from the remaining 6 colleges as of September 8, 1971.

all veterinary students in 1970–71.[6] Yet, such fields as research, laboratory animal practice, and small-animal practice offer major career opportunities for the woman graduate.

A shortage of professional training opportunities for New Englanders has created an alarming waste of potential veterinary talent and manpower in the region, to say nothing of the almost complete frustration of the professional aspirations of a great many young people.

CONCLUSION

The numbers of New England students applying to the veterinary programs at Cornell University and the University of Pennsylvania cannot be construed as a complete description of the number of New Englanders who are interested in a career in veterinary medicine. First, there are those New England students who attempt to enter other schools across the country, bleak as their prospects are. More important, however, are those students in other undergraduate programs, such as animal science, who are discouraged from even pursuing their career objectives—qualified

[6]See *J.A.V.M.A.*, Vol. 158, No. 4, February 15, 1971. The percentage of women admitted to veterinary school appears to be increasing since: (1) in 1970–71, 172 (12.0%) of the 1,430 first-year students were women compared to only 88 (8.6%) of the 1,022 fourth-year students; and (2) 543 (10.8%) of the 5,006 veterinary students were women in 1970–71 compared to 490 (10.0%) of the 4,875 in 1969–70. (See also Table 6.)

students whose failure to seek entrance into the veterinary profession is mainly a function of coming from New England and the lack of an appropriate professional program in this region. As one animal science department chairman has put it:

> 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

New England'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. The strength of these offerings at particular public institutions 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 if they are not available in their own state. (See Appendix C.) This precedent of resource sharing, particularly in agriculture and the sciences, lays strong ground for a New England program in veterinary medicine cooperatively founded and supported.

The history of New England applications to the Cornell University and the University of Pennsylvania veterinary programs indicates that, while no single New England state could probably justify a veterinary college for its residents alone, the region as a whole 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, plus other undergraduate science majors who might develop an interest in becoming veterinarians, plus residents of non-New England states seeking a career in veterinary medicine—the picture changes appreciably. It is not inconceivable that upward of 300 applicants would emerge for an entering class of 60 to 80 students, approximating entering classes of other veterinary colleges in the country.

The need and justification for a veterinary medical school in New England rests, therefore, on five quite simple premises.

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

college economically and logistically feasible for the six New England states.

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 not having to turn away qualified New England students. For example, Dr. Jack J. Stockton, the Acting Dean of the School of Veterinary Science and Medicine at Purdue University writes:

> 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.

Professional training, the continuing education of practicing veterinarians, consultation services, and extension activities are clearly best provided on a local basis. A veterinary college in New England would provide essential training opportunities for the 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.

RECOMMENDATIONS

Consideration of the status of veterinary medicine in New England 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 the region whose career objectives are thwarted only by the fact that they are New England residents.

It is recommended, therefore:

- *That a regional college of veterinary medicine be established within New England to provide professional preparation in veterinary medicine particularly for residents of the six New England states.*
- *That the proposed college be cooperatively founded and supported by the six New England states.*
- *That the capitalization of the college be a regional effort.*
- *That the operating costs for the college, once established, be shared equitably by the six New England states.*
- *That a formula(s) be devised assuring equitable participation by the six 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 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 training and research, the continuing education of prac-*

ticing veterinarians, consultation and local referral services, and extension activities.

Establishment of a college of veterinary medicine for New England 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 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 six New England states.*
- *That a thorough study of existing veterinary college curricula be conducted through the New England Board of Higher Education to determine best current or proposed practice. 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 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 training opportunities open to New England residents until a regional college is established.)*

Finally, it is recommended:

- *That the New England Board of Higher Education bring the findings and recommendations of this present report 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;*
  - *The president of each New England institution of higher education;*
  - *The heads of higher education planning agencies in New England;*
  - *The deans of the existing and planned colleges of veterinary medicine; and,*
  - *All appropriate professional organizations.*

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APPENDIX A

TABLES

Table A-1
CASH RECEIPTS FROM LIVESTOCK AND PRODUCTS, 1970 AND VALUE OF LIVESTOCK AND POULTRY, JANUARY 1, 1971, NEW ENGLAND AND THE UNITED STATES

State[1]	Cash Receipts from Livestock and Products, 1970[2] ($1,000)	Rank	Value of Livestock and 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 States	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 Jersey	96,920	43	48,888	43	145,808	44
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	263,914	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	31	278,918	32	570,004	34
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.D.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 as 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 FARMS, JANUARY 1, 1971 [1,4]

NUMBER OF HEAD ON FARMS, IN THOUSANDS

	Cattle and Calves	*Hogs and Pigs*[1]	*Sheep and Lambs*	*Chickens*	*Turkeys*	*Total, Three Species*[2]	*Total, Five Species*[3]
United States	114,568	67,540	19,560	442,783	7,462	201,668	651,913
New England States	808	136.5	41.2	19,264	29.7	985	20,279
Connecticut	119	9.5	4.8	4,949	5	133	5,087
Maine	141	10	15	8,459	—	166	8,625
Massachusetts	114	89	8.1	2,831	19.3	211	3,061
New Hampshire	71	12	5.3	1,801	4.1	88	1,893
Rhode Island	12	10	1.8	460	.8	24	484
Vermont	351	6	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*[2]	*Total, Five Species*[3]
United States	21,146,490	1,578,677	462,906	537,352	39,590	23,188,073	23,765,015
New England States	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]Includes cattle, hogs, and sheep.

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

[4]*1971 Livestock and Poultry Inventory*, Statistical Reporting Service, U.S.D.A.

Table A-3
NEW ENGLAND 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 States	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 CASH RECEIPTS FROM LIVESTOCK AND LIVESTOCK PRODUCTS, BY COMMODITY, 1970[1]

(In Millions of Dollars)

Commodity	*New England*[2]	*Conn.*	*Me.*	*Mass.*	*N.H.*	*R.I.*	*Vt.*
Milk	291.8	47.1	42.2	48.3	23.3	5.2	125.8
Eggs	140.0	41.9	56.4	21.4	12.0	3.4	4.8
Broilers	57.4	3.8	51.8	1.3	.3	.3	.01
Cattle and Calves	43.2	6.6	8.1	7.3	4.1	1.0	16.2
Hogs	6.8	.6	.5	4.1	.7	.4	.4
Chickens, excl. Broilers	6.3	1.8	2.5	.9	.6	.2	.2
Turkeys	2.6	.7	.04	1.6	.2	.08	.06
Sheep and Lambs	.4	.05	.2	.09	.04	.02	.06
Other Livestock/Poultry	3.4	.5	.4	1.7	.3	.1	.4
TOTAL RECEIPTS[2]	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.

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

Table A-5
ESTIMATE OF THE NUMBER OF SMALL COMPANION ANIMALS IN NEW ENGLAND, 1970

State	*Population 1970*	*Number of Small Animals*[1]		
		Dogs	*Cats*	*Both*
New England	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-6
RATIO OF VETERINARIANS TO SMALL ANIMALS IN NEW ENGLAND AND THE UNITED STATES, 1970

Type Animals	*Number of Animals*		*Ratio of Veterinarians to Animals*	
	N. E.[1]	*U. S.*[2]	*N. E.*[3]	*U. S.*[2]
Dogs	1,301,889	22,497,123	1:1,370	1:865
Cats	701,018	12,152,186	1:738	1:467
Dogs and Cats	2,002,907	34,649,309	1:2,108	1:1,332

[1]See Table A-5.

[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. Lisack uses 26,000 as the estimated number of veterinarians available in the U. S. in 1970.

[3]Based on the availability of approximately 950 veterinarians in New England in 1970.

Table A-7
TYPE OF PRACTICE OF VETERINARIANS IN NEW ENGLAND (JANUARY 1970) AND IN THE UNITED STATES (DECEMBER 31, 1967; 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*[2]	*TOTAL*
U. S., Dec. 31, 1967	1,760	8,517	5,788	1,734	485	816	4,233	2,133	25,466
% of total	*6.9*	*33.4*	*22 7*	*6.8*	*1.9*	*3.2*	*16.6*	*8.4*	*100.0*
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[3]	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]AVMA. For December 31, 1967 United States data see *Health Resources Statistics, 1969*, PHS Pub. No. 1509, National Center for Health Statistics, U. S. Department of Health, Education and Welfare, 1970. For January 1970 data see "AVMA Professional Activity Summary — January 1970", *1970 AVMA Directory;* these data are based on survey responses received through October 1, 1969. Since January 1970 data are based on approximately 80% of the estimated 27,200 veterinarians in the United States, the December 31, 1967 data are presented to verify the reliability of these later figures; the most significant differences between the two years is the increase in the percent in small animal practice, which is in keeping with national trends in this direction.

[2]Retired veterinarians are included in the category "Unknown" for the December 31, 1967 United States data; however, they are included among the "Other Classes" of veterinarians for all January 1970 data.

[3]See Table A-9 for complete breakdown of New England veterinarians by specialty area.

Table A-8
TYPE OF EMPLOYER OF VETERINARIANS IN NEW ENGLAND[1]

Type of Employer	*New England*	*Conn.*	*Me.*	*Mass.*	*N. H.*	*R. I.*	*Vt.*
Self Employed	474	133	45	179	56	17	44
Private Practice Employee	118	38	8	45	10	5	12
College or University	69	22	3	29	5	6	4
Federal Government	41	8	11	13	0	1	8
State/Local Govt.	26	4	4	8	2	3	5
Armed Forces	21	2	1	16	1	0	1
Industry Employee	21	8	4	7	2	0	0
Retired	19	3	1	9	3	1	2
Other	30	0	1	27	1	1	0
Unknown	45	14	5	19	1	1	5
TOTALS	864	232	83	352	81	35	81

[1] *1970 AVMA Directory.*

Table A-9
SPECIALTY AREA AND TYPE OF PRACTICE OF VETERINARIANS IN NEW ENGLAND

Type of Practice / Specialty Area[1]	*New England*	*Conn.*	*Me.*	*Mass.*	*N. H.*	*R. I.*	*Vt.*
Large Animal Practice (LA)	31	5	1	8	7	2	8
Exclusively Bovine	5	2	—	—	—	—	3
Exclusively Equine	13	2	1	4	4	2	—
Exclusively Porcine	—	—	—	—	—	—	—
LA — all species	13	1	—	4	3	—	5
Mixed Practice (MP)	295	77	42	83	41	9	43
LA — over 50%	43	4	7	3	5	—	24
LA and SA — 50/50	83	21	13	25	8	2	14
SA — over 50%	169	52	22	55	28	7	5
Small Animal Practice (SA) SA — exclusively	310	98	9	165	17	14	7
Regulatory Veterinary Medicine (REG)	49	7	13	15	2	2	10
Veterinary Public Health (PH)	6	2	1	2	—	1	—
Military Veterinary Service (MVS)	18	1	1	15	1	—	—
Other Classes (OC)	126	33	11	57	10	7	8
Exclusively Poultry	4	1	2	1	—	—	—
Anatomy	—	—	—	—	—	—	—
Biochemistry	2	1	—	1	—	—	—
Microbiology	8	2	—	3	1	2	—
Parasitology	—	—	—	—	—	—	—
Pathology	35	14	3	17	—	—	1
Pharmacology	3	1	—	—	—	—	2
Physiology	5	—	—	5	—	—	—
Radiology	1	—	—	1	—	—	—
Toxicology	4	2	—	2	—	—	—
Surgery	4	1	—	3	—	—	—
Fur Bearing Animals	1	—	—	—	1	—	—
Lab Animal Medicine	17	3	—	9	3	1	1
Zoo Animals	—	—	—	—	—	—	—
Extension	4	1	—	1	—	1	1
Diagnostic Vet. Med.	2	—	1	—	1	—	—
Pathology, Avian	7	1	4	1	—	1	—
Pathology, Clinical	1	—	—	1	—	—	—
Ophthalmology	1	—	—	1	—	—	—
Nutrition	1	—	—	1	—	—	—
Clinician	2	2	—	—	—	—	—
Retired	16	2	1	6	3	2	2
Other Vet. Med.	8	2	—	4	1	—	1
Unknown (UNK)	29	9	5	7	3	—	5
TOTALS	864	232	83	352	81	35	81

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

Table A-10
GEOGRAPHIC ORIGIN OF FIRST-YEAR STUDENTS ENROLLED IN U. S. COLLEGES OF VETERINARY MEDICINE, 1970–71[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	36	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Alaska	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arizona	10	—	—	1	6	—	—	—	—	—	—	—	1	—	—	—	1	—	1
Arkansas	7	—	—	—	—	—	—	—	—	—	—	—	2	—	—	5	—	—	—
CALIFORNIA	84	—	—	82	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—
Colorado	33	—	—	—	33	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Connecticut	8	—	1	—	—	—	—	—	—	—	1	—	—	2	—	—	4	—	—
Dist. of Col.	2	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Delaware	3	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	1	—	—
Florida	30	20	4	—	—	—	—	1	—	—	—	—	1	1	3	—	—	—	—
GEORGIA	23	—	1	—	—	22	—	—	—	—	—	—	—	—	—	—	—	—	—
Hawaii	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Idaho	12	—	—	—	7	—	—	1	—	—	—	—	—	—	—	—	—	—	4
ILLINOIS	80	—	2	—	—	—	76	1	1	—	—	—	—	—	—	—	—	—	—
INDIANA	60	—	1	—	—	—	—	58	—	—	1	—	—	—	—	—	—	—	—
IOWA	63	—	—	—	—	—	—	—	63	—	—	—	—	—	—	—	—	—	—
KANSAS	77	—	—	—	—	—	—	—	—	77	—	—	—	—	—	—	—	—	—
Kentucky	24	14	1	—	—	—	—	2	—	—	—	—	—	—	6	—	1	—	—
Louisiana	22	4	4	—	—	—	—	—	—	—	1	—	—	—	—	4	—	9	—
Maine	8	—	—	—	—	—	—	—	—	—	3	—	—	5	—	—	—	—	—
Maryland	15	—	1	—	—	11	—	—	1	—	1	—	—	—	1	—	—	—	—
Massachusetts	12	—	—	—	—	—	1	1	—	1	2	—	—	—	1	—	6	—	—
MICHIGAN	84	—	—	—	—	—	—	—	—	—	84	—	—	—	—	—	—	—	—
MINNESOTA	48	—	—	—	—	—	—	—	1	—	—	47	—	—	—	—	—	—	—

Mississippi	19	16	2	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—
MISSOURI	51	—	1	—	—	—	—	—	—	—	—	—	50	—	—	—	—	—	—
Montana	16	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	10
Nebraska	16	—	—	—	5	—	—	—	3	4	—	—	3	—	—	1	—	—	—
Nevada	4	—	—	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	1
New Hampshire	4	—	—	—	—	—	—	—	—	—	2	—	—	1	1	—	—	—	—
New Jersey	17	—	—	—	—	—	—	—	2	1	3	—	—	2	2	—	7	—	—
New Mexico	10	—	—	—	8	—	—	—	1	1	—	—	—	—	—	—	—	—	—
NEW YORK	55	—	2	—	—	—	—	—	—	—	2	—	—	45	2	—	4	—	—
North Carolina	19	—	4	—	—	11	—	—	—	—	—	—	—	—	1	3	—	—	—
North Dakota	3	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—
OHIO	100	—	2	—	—	—	—	2	—	—	—	—	—	1	95	—	—	—	—
OKLAHOMA	33	—	—	—	—	—	—	—	—	—	—	—	—	1	—	32	—	—	—
Oregon	14	—	—	1	3	—	—	—	—	—	—	—	—	—	1	—	—	—	9
PENNSYLVANIA	59	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	58	—	—
Rhode Island	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—
South Carolina	12	—	1	—	—	10	—	—	—	—	—	—	—	1	—	—	—	—	—
South Dakota	4	—	—	—	—	—	—	—	2	—	—	1	1	—	—	—	—	—	—
Tennessee	15	15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TEXAS	122	—	2	—	—	—	—	—	—	—	—	—	1	—	—	—	—	119	—
Utah	6	—	—	—	3	—	—	—	—	—	—	—	—	1	—	—	—	—	2
Virginia	18	—	3	—	—	14	—	—	—	—	1	—	—	—	—	—	—	—	—
Vermont	2	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—
WASHINGTON	29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	29
West Virginia	11	—	1	—	—	—	—	—	—	—	—	—	—	—	6	4	—	—	—
Wisconsin	24	—	—	—	—	—	1	1	4	—	2	14	1	1	—	—	—	—	—
Wyoming	8	—	—	—	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Puerto Rico	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Outside U. S.	2	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total First-Year Students[3]	1,430	105	39	85	84	69	78	65	80	85	105	66	65	65	120	49	82	128	60

[1] *J.A.V.M.A.*, Vol. 158, No. 4, February 15, 1971. Data up-dated by AVMA.

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

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

Table A-11
NUMBER OF GRADUATES FROM U. S. VETERINARY SCHOOLS BY YEARS, 1900–1970[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	

[1]AVMA.

Table A-12
VETERINARIANS NEEDED IN NEW ENGLAND TO ATTAIN RATIO OF 17.5 / 100,000 POPULATION

State	1968 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
New England	934	11,847	2,074	12,074	2,182	13,371	2,340	14,369	2,515
Connecticut	244	3,032	531	3,397	595	3,744	655	4,109	719
Maine	100	994	174	1,031	180	1,038	182	1,049	184
Massachusetts	377	5,689	996	5,842	1,022	6,236	1,091	6,701	1,173
New Hampshire	84	738	129	800	140	875	153	950	166
Rhode Island	44	950	166	959	168	1,006	176	1,053	184
Vermont	85	445	78	441	77	472	83	507	89

[1]AVMA. See Table 1.

[2]Actual population count.

[3]Projected population obtained from the U. S. Bureau of the Census, Regional Office, Boston.

Table A-13
INSTITUTIONS WHERE NEW ENGLAND'S VETERINARIANS RECEIVED THEIR PROFESSIONAL TRAINING[1]

Institution	*New England*	*Conn.*	*Me.*	*Mass.*	*N. H.*	*R. I.*	*Vt.*
Cornell	208	66	22	50	22	7	41
Pennsylvania	146	43	9	67	14	4	9
Michigan State	113	30	13	43	9	6	12
Canadian Inst's	57	13	15	12	11	1	5
Ohio State	56	13	8	24	6	3	2
Middlesex[2]	46	5	—	38	3	—	—
Foreign Inst's	31	12	3	12	—	1	3
Kansas State	21	7	1	9	1	2	1
Iowa State	19	6	—	9	—	2	2
Colorado State	15	6	—	8	1	—	—
Illinois	15	3	1	7	2	2	—
Washington State	15	2	—	12	—	1	—
California	12	—	—	10	2	—	—
Texas	12	2	—	8	—	1	1
Oklahoma State	11	4	1	6	—	—	—
Minnesota	9	4	1	3	—	1	—
Purdue	9	3	—	4	—	1	1
Auburn	8	3	—	2	2	1	—
Georgia	8	2	1	5	—	—	—
Tuskegee	6	—	—	5	—	1	—
Missouri	3	2	1	—	—	—	—
Chicago[2]	2	—	1	1	—	—	—
Kansas City[2]	1	—	1	—	—	—	—
U. S. College of Vet. Surgeons[2]	1	—	—	1	—	—	—
TOTALS	824	226	78	336	73	34	77

[1] *1970 AVMA Directory*. Includes only active veterinarians who supplied information.
[2] No longer in existence.

Table A-14
NEW ENGLAND RESIDENTS APPLYING TO AND ACCEPTED BY THE SCHOOL OF VETERINARY MEDICINE AT THE UNIVERSITY OF PENNSYLVANIA, 1965–1971[1]

Year	*Total Applications*	*New England Residents only*			*New England Applicants by State*					
		Applied	*Accepted*	*Rejected*	*Conn.*	*Me.*	*Mass.*	*N.H.*	*R.I.*	*Vt.*
1965	349	43	6	37	16	1	20	4	0	2
1966	328	46	9	37	10	3	25	4	3	1
1967	328	45	8	37	14	2	21	4	2	2
1968	363	54	9	45	18	4	20	4	6	2
1969	442	58	11	47	13	5	25	6	7	2
1970	479	70	10	60	18	7	31	4	7	3
1971	579	84	11	73	23	4	42	9	4	2

[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.

Table A-15
RANK AND NUMBER OF VETERINARIANS BY STATE, AND NUMBER OF VETERINARIANS PER 100,000 POPULATION, DECEMBER 1968

State[1]	Number of Veterinarians December 31, 1968		Veterinarians Per 100,000 Population[2]
	Rank	Number	
CALIFORNIA	1	2,568	13.6
NEW YORK	2	1,623	9.0
TEXAS	3	1,593	14.8
ILLINOIS	4	1,368	12.5
IOWA	5	1,288	46.5
OHIO	6	1,265	12.0
PENNSYLVANIA	7	1,046	8.9
MICHIGAN	8	973	11.2
New England	—	934	8.2
INDIANA	9	856	16.9
MINNESOTA	10	824	22.6
Florida	11	821	13.6
MISSOURI	12	801	17.5
Wisconsin	13	692	16.4
KANSAS	14	640	28.3
WASHINGTON	15	639	19.9
Maryland	16	608	16.5
GEORGIA	17	605	13.6
COLORADO	18	603	30.4
New Jersey	19	557	7.9
Virginia	20	544	12.3
Nebraska	21	513	36.0
ALABAMA	22	455	12.9
OKLAHOMA	23	435	17.6
North Carolina	24	415	8.3
Massachusetts	25	377	6.9
Tennessee	26	366	9.3
Kentucky	27	351	11.1
Oregon	28	327	16.3
Louisiana	29	299	8.1
Connecticut	30	244	8.3
Arizona	31	233	14.3
South Dakota	32	232	35.6
Arkansas	33	216	10.9
Mississippi	34	214	9.2
South Carolina	35	197	7.6
Montana	36	192	28.0
Idaho	37	177	25.3
New Mexico	38	149	15.1
Utah	39	141	13.7
District of Columbia	—	119	15.1
Maine	40	100	10.4
North Dakota	41	100	16.3
West Virginia	42	93	5.2
Wyoming	43	90	28.9
Vermont	44	85	20.0
New Hampshire	45	84	12.0
Nevada	46	82	18.7
Delaware	47	78	14.9
Hawaii	48	51	7.0
Rhode Island	49	44	5.0
Alaska	50	18	7.5
United States[3]		26,391	13.4

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

[2]See Table 1.

[3]The July 1, 1968 population count for the states was used throughout in calculating the ratio of veterinarians to population; however, the December 31, 1968 U. S. population is available, and if it is used instead of the July figure, the ratio for the U. S. is actually only 13.1.

Table A-16

RANK AND NUMBER OF VETERINARIANS BY STATE, DECEMBER 1968, 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 Veterinarians December 31, 1968		Ranking Among the Fifty States		
	Rank	Number[2]	Population[3]	Receipts[4]	Value[5]
CALIFORNIA	1	2,568	1	3	5
NEW YORK	2	1,623	2	13	14
TEXAS	3	1,593	4	2	1
ILLINOIS	4	1,368	5	7	11
IOWA	5	1,288	25	1	2
OHIO	6	1,265	6	16	17
PENNSYLVANIA	7	1,046	3	15	15
MICHIGAN	8	973	7	23	23
INDIANA	9	856	11	11	18
MINNESOTA	10	824	19	6	9
Florida	11	821	9	25	26
MISSOURI	12	801	13	9	7
Wisconsin	13	692	16	5	6
KANSAS	14	640	28	8	4
WASHINGTON	15	639	22	31	32
Maryland	16	608	18	34	39
GEORGIA	17	605	15	17	22
COLORADO	18	603	30	10	12
New Jersey	19	557	8	43	43
Virginia	20	544	14	29	31
Nebraska	21	513	35	4	3
ALABAMA	22	455	21	20	25
OKLAHOMA	23	435	27	12	10
North Carolina	24	415	12	18	34
Massachusetts	25	377	10	44	46
Tennessee	26	366	17	24	21
Kentucky	27	351	23	21	16
Oregon	28	327	31	33	28
Louisiana	29	299	20	32	30
Connecticut	30	244	24	41	45
Arizona	31	233	33	26	35
South Dakota	32	232	44	14	8
Arkansas	33	216	32	19	29
Mississippi	34	214	29	22	20
South Carolina	35	197	26	38	37
Montana	36	192	43	28	13
Idaho	37	177	42	30	24
New Mexico	38	149	37	27	33
Utah	39	141	36	37	36
District of Columbia	—	119	—	—	—
Maine	40	100	38	39	44
North Dakota	41	100	45	35	19
West Virginia	42	93	34	45	41
Wyoming	43	90	49	36	27
Vermont	44	85	48	40	40
New Hampshire	45	84	41	47	47
Nevada	46	82	47	46	38
Delaware	47	78	46	42	48
Hawaii	48	51	40	48	42
Rhode Island	49	44	39	49	49
Alaska	50	18	50	50	50
United States		26,391			

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

[2]See Table 1.

[3]1970 Census. See Table 12.

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

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

APPENDIX 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

APPENDIX 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 economical 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 colleges, 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, the 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.

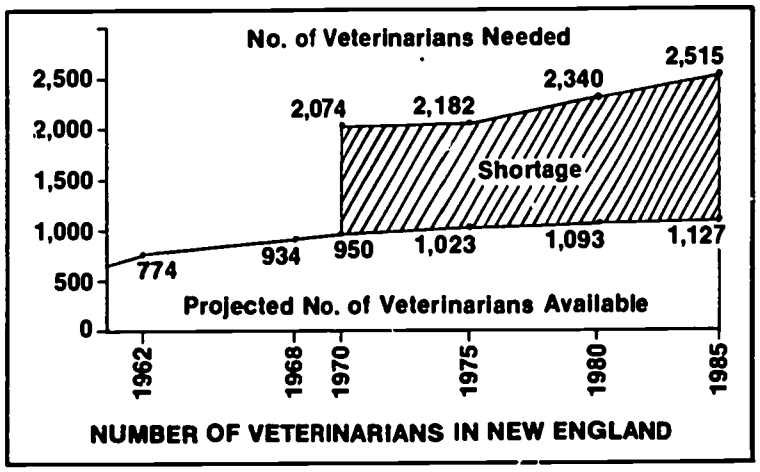
In dentistry the Program provides for a quota of guaranteed places for students from the State of Maine admitted to the College of Dental Medicine at Tufts University. Participating students are accorded a tuition scholarship covering a substantial part of that charge, while the Board reimburses Tufts University for part of the cost-of-education.

Persons wishing more details about this Program should contact the Board at its office at 20 Walnut Street, Wellesley, Massachusetts 02181.

NEEDED:

New England Board
of Higher Education

New England faces a critical shortage of over 1,200 veterinarians by 1980. In 1968 there were only 8.2 veterinarians available for every 100,000 New Englanders -- less than half of the projected need for 17.5 veterinarians per 100,000 population by the end of the decade. In spite of this shortage, hundreds of New England residents are denied the opportunity to attend a college of veterinary medicine and to take advantage of the approximately five job openings awaiting each graduate of today's veterinary college.



NUMBER OF VETERINARIANS IN NEW ENGLAND

TODAY'S VETERINARIAN

The veterinarian is popularly thought of as treating companion animals such as cats and dogs. While many veterinarians are indeed engaged in small animal practice, this is only one of his many and varied activities.

Nearly every member of the veterinary profession comes into daily contact with disease conditions the understanding of which will contribute importantly to the welfare of mankind and the advancement of medical science. The veterinarian of today has joined his colleagues in the laboratory, in the classroom, and in the community.

- Veterinarians, physicians and other health professionals work together in public health programs to prevent the infection of man from animal sources. Under varying circumstances, over 175 animal diseases and infections, such as typhus, rabies, encephalitis and tuburculosis, are transmittable to man.
- Veterinarians are actively involved in medical research both directly through the study of "animal models" of human conditions such as leukemia, multiple sclerosis, heart disease, and respiratory disease, and indirectly through the supervision of the care of laboratory animals.
- Veterinarians are being employed in increasing numbers to instruct future physi-

cians and veterinarians in such areas as comparative medicine, pathology, epidemiology and preventive medicine.

The protection of livestock and poultry, and in turn the protection of man who relies on these important sources of protein has long been a responsibility of the veterinarian through the prevention and treatment of animal diseases. Veterinarians also directly protect the consumer, however, through food inspection. In New England alone, veterinarians are responsible for the care of over 20-million head of livestock and poultry valued at over a quarter of a billion dollars, and for supervising the inspection of over a half a billion dollars worth of livestock and poultry products annually.

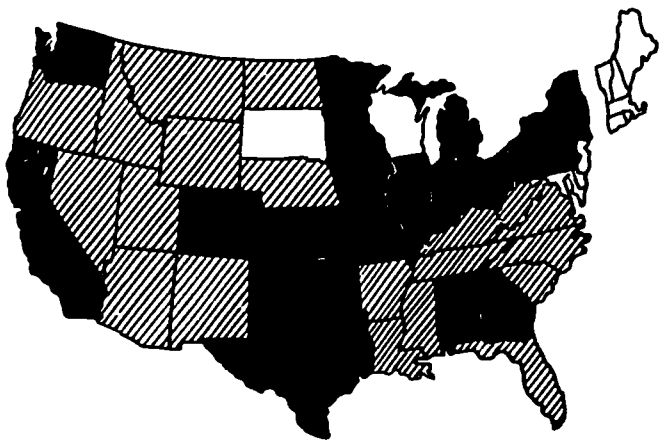
In addition, the veterinarian has become actively involved in aerospace research, ecology, pharmacology, and--most recently, and perhaps most importantly--marine science and medicine. The graduating veterinarian has many exciting and challenging careers to choose from, all of direct and vital service to society.

Still, the nation will have only 32,000 of 44,000 veterinarians needed by 1980--a net shortage of 12,000, 1,200 of whom will be needed in New England. How can New England help fill this gap?

ONLY 18 COLLEGES

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 currently can enroll only about 1,400 new students annually; classrooms are filled to capacity and thousands of qualified students are turned away.

States with a College of Veterinary Medicine or Regional Education Program in Veterinary Medicine



State has a College of Veterinary Medicine

State has a regional agreement for the training of its residents in veterinary medicine. (Alaska and Hawaii also have such agreements.)

For every student accepted by a veterinary college today, five must be turned away. New England residents are even further handicapped, however, since:

- Veterinary colleges give first priority to their own state residents; and,
- Regional agreements between these colleges and certain states without veterinary colleges guarantee that second priority falls to the residents of these particular states.

In 1970-71, 73% of the first-year veterinary students were residents of states with a veterinary school; another 21% were residents of the 23 states with regional agreements. Only 35 students, or 2.4% of these first-year students were from New England, which has neither a college nor any such regional agreements.

Among the 18 colleges, only two have regularly offered much hope for aspiring New England veterinarians, those at Cornell University and the University of Pennsylvania. The result is that countless interested students are discouraged from even applying to veterinary school; students whose only disqualification is the fact that they are from New England.

NEW ENGLAND'S PLIGHT

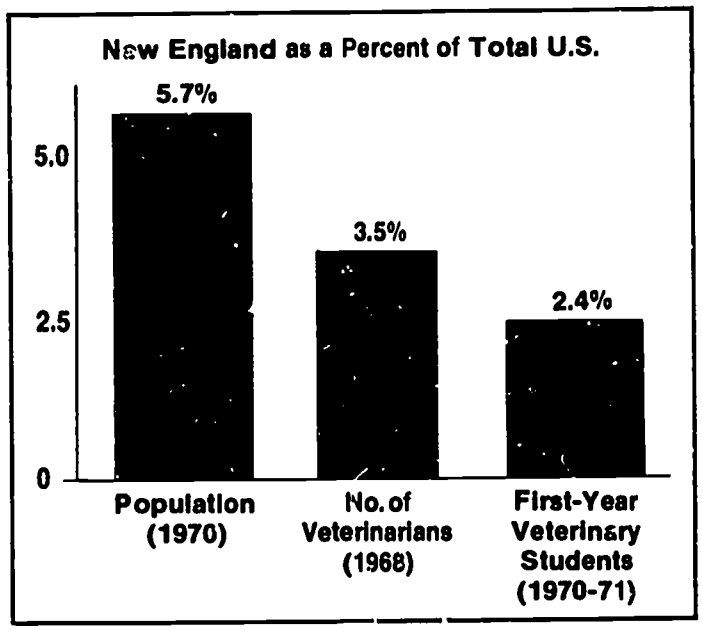
When compared to states with a population approximating that of New England, three facts stand out. Each of these states:

- Has its own veterinary school;
- Has more of its residents gaining admission to a veterinary school; and
- Has a more favorable ratio of veterinarians per 100,000 population than New England.

It is also noteworthy that New York and Pennsylvania, the states where most New Englanders have traditionally gained admission, both have relatively small numbers of residents entering veterinary school despite low ratios of veterinarians to population. How much longer can these two states deny access to their own residents in order to provide training opportunities for New Englanders?

	1970 Census (1,000's)	Residents Entering a Veterinary College 1970-71	Number of Veterinarians 1968	Veterinarians Per 100,000 Population 1968
United States	203,185	1,417	26,391	13.4
California	19,953	84	2,568	13.6
New York	18,191	55	1,623	9.0
New England	*11,847*	*35*	*934*	*8.2*
Pennsylvania	11,794	59	1,046	8.9
Texas	11,197	122	1,593	14.8
Illinois	11,114	80	1,368	12.5
Ohio	10,652	100	1,265	12.0

Perhaps New England's plight is best seen in the following manner:



With 5.7% of the U.S. population, New England has available only 3.5% of the nation's veterinarians. Since only 2.4% of the nation's first-year veterinary students come from the region, can New England even maintain its present ratio of 8.2 veterinarians per 100,000 population, let alone make progress toward the national goal of 17.5?

A COLLEGE OF VETERINARY MEDICINE FOR NEW ENGLAND

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

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

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 New England's critical need for veterinarians while affording new professional opportunities to the region's citizens, it is recommended:

- That a regional college of veterinary medicine be established within New England to provide professional preparation in veterinary medicine for residents of the six New England states.
- That the proposed college be cooperatively founded by the six New England states.
- That the capitalization and operational funding of the college be equitably shared by the six New England states.
- That the proposed regional college of veterinary medicine be allied with a medical school whose 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 training and research, continuing education of practicing veterinarians, consultation services, and extension activities.

All of these services are best provided on a local basis. A veterinary college in New England would provide these services to the region's current and future practitioners and thereby ensure better veterinary service for the region's citizens.

NEBHE ADVISORY COMMITTEE ON VETERINARY MEDICINE

CONNECTICUT - Dr. Arthur E. Scheld, Dr. Herbert J. Van Kruiningen, Dr. George D. Whitney; MAINE - Dr. Owen R. Stevens, Dr. J. Frank Witter; MASSACHUSETTS - Dr. Stewart Harvey, Dr. Richard D. Lindsay, Dr. Douglas Stern; NEW HAMPSHIRE - Dr. Fred E. Allen, Dr. James G. Paine; RHODE ISLAND - Dr. Ian MacLennan, Dr. James Robbin; VERMONT - Dr. W.D. Bolton, Dr. A.E. Janawicz, Dr. Larry Larrow.

The New England Board of Higher Education
20 Walnut Street, Wellesley, Mass.02181
Tel. 617-235-8071

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