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ABSTRACT

This report is an amplification of previous investigations at Hofstra that attempted to identify useful predictors of success in the MBA program with particular emphasis on the Admission Test for Graduate Study in Business (ATGSB). A group of 26 MBA students who graduated in June 1970 and February 1971 were compared with a group of 17 students who had withdrawn from the program at earlier points. Five predictor variables were established: undergraduate GPA; undergraduate business concentration GPA; total, quantitative, and qualitative scores on the ATGSB; graduation versus withdrawal; and overall graduate GPA. The results of the study show that undergraduate GPA and undergraduate business concentration GPA are the most effective success predictors. The ATGSB, however, proved to be the least effective predictor, and little support can be given to the continued use of this test as one of the admission criteria. (Author/HS)

Report #98
January 1972

CENTER FOR THE STUDY OF HIGHER EDUCATION

HOFSTRA UNIVERSITY

A Further Investigation of Predictors of Success in the MBA Program at Hofstra University

Murray Melnick

Summary

This report is an amplification of previous investigations at Hofstra which attempted to identify useful predictors in the MBA program with particular emphasis on the Admission Test for Graduate Study in Business. A group of 26 MBA students who graduated in June 1970 and February 1971 were compared with a group of 17 students who had withdrawn from the program at earlier points, mostly in 1966 and 1967. Due to the nature of status determination, it was not possible to obtain a sample of later withdrawers, but there is reasonable comparability since many of the graduates had been admitted in the period 1965-1967. Five predictor variables; undergraduate GPA, undergraduate business concentration GPA, Total, Verbal, and Quantitative scores on the Admission Test for Graduate Study in Business, and two criterion variables: Graduation vs. Withdrawal, and Overall Graduate GPA, were used in the analysis. The undergraduate business concentration consisted of any courses taken in accounting, finance, business law, economic principles, management, marketing, and statistics. The overall graduate GPA was determined by assigning ratings of 4=A, 3=B, 2=C, 1=D, 0=F for every course taken in the graduate business program. For graduates, the GPA represented the grade status as of graduation from the program; for withdrawing students, the GPA was the cumulative average as of the last course taken prior to withdrawal.

The GPA in graduate school was closely associated with the probability of graduating; while the GPA of the graduates was over "B" at 3.09, the GPA of withdrawers was below "C" at 1.71. Turning to the admissions criteria, the predictive power of the Admission Test for Graduate Study in Business was found to be negligible. There was no significant difference between mean test scores of graduates and withdrawers and near-zero correlations between test scores and graduate grades. On the other hand, undergraduate GPA as well as undergraduate business concentration GPA were significantly higher for graduates than for withdrawers. Undergraduate GPA correlated .59 with graduate grades, undergraduate business concentration .46 with graduate grades.

An examination of possible cut-off points disclosed that the most efficient admissions standard appeared to include undergraduate GPA and undergraduate business concentration GPA as joint criteria. Using available data, when selection criteria were set so that undergraduate GPA was required to be 2.00 or higher and undergraduate business concentration GPA 2.20 or higher, it was found that 22 out of 26 of the graduates would have been

admitted to the program compared with only 6 of the 17 withdrawing students who would have been admitted. This difference is statistically significant (χ^2=8.94, p<.01). The hypothetical graduation rate associated with projected admissions criteria would be 79% (22 out of 28 students meeting criteria, graduating) which is substantially higher than the existing rate based on sample data (60%; 26 out of 43 graduating).

It was concluded that undergraduate GPA and undergraduate business concentration GPA were the most effective and Admission Test for Graduate Study in Business scores the least effective of the predictors studied. Little support can be given to the continued use of this test as one of the admission criteria.

(Copies of the full report are available from the Center for the Study of Higher Education)

Report #98
January 1972

A Further Investigation of Predictors of Success in the MBA Program at Hofstra University

Murray Melnick

This report continues the effort of previous investigations (Melnick, 1971a, Melnick & Schubert, 1969, Schubert, 1970) which attempted to identify useful predictors in Hofstra's graduate business program with particular emphasis on the Admission Test for Graduate Study in Business. The predictive efficiency of this test was reviewed by Melnick (1971b). Of the eight studies reviewed, four showed low zero-order correlations between the Admission Test for Graduate Study in Business and graduate grades, one reported no significant relationships, two showed low moderate multiple correlations (.30 to .46) when the test was combined with undergraduate GPA, and one reported curvilinear trends. In view of the apparent weakness of the admissions test and in order to make a further attempt to clarify the strength of the relevant variables, a new subject sample was studied in connection with a modified array of predictors.

Method

Subjects

All students in the Master of Business Administration Program at Hofstra University who graduated in June 1970 or February 1971 were considered for inclusion in the sample. The original sample of graduates (37) was pared down to 26 because of the absence of complete data for some individuals. The graduate group was compared to a second group which consisted of 17 students (only those with complete data from a pool of 52) who had withdrawn from the program at earlier points mostly in 1966 and 1967, none before 1965. Due to the manner in which the school determined status it was not possible to obtain a sample of later withdrawers, but there is reasonable comparability since many of the graduates had been admitted in the period 1965-1967. The study sample was limited to individuals with complete data only since this requirement was thought to encourage a greater degree of homogeneity among subjects. Accepting records in varying stages of completeness might have introduced an uncontrolled source of variation.

The graduate GPA of graduates and withdrawers not selected for the sample because of incomplete data was examined. The GPA of the subset of 12 graduates with incomplete data was 2.99 which is comparable to the GPA of the study sample (3.09). Next, the graduate GPA's of the withdrawers not selected because of incomplete data were examined. Of the 35 non-selected withdrawers, two had no grades other than withdrawals and thus presented no GPA. The remaining 33 had a graduate GPA of 2.34. This GPA is stronger than the GPA of the withdrawer group used in the study which was only 1.71 (although it is

clearly closer to the withdrawers than it is to the graduates' GPA level of 3.09). Since the GPA's of most withdrawers were usually based on only a few courses (as compared to the graduates who had full programs) distinctions among withdrawers may be only due to chance. On the other hand, a real difference in graduate performance might mean that the non-selected withdrawers were truly different in terms of ability and thus care should be taken in generalizing from the present withdrawer sample.

Predictors

Five predictor variables: undergraduate GPA, undergraduate business concentration GPA, and Total, Verbal, and Quantitative scores on the Admission Test for Graduate Study in Business were used in the analysis.

The undergraduate business concentration consisted of any courses taken in accounting, finance, business law, economic principles, management, marketing, and statistics. Among the five predictor variables employed, only undergraduate GPA and Total test scores were carry-overs from previous Hofstra investigations.

Criteria of Success in Graduate Work

Two variables were used as indications of success in the program. One was whether the matriculant graduated or withdrew, the other was overall graduate grade-point average. In earlier work only grades in graduate core courses were considered in the analysis. The overall graduate GPA was determined by assigning ratings of 4=A, 3=B, 2=C, 1=D, 0=F, for every course taken in the program. The GPA thus calculated for graduates represented grade status as of graduation, for withdrawers it was the cumulative average as of the last course taken prior to withdrawal.

Results

The GPA in graduate school was closely associated with the probability of graduating. As can be seen in Table 1, while the GPA of the graduates was over "B" at 3.09, the GPA of withdrawers was below "C" at 1.71, a finding which

Table 1

Comparison between Graduates and Withdrawers from MBA Program with Respect to Graduate GPA and The Five Predictor Variables; Undergraduate GPA, Undergraduate Business Concentration GPA, Admission Test for Graduate Study in Business-- Total, Verbal and Quantitative Scores

Students	Graduate GPA	Undergraduate GPA	Undergraduate Business Concentration GPA	Admission Test for Graduate Study in Business Tot.	V	Q
Graduates (N=26)	3.09	2.58	2.80	504	30	29
Withdrawers (N=17)	1.71	2.23	2.28	498	30	29
t	6.25	2.99	3.30	0.25	--	--
p	< .001	< .01	< .01	> .05	--	--

is highly significant statistically (t=6.25, p < .001). The marked grade difference between graduates and withdrawers is further evident in Table 2 where it can be seen that 94% of the withdrawers obtained graduate GPA's of less than 2.60 compared to only 8% of the graduates who finished with such averages. Eighty-two percent of the withdrawers received GPA's under 2.20, more than half below 2.00 while none of the graduates were found in those categories. This suggests that failing to graduate is closely associated with failure to obtain good grades in graduate work. Since the quality of graduate grades is closely related to the probability of graduation, it becomes important to identify those variables which will best predict these grades. In this connection, Table 3 presents a matrix of intercorrelations between graduate GPA and the five predictor variables.

Table 2

Comparison between Graduates and Withdrawers: Frequency Distribution of Graduate GPA by Graduation Status

Graduate GPA	Graduates N	Graduates %	Withdrawers N	Withdrawers %	Cumulative Percentages Graduates	Cumulative Percentages Withdrawers
3.40 and over	6	23	1	6	100	100
3.20-3.39	4	15	--	--	77	--
3.00-3.19	7	27	--	--	62	--
2.80-2.99	4	15	--	--	35	--
2.60-2.79	3	12	--	--	20	--
2.40-2.59	1	4	1	6	8	94
2.20-2.39	1	4	1	6	4	88
2.00-2.19	--	--	4	24	0	82
1.80-1.99	--	--	1	6	--	58
Below 1.80	--	--	9	52	--	52
Total	26	100	17	100		

Table 3

Product Moment Correlations between Graduate GPA and Five Predictor Variables

	1	2	3	4	5	6
1. Graduate GPA		.59*	.46*	.03	.02	.02
2. Undergraduate GPA			.74*	-.21	.04	.14
3. Undergraduate Business Concentration GPA				.08	-.03	.15
4. ATGSB[a] total score					.81*	.84*
5. ATGSB Verbal						.36**
6. ATGSB Quantitative						

* $p < .01$
** $p < .05$

MULTIPLE CORRELATIONS

A) $r_{14} = .03$, $r_{12} = .59$, $r_{24} = -.21$ → $R_{1.24} = .61$

B) $r_{14} = .03$, $r_{13} = .46$, $r_{34} = .08$ → $R_{1.34} = .46$

C) $r_{15} = .02$, $r_{12} = .59$, $r_{25} = .04$ → $R_{1.25} = .59$

D) $r_{16} = .02$, $r_{12} = .59$, $r_{26} = .14$ → $R_{1.26} = .59$

E) $r_{15} = .02$, $r_{13} = .46$, $r_{35} = -.03$ → $R_{1.35} = .46$

F) $r_{16} = .02$, $r_{13} = .46$, $r_{36} = .15$ → $R_{1.36} = .46$

[a] ATGSB = Admission Test for Graduate Study in Business

It appears that graduate GPA correlates best with undergraduate GPA (r=.59) and undergraduate business concentration GPA (r=.46). Supporting earlier indications, graduate GPA correlates close to zero with Admission Test for Graduate Study in Business scores, Total, Verbal and Quantitative. Table 3 also shows six multiple correlations which assess the effect of considering test scores jointly with either undergraduate GPA or undergraduate business concentration GPA. No gain is recorded by using test scores except in the first multiple R where the gain is inconsequential.

What emerges thus far is the observation that the test scores seem almost valueless in predicting success in the business program, while undergraduate GPA and undergraduate business concentration GPA seem to have some power. This view is confirmed by recourse to an analysis of mean differences in the performance and scores of graduates and withdrawers.

In Table 1 it can be seen that graduates had a higher undergraduate average than did the withdrawers (2.58 vs. 2.23) and a higher undergraduate business concentration GPA (2.80 vs. 2.28). Both of these comparisons are significant ($p < .01$). On the other hand, the groups show little difference in their test scores; the verbal and quantitative means are identical and the total means are not significantly different (504 vs. 498); $p > .05$). The utility of undergraduate GPA as a predictor is demonstrated in Table 4, the value of the undergraduate business concentration variable is shown in Table 5. In Table 4 it can be seen that while 66% of the withdrawers were admitted with an undergraduate GPA under 2.40, only 34% of the graduates entered with those credentials and while 35% of the graduates entered with undergraduate GPA's of 2.80 or higher, only 6% of the withdrawers did so.

Table 4

Comparison between Graduates and Withdrawers: Frequency Distribution of Undergraduate GPA

Undergraduate GPA	Graduates N	Graduates %	Withdrawers N	Withdrawers %	Cumulative Percentages Graduates	Cumulative Percentages Withdrawers
3.40 and over	2	8	--	--	100	--
3.20-3.39	--	--	--	--	--	--
3.00-3.19	1	4	1	6	92	100
2.80-2.99	6	23	--	--	88	--
2.60-2.79	2	8	1	6	65	94
2.40-2.59	6	23	2	12	57	88
2.20-2.39	3	12	5	29	34	76
2.00-2.19	5	18	3	18	22	47
1.80-1.99	1	4	5	29	4	29
Below 1.80	--	--	--	--	0	0
Total	26	100	17	100		

A similar pattern prevails in Table 5. Sixty-four percent of the withdrawers were admitted with an undergraduate business concentration GPA of less than 2.40, but only 24% of the graduates entered with those credentials. Forty-nine percent of the graduates entered with business concentration GPA's of 2.80 or over while only 24% of the withdrawers had such a record.

Table 5

Comparison between Graduates and Withdrawers: Frequency Distribution of Undergraduate GPA in Business Concentration

Undergraduate Business Concentration GPA	Graduates N	Graduates %	Withdrawers N	Withdrawers %	Cumulative Percentages Graduates	Cumulative Percentages Withdrawers
3.40 and over	3	12	--	--	100	--
3.20-3.39	4	15	--	--	88	--
3.00-3.19	6	22	1	6	73	100
2.80-2.99	--	--	3	18	--	94
2.60-2.79	2	8	1	6	51	76
2.40-2.59	5	19	1	6	43	70
2.20-2.39	2	8	2	12	24	64
2.00-2.19	3	12	4	23	16	52
1.80-1.99	--	--	4	23	--	29
Below 1.80	1	4	1	6	4	6
Total	26	100	17	100		

Since it was evident that undergraduate GPA and undergraduate business concentration GPA were the best predictors, an attempt was made to identify the ideal cut-off points on these variables. In Table 6, where these predictor cut-off points are considered, the first two columns refer to undergraduate GPA and undergraduate business concentration GPA, respectively. The third column shows the number of graduates out of a total of 26 which were able to meet the indicated criterion while the fourth column does the same for the 17 withdrawers. The fifth column shows the total number of students able to meet the criterion and the last column the proportion of this total who graduated, i.e., the graduation rate for the particular cut-off points. Starting with an undergraduate GPA of 2.60 it will be noted that

Table 6

Predictor Cut-off Points in Relation to Graduation Ratios

Undergraduate GPA of at least	Undergraduate Business Concentration GPA of at least	Number of Ss able to meet Predictor Criteria Graduates (N=26)	Withdrawers (N=17)	Total Meeting Criteria (N=43)	Proportion of Total Meeting Criteria who Graduated %
2.60	--	11	2	13	85
2.40	2.60	13	3	16	81
2.40	2.40	16	3	19	84
2.40	2.20	16	3	19	84
2.40	2.00	17	4	21	81
2.40	--	17	4	21	81
2.20	2.60	13	5	18	72
2.20	2.40	18	5	23	78
2.20	2.20	19	6	25	76
2.20	2.00	20	8	28	71
2.20	--	20	9	29	69
2.00	2.60	15	5	20	75
2.00	2.40	20	5	25	80
2.00	2.20	22	6	28	79
2.00	2.00	25	10	35	71
2.00	1.80	25	12	37	68
2.00	--	25	12	37	68
1.80	--	26	17	43	60
--	2.60	15	5	20	75
--	2.40	20	6	26	77
--	2.20	22	8	30	73
--	2.00	25	12	37	68
--	1.80	25	16	41	61

11 of the 26 graduates would have been accepted with such a standard and only 2 of the 17 withdrawers. While this presents a favorable admissions picture in that a considerably greater ratio of graduates would have been accepted, the total proportion of students salvaged is only 13 out of 43, and the 11 graduates accepted would be less than half of the graduate sample.

If our criteria become less stringent, on the other hand, we may descend to a point, such as an undergraduate GPA of 1.80 in the table, where there is no discrimination at all, where all of the graduates and all of the withdrawers would meet the criterion. Somewhere between these levels the optimum criteria lie.

The remaining GPA categories are systematically presented using an interval of 20 GPA points. The highest graduation rate (84%) among the ensuing listings can be expected from students who enter with an undergraduate GPA of 2.40 and an undergraduate business concentration GPA of 2.20, (raising the latter requirement to 2.40 does not change the rate). However these cut-off points only net 16 of the 26 students who actually graduated. A search to select cut-off points with both a large proportion of graduates salvaged and as high as possible a proportion of those meeting criterion who graduated resulted in the selection of the category: undergraduate GPA of at least 2.00, undergraduate business concentration GPA of at least 2.20. This choice would have resulted in the admission of 22 of the 26 graduates and only 6 of the 17 withdrawers, a difference in selection ratio which is statistically significant ($\chi^2 = 8.94$, $p < .01$). Seventy-nine percent of those meeting these criteria would be expected to graduate compared to the actual graduation rate in the sample of only 60%. Adjoining categories are not quite as good. With undergraduate GPA at 2.00 and undergraduate business concentration GPA at 2.40, 80% rather than 79% of total meeting criterion graduate but the number of graduates salvaged slips from 22 to 20. On the other hand, if undergraduate GPA is held at 2.00 and undergraduate business concentration GPA is lowered to 2.00, three more graduates are recovered (25 out of 26) but so are four more withdrawers (10 out of 17) which is not desirable, nor is the proportion graduating which drops from 79% to 71%.

Table 6 ends with a consideration of undergraduate business concentration GPA taken as a sole criterion for admission. It is apparent that the resulting effects are not as satisfactory as the already chosen dual consideration of undergraduate GPA of at least 2.00, undergraduate business concentration GPA of at least 2.20.

In selecting the cut-off criteria it must be pointed out that these are generated on a sample of matriculants. It is not really known whether individuals meeting the stated qualifications but not accepted at Hofstra would in fact have performed as those actually selected did. It is inferred that there would be no appreciable difference in performance.

Conclusion

Based on a sample of 43 matriculants recently enrolled in the Hofstra MBA program, undergraduate GPA and undergraduate business concentration GPA were found to be the most effective and Admission Test for Graduate Study in Business scores the least effective of the variables studied in predicting graduate success. Little support can be given to the continued use of the Admission Test for Graduate Study in Business as one of the admissions criteria.

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ABSTRACT

There is a wide agreement that (1) Florida needs more practicing veterinarians and veterinary medical services than it now has, especially in the area of large animal and food animal practice, and (2) there is a deficiency of opportunities to study veterinary medicine for those Floridians who would elect this profession. This report takes into account veterinary medical education in the U.S. as a whole, the veterinary population of Florida, the estimated need for veterinarians nationally and in Florida, the licensure characteristics of various health professions, the activities of other states with regard to the veterinarian shortage, an analysis of the alternatives to the creation of a veterinary college, and a proposed program and estimated costs for the creation of a veterinary college. Unfortunately, none of the alternatives to starting a new school in Florida show promise at this time of making a significant contribution to Florida's shortage. On the other hand, financing a new college presents an even greater problem. Without considerable aid from the Federal government, the construction of a college of veterinary medicine will be virtually impossible. (HS)

VETERINARY MEDICAL NEEDS

in FLORIDA

A Report Prepared for the

State University System
Office of the Board of Regents

JANUARY 1972

P R E F A C E

In 1965 the Florida Legislature authorized the establishment of a College of Veterinary Medicine at the University of Florida. In both the 1967 and 1969 Sessions, modest funding was provided to carry out this development.

In order to explore all of the alternatives for meeting the State's needs in veterinary medicine and to assemble the necessary data for sound planning, the 1971 Session of the Florida Legislature requested a study by the Board of Regents. To carry out this mandate the Board in turn requested the aid of an advisory committee consisting of a knowledgeable and interested member of each chamber of the Florida Legislature, a broadly knowledgeable practicing veterinarian in the State, the newly appointed Dean of the College of Veterinary Medicine at the University of Florida, and a representative of the Southern Regional Education Board who has had long experience in carrying out the necessary arrangements for regional veterinary and other forms of higher education in which Florida has been a participant. The Vice Chancellor for Medical and Health Sciences of our staff was requested to chair this committee for the conduct of the study.

Although this committee has operated under a tight time schedule, a wealth of data have been assembled. It is perhaps inevitable that some differences of opinion would arise over the interpretation of some of the data. However, full agreement was reached that in the face of national shortages, both of veterinarians and veterinary medical education opportunities, Florida cannot look to outside resources for any significant relief from internal shortages.

This study was not designed to shed light on the relative position of veterinary medical needs among the other needs of the State nor of the State University System. What it does say however is that none of the alternatives to starting a new school in Florida shows promise at this time of making a significant contribution to Florida's shortages and, should the decision be made to establish a school, the approximate commitment of funds that will be necessary.

Unfortunately the point of least clarity at this time concerns the Federal participation that might be expected in the development of a school. The Federal Legislation concerning funding in the health fields has recently undergone major change and the guidelines for administration are not yet drawn. It is now possible to support either an optimistic or a pessimistic view toward the availability of Federal money for construction of a college of veterinary medicine.

In the event the necessary resources for carrying out the development of a college of veterinary medicine within our state can be made available without compromise of any other program this study can serve as a useful base for the rapid planning and development of such a school.

Robert B. Mautz
Chancellor

JANUARY 1972

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A C K N O W L E D G E M E N T S

In July 1971 the following Advisory Committee to the Board of Regents was requested to "aid in the design, conduct and interpretation" of a study directed to identification of the state's needs in veterinary medicine and to evaluation of alternative means of meeting these needs:

Charles E. Cornelius, D.V.M., Dean
College of Veterinary Medicine, University of Florida

Edwin C. Godbold, Ph.D., Director of Administration
Southern Regional Education Board, Atlanta

Marshall S. Harris, Representative
108th District of Florida, Miami

William F. Jackson, D.V.M.
Lakeland

J. H. Williams, Senator
13th District of Florida, Ocala

K. E. Penrod, Ph.D., Vice Chancellor for Medical and
Health Sciences, State University System (Chairman)

Although serving throughout as a valuable member of the Committee, Dr. Godbold requested a consulting rather than voting status in view of his SREB representation.

The fact that not all of the Committee members were in full agreement with all of the statements made in this report need hardly be said. There were, in some instances, widely differing points of view. This was anticipated in the appointment of Committee membership.

In addition to the large donation of time and effort by members of the Advisory Committee, many others through their willingness to make data available have made major contributions. Effort has been made throughout the report to acknowledge the source of data, but sincere thanks is hereby extended.

The entire section on Program and Costs for a College of Veterinary Medicine was prepared by Dean Cornelius and his staff. Much time and effort went into the development of these data.

Finally, the patient competence brought to this study by Mrs. Carolyn Lehmann, Staff Assistant to the Vice Chancellor, is gratefully acknowledged. This report reflects her dedication and willingness to work under pressured circumstances.

K. E. P.

S U M M A R Y a n d R E C O M M E N D A T I O N S

There is wide agreement that (1) Florida needs more practicing veterinarians and veterinary medical services than it now has, especially in the area of large animal and food animal practice, and (2) there is a deficinecy of opportunities to study veterinary medicine for those Floridians who would elect this profession.

The shortage of practicing veterinarians and veterinary services is a national problem. A recent study sponsored by the National Research Council pointed out a need for 16,000 additional veterinarians by 1980. The 18 schools of veterinary medicine now in operation in 17 states are graduating only about 1200 per year which, without major expansion of educational opportunities, will fall far short of the indicated need. There is not, at this time, any clear indication of where or how this expansion will take place.

This committee was given the charge to "develop and implement a program or programs to identify and meet the state's veterinary....needs." This was interpreted to mean all alternatives should be evaluated for cost, near-and long-term effectiveness and feasibility. The study was, for the most part, limited to veterinary medicine and no attempt was made to rank the needs for veterinary medicine with any other needs of Florida.

The prospects are not good for any significant or lasting solution for Florida's needs for veterinary services and education from external resources. In view of national shortages as well as needs of this state with its large and growing livestock industry, it is the opinion of this committee that Florida has a responsibility to add veterinary medicine to its present offerings in higher and professional education.

Although exact quantification is difficult, and subject to dispute, there is no doubt Florida is in need of more veterinary services. These needs will continue to grow along with the human and animal populations of this state. Some immediate effort is needed to increase the number of practicing veterinarians in Florida.

The action most likely to have near-term effect would be a change in the practice acts designed to facilitate licensure transfer from another state. Veterinary medicine now shares with most other professions in Florida legislation which forbids endorsement of credentials obtained elsewhere, necessitating an examination administered by a local board. In the case of human medicine recent changes in the practice act, including a reduction of the citizenship requirement to a declaration of intent, has resulted in a three-fold increase in the number of licenses issued in the last three years. Such evidence is suggestive that similar changes might result in a substantial in-migration of other professionals, including veterinarians. There is however no way to test this hypothesis short of experience.

The Florida Board of Veterinary Examiners took action on 4 January 1972 to permit graduates of foreign colleges who are citizens of the U.S. to now take the Florida examination.

Regarding educational opportunities, Florida now has 26 places in entering classes at Auburn and Tuskegee secured through Southern Regional Education Board contracts, plus up to six places per year in the entering class at Ohio State. It is anticipated that this total will remain available to Florida, but the contract support price is likely to increase.

Prospects for increasing the number of entering places for florida residents, either by contract or in the free market do not appear bright. Due in the main to fiscal constraints, planned expansions of existing schools are not large and only one new school is in an advanced planning stage. New Federal Legislation which has as its primary objective an expansion of numbers in return for operating support may bring about some increase in entering places, but those likely to become available to Florida are limited. Even when the planned school at Louisiana State University becomes fully operational the total increase for Florida will likely be no more than five or six places. For the 32 entering students last year there were 102 applicants from Florida.

In view of the foregoing facts, Dean Cornelius has developed cost figures, both capital and operational, for a college of veterinary medicine at the University of Florida designed to accept 80 students per class.

A. New Construction	$10,372,410
B. Existing space to be shared (at replacement cost)	6,524,740
C. Total operating cost, 1981-82	3,890,500

The above cost figures have not been examined in detail by all of the members of this committee and must be considered those of Dean Cornelius and his colleagues.

In these construction costs up to 80% Federal participation will be sought. Likewise, both Federal and other income is anticipated to augment state subsidy of operations.

While there is full agreement in this committee that Florida should continue to move toward the development of its own college of veterinary medicine, there is some difference of opinion concerning what might be the most prudent course of immediate action. This disagreement hinges on the estimate of the probability of Federal assistance for construction, and when such might be available.

Federal participation in construction of health related facilities began in 1963. In 1970 one veterinary medical school received $582,432 in Federal matching grants and in 1971 two schools received a total of $9,172,822.

The Health Manpower Act of 1971 was passed in November 1971 and provides for more generous participation of the Federal Government in health facilities. The maximum participation was increased from 66 2/3% to 80%.

In December a funding bill for the Health Manpower Act was passed with an appropriation of $142,000,000 for construction in FY 1972, to be shared among medicine, osteopathy, dentistry, veterinary medicine, optometry, pharmacy and podiatry. This sum is appreciably less than the full authorization ($225,000,000) and in turn is more than the President's budget requested.

Dr. Harry Bruce, Jr., Director of the Division of Physician and Health Professions Education, DHEW, stated recently:

> "In the future, with respect to the grant process, all health professions' schools will probably experience more difficulty in obtaining Federal assistance for the construction of teaching facilities. The extent to which private schools can utilize the guaranteed loan and interest subsidy provision is now known. Health professions' schools should begin to explore new methods to provide teaching facilities and not expect significant direct Federal participation. To me, this is a realistic position and should not come through as a pessimistic outlook."
> (Letter dated 7 December 1971)

On 31 December 1971 the Deans of all U.S. medical schools were warned by the Washington office of the Association of American Medical Colleges to the effect that:

> "....appropriations over the Administration's request [$82 million] will probably be put in reserve. This action would reflect a long-range Administration plan to withdraw from a direct Federal role in capital expansion in the health education field. Under the long-range plan, there is a high probability that capital investment would have to be the result of individual institutional action, with a Federal provision that the servicing of debt could be a proper charge against operating support."

It is clear to all that Florida is not now in position to proceed with the capital outlay for a college of veterinary medicine without substantial Federal participation. The question then becomes: What is the most prudent course of action at this time?

IT IS THE UNANIMOUS RECOMMENDATION OF THIS COMMITTEE that funding be provided for a continuing study with further refinement of program and costs but without architectural commitment at this time. This option would allow for maximum flexibility while assaying:

A. The direction the Federal funding program may take.
B. The impact of any potential modification of the licensure laws.
C. The impact of Federal operations support, and other factors, on expansion of enrollments.
D. Whether or not LSU is able to begin its new school and the possible consequences for Florida.
E. Progress in development of the regional consortium approach.

ADDENDUM

At the time of delivery of this report to the Board of Regents (7 January 1972) two members of the Advisory Committee submitted the following:

Dr. Jackson received a letter written 4 January 1972 by Dr. W. M. Decker, Director of Scientific Activities of the American Veterinary Medical Association, who said in part:

> "....in response to your recent inquiry regarding trends in federal support to veterinary medical education. We are encouraged by recent legislation and particularly enthusiastic over the trend based upon the recent Congressional action in appropriating for the new health manpower authority....The funds appropriated for construction grants will provide for modest support of construction projects. The members of the Conference Committee made the following statement with respect to the appropriation for construction: 'The conferees are agreed that $10,616,000 of the funds made available for construction shall be for the construction of a veterinary school in the southern part of the nation.'...It would appear, therefore, that the true backlog, assuming that Louisiana State University is funded during the next year, is only approximately $10 million."

Drs. Jackson and Cornelius prepared the following addendum which was accepted by the Board of Regents for transmittal without endorsement to the Governor and the Legislature:

> "In order to augment the recommendation to 'provide for continuing study with further refinement of program and costs' and to measure the possibility of federal approval and support, it is suggested as vital to have architectural funds to test if federal funds are available. If federal funds are to be granted, a decision can then be made on whether to proceed. Such preliminary architectural fees will amount to $311,200 plus $25,000 for site work. The operating budget to accomplish the stated goals in the report would be $150,000. This amounts to a total request of $486,200 for the next fiscal year."

CHAPTER I

VETERINARY MEDICAL EDUCATION IN THE UNITED STATES

There are 18 veterinary schools in the United States and three in Canada. (Appendix 1) Only one state, Alabama, has two schools: Auburn and Tuskegee. Five of the schools (Auburn, Tuskegee, Georgia, Oklahoma State and Texas A&M) are located in the South and offer a limited number of places in their entering classes to other states within the 14-state area covered by the Southern Regional Education Board.

The 18 U.S. schools, with the number of students in the entering classes and the total student bodies for the last three years are shown below:

	Entering Class			Total DVM Students		
	68-69	69-70	70-71	68-69	69-70	70-71
Auburn	101	101	105	386	392	399
California	80	80	85	307	318	330
Colorado State	80	80	84	286	300	303
Cornell	60	60	65	231	221	245
Georgia	64	65	69	247	260	245
Illinois	74	71	78	273	265	269
Iowa State	75	75	80	291	295	293
Kansas State	80	80	85	315	319	321
Michigan State	100	101	105	277	283	295
Minnesota	65	62	66	239	235	239
Missouri	60	60	65	220	233	238
Ohio State	85	96	120	317	338	381
Oklahoma State	49	48	49	183	189	189
Pennsylvania	78	78	82	290	301	309
Purdue	60	60	65	226	232	238
Texas A&M	128	128	128	380	382	381
Tuskegee	38	36	39	120	111	112
Washington State	50	60	60	191	201	219
TOTALS	1327	1341	1430	4779	4875	5006

No. Graduates:

1968.....1,077
1969.....1,165
1970.....1,201
1971.....1,191

Source: JAVMA Student Enrollment Reports, AVMA Records.

Although the number of individuals applying for the 1430 places cannot be exactly determined, approximate estimates are available. Of the order of 70% of applicants apply only to schools within their own state since most states with colleges accept primarily their own residents. Available data would suggest that a similar number of applicants are present nationally in veterinary medicine as in other health professions.

FLORIDA APPLICATIONS TO AUBURN, 1967-1971

	Applications	No. Accepted	Repeat Applications	Repeats Accepted
Fall 1967	51	20	16	10
Fall 1968	59	20	21	11
Fall 1969	59	20	21	9
Fall 1970	59	20	19	8
Fall 1971	68	20	12	4
	296	100	89	42

Data supplied by Dr. Cornelius

In those states with a school the number of applicants to that school is generally higher than those of another state without a school on a per capita basis. Florida now has in excess of 100 applicants each year and with a school this would doubtless increase substantially. In those states having a school the number of applicants is 30 per million population. Applying this ratio, Florida could be expected to have 200 applicants per year. (Appendix) There is no doubt that Florida could supply an ample number of well qualified applicants to its school.

The number of Florida residents seeking entry to veterinary schools in the last two years, together with the number who were successful in gaining entry is shown below:

Entering Class	Number Applicants	Number Accepted	Ratio Applicants/Accepted
1970-71	77	30	2.3/1
1971-72	102	32	3.2/1

Since human medicine and dentistry are two somewhat related programs that likewise are unable to provide for all of those who would seek such an education in Florida, the comparable data concerning Florida residents are as follows:

Human Medicine:

Entering Class	Number Applicants	Number Accepted	Ratio Applicants/Accepted
1969-70	645	246	2.6/1
1970-71	648	275	2.4/1

Dentistry:

Entering Class	Number Applicants	Number Accepted	Ratio Applicants/Accepted
1969-70	274	104	2.6/1
1970-71	282	119	2.4/1

There is wide disparity between the ten states with the largest number of entering students per million population and the ten states with the least number. These two groups are compared in the following table:

10 States with Largest Number Entering Students/Million Population		10 States with Least Number Entering Students/Million Population	
*Kansas	34.2	Rhode Island	1.1
Montana	23.1	Hawaii	1.3
*Iowa	22.5	Connecticut	2.7
Idaho	16.8	New Jersey	2.7
*Colorado	14.9	Massachusetts	3.2
*Minnesota	12.6	Alaska	3.3
*Indiana	11.5	Arkansas	3.6
*Texas	11.0	North Carolina	3.7
*Alabama	11.0	Tennessee	3.8
Nebraska	10.8	Maryland	3.8
Average	16.8	Average	2.9

*States with a veterinary school

Florida 4.4

From the above it can be seen that clear advantage lies with the states having veterinary schools within their borders. Seven of the ten states with the largest number of entering students per population have schools. As a group the seventeen states having veterinary schools average 11.0 residents per million population in the entering classes, approximately twice the 6.2 in those states without a school.

Federal Legislation

What future expansion possibilities may exist for veterinary medical education in the U.S. is unclear at the present time. Every school is under some degree of pressure for expansion but limitation of resources and facilities is a strong deterant.

In November 1971 Public Law 92-157, "Comprehensive Health Manpower Training Act of 1971" was signed. In December a supplemental appropriation bill was passed by the Congress to fund the provisions of this Act, but not to the full level of the funds authorized.

A central theme of the new manpower act, in which veterinary medicine is included along with medicine, osteopathy, dentistry, optometry, pharmacy and podiatry, is expansion of students. A major provision of the law calls for capitation funding for each student enrolled. Eligibility for Federal funds carries with it a mandatory first year enrollment increase over the class size of Fall 1970 of:

A. Ten percent if the number in Fall 1970 was less than 100, or

B. Ten students if that number was greater than 100.

In addition bonus funding per student is available as a reward for voluntary expansion of 5% or more beyond the required increase.

In the authorizing legislation schools of veterinary medicine, optometry, pharmacy and podiatry are grouped and the sum of $34 million proposed for per-student operating support. The actual funding of this portion of the bill for FY '72 was $25.2 million. In the initial proposal veterinary medicine was provided $1750 for each fulltime student, and $700 for each enrollment bonus student. What the actual sums will turn out to be under the reduced funding will not be known for some time.

While an "escape clause" is contained in the wording of the manpower act allowing the Secretary of Health, Education and Welfare to waive "in whole or in part" the mandatory increases under certain circumstances, it is obvious this option will be exercised infrequently.

The impact of this new legislation on the Fall 1972 and subsequent entering classes of the 18 veterinary colleges now operating cannot be predicted with reliance. If each school were to expand by the full required amount the increase in entering places (over 1970) would be 142. The addition of "bonus enrollments" could add to the number while some of the realities of physical limitations may lessen the number.

With regard to support of construction for both current and new schools there is "both good news and bad news" in the new Federal legislation.

In the new law the maximum Federal participation in construction is increased from the previous 66 2/3% to 80%. At the same time, whereas $225 million was authorized for construction (for medicine, osteopathy, dentistry, veterinary medicine, optometry, pharmacy and podiatry) only $142.385 million was appropriated for the current fiscal year. Dr. Harry Bruce, Jr., Director of the Division of Physician and Health Professions Education and the HEW officer principally concerned with administration of construction grants provides further data on this subject:

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH
BETHESDA, MARYLAND 20014

December 7, 1971 BUREAU OF HEALTH MANPOWER EDUCATION

Kenneth E. Penrod, Ph.D.
Vice Chancellor for Medical
and Health Sciences
State University System of Florida
107 West Gaines Street
Tallahassee, Florida 32304

Dear Dr. Penrod:

This letter contains the summary you recently requested on the problem of Federal support to assist in the construction of veterinary medicine training facilities.

In 1966, the Health Professions Educational Assistance Act was amended to make schools of veterinary medicine eligible for Federal support in the construction of teaching facilities. However, funds were not available to consider requests from these schools until fiscal year 1968. Since then, six veterinary medicine schools have received $16,416,371 to support the expansion, replacement and renovation of teaching facilities.

In fiscal years 1970 and 1971, funds appropriated for construction assistance were allocated administratively as recommended by the National Advisory Council on Education for Health Professions: seventy percent for schools of medicine, osteopathy, and public health; twenty percent for dental schools; and ten percent for schools of optometry, podiatry, pharmacy, and veterinary medicine. In fiscal year 1970, one school of veterinary medicine received $582,432 in matching grants; and in fiscal year 1971, two schools received a total of $9,172,822. These three grants have enabled the schools to increase their first-year enrollments by ninety-one students.

The authority to provide matching grants to schools of the health professions under P. L. 90-490 (Health Manpower Act of 1968), expired June 30, 1971. When all activity under that authority was completed, a total of 108 projects were approved but unfunded: sixty-two in medicine; two in osteopathy; four in public health; twenty-two in dentistry; two in optometry, six in pharmacy; three in podiatry and eight in veterinary medicine. The total Federal share for all of these

projects for schools of optometry, pharmacy, podiatry, and veterinary medicine equalled $88,159,374. The portion of that figure for schools of veterinary medicine was $53,849,612, and of this amount, $14,996,423 was for two projects which had met all of the requirements and were ready to be considered for funding.

The Comprehensive Health Manpower Training Act of 1971, P.L. 92-157, extends and amends the previous construction authority. It contains an authorization of $225,000,000 in matching grant funds for fiscal year 1972. The Act also includes provisions for guaranteed loans and interest subsidy for private, non-profit health professions schools, to assist in the construction of teaching facilities. The Administration's supplemental budget request for fiscal year 1972, to implement the construction provisions of the Act, includes $82,000,000 for matching grants, and $800,000 for interest subsidy.

To implement the construction provisions of the new Act, significant changes will have to be made in the rules, regulations, and operating procedures. For example, new, more definitive criteria, for evaluating grant applications will be included in the rules and regulations. A modification in the operating procedures will be made to control the time a project will remain in active funding consideration, and the total amount of approved but unfunded projects.

In the future, with respect to the grant process, all health professions schools will probably experience more difficulty in obtaining Federal assistance for the construction of teaching facilities. The extent to which private schools can utilize the guaranteed loan and interest subsidy provision, is not known. Health professions schools should begin to explore new methods to provide teaching facilities and not expect significant direct Federal participation. To me, this is a realistic position and should not come through as a pessimistic outlook.

I hope this summary provides you wish the necessary information you requested. If not, please let me know, and additional data will be provided.

Sincerely yours,

Harry W. Bruce, Jr., D.D.S.
Director
Division of Physician
and Health Professions Education

At the time Dr. Bruce's letter was written (7 December 1971) the Appropriations Act funding the Health Manpower legislation had not been passed. Since that time several happenings of note have transpired. These are best summarized in a memorandum prepared by the Association of American Medical Colleges, dated 31 December 1971, and distributed to the deans of all medical schools. The covering letter and the section covering construction grants (which apply to medicine, osteopathy, dentistry, veterinary medicine, optometry, pharmacy and podiatry) follow:

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

Memorandum #71-48

December 31, 1971

TO: Council of Deans

FROM: John A. D. Cooper, M.D., President

SUBJECT: Implementation of the Comprehensive Health Manpower Training Act of 1971

The federal government is moving ahead with plans to implement this year's landmark legislation for health professions education assistance, the Comprehensive Health Manpower Training Act of 1971. Congress has completed action on a bill appropriating funds for the assistance programs. The Health, Education and Welfare Department, through its Bureau of Health Manpower Education in the National Institutes of Health, is preparing to distribute the forms required to apply for assistance and the guidelines and policies governing the administration of the programs.

The legislative history of the Act indicates clearly that the principal Congressional objectives in the training of health professionals are (1) increased output, (2) shortened curriculum, (3) innovation in educational programs, (4) increased enrollment of minority and disadvantaged students, (5) initiation of efforts to influence geographic and specialty distribution and (6) determination of an appropriate, basic federal share in the cost of educating health professionals. To the Executive Branch falls the task of designing the administrative framework to accomplish those objectives in the context of President Nixon's overall program.

The following information is designed to keep you informed of current administrative developments in implementing the new Act. The information is based on recent remarks by Kenneth M. Endicott, Director of the Bureau of Health Manpower Education, Daniel F. Whiteside, an Associate Director of the Bureau, and Harry W. Bruce, Jr., Director of the Bureau's Division of Physician and Health Professions Education. I believe the information to be as accurate as possible. But when one considers that even the application forms prepared by the Bureau must be approved also at the Department level and by the President's Office of Management and Budget, it is possible to understand how some policies proposed by the Bureau (and reported here) may be subject to change. The Association staff stands ready to be of help to you in connection with the provisions of this legislation.

Attachment

Program-by-Program Plans

Construction

	Grants	Loans
Fiscal 1972-authorization:	$225,000,000	$8,000,000
President's request:	82,000,000	800,000
appropriation:	142,385,000	800,000

There are two major points. One of them is that the construction backlog of approved but unfunded projects is to be abolished. Schools will have to reapply if they wish to reactivate their applications, modifying them to meet new priorities and objectives currently under preparation. Under the new program, approval actions on construction applications will constitute approval for payment. There no longer will be provision for approving applications but leaving them unfunded. The other major point concerns Congressional appropriations in excess of budget requests. Appropriations over the Administration's request will probably be put in reserve. This action would reflect a long-range Administration plan to withdraw from a direct federal role in capital expansion in the health education field. Under the long-range plan, there is a high probability that capital investment would have to be the result of individual institutional action, with a federal provision that the servicing of debt could be a proper charge against operating support.

Other points --

Construction to meet a mandatory enrollment increase will get priority consideration.

The bigger the proposed enrollment increase, the higher the priority.

The definition of "doctor shortage area," in which construction would qualify for 80 percent federal assistance, is still undecided.

Local building, plumbing, electrical codes and so forth are to prevail in construction, in lieu of federal construction standards. If there is no local code, then the federal standard will prevail.

The requirement for review by the Secretary of working drawings is to be dropped.

There is no plan to activate a provision calling for assistance from the HUD Department

Comment on construction plans by comprehensive health planning agencies established under section 314(a) and 314(b) of the Public Health Service Act already was required by an Executive Order. The practice was to assume 314-agency approval if no comment was forthcoming in a reasonable period of time. The Act's new requirements for 314-agency comment will require a response, that could be time-consuming.

A different view has been expressed by the Director of Scientific Activities of the American Veterinary Medical Association in his letter of 4 January 1972 to Dr. Jackson:

AMERICAN VETERINARY MEDICAL ASSOCIATION
600 SOUTH MICHIGAN AVENUE · CHICAGO, ILLINOIS 60605 · PHONE: 312 / 922-7930

January 4, 1972

Dr. Wm. F. Jackson
4006 S. Florida Avenue
Lakeland, Fla. 33803

Dear Dr. Jackson:

This is in response to your recent inquiry regarding trends in federal support to veterinary medical education. We are encouraged by recent legislation and particularly enthusiastic over the trend based upon the recent Congressional action in appropriating for the new health manpower authority.

The Comprehensive Health Manpower Training Act of 1971 contains many features which are improvements over the previous legislation. Among these improvements are the authority for capitation grants, construction grants, special project grants, and grants for the training of health professions educators. Colleges of veterinary medicine have been eligible for institutional grants under the previous Congressional authority for two years. The level of support during that time was approximately $550 per student per year. The new authority provides for capitation grants up to $1750 per year per student for specified increases in enrollment, and a system of bonus grants for increases at specified levels above the minimum amount required for a basic grant. The authorization for grants for the construction of educational facilities provides for up to 80% of the cost being supported by federal funds as compared to 66-2/3% under the previous authority. The new authority also provides for a system of grants to support the costs of training people who will devote their careers to health professions education.

The recent action of Congress with respect to appropriations for the new health manpower authority is encouraging. While the funds provided will not fully fund the maximum levels authorized in the Comprehensive Health Manpower Training Act of 1971, they will provide for significantly improved funding as compared to the recent years. The funds appropriated for capitation grants will provide for funding at approximately 88% of the authorized level. This will mean funding at approximately $1500 per student per academic year as compared to approximately $550 per student during the past two years. The funds appropriated for construction grants will provide for modest support of construction projects. The members of

the Conference Committee made the following statement with respect to the appropriation for construction: "The conferees are agreed that $10,616,000 of the funds made available for construction shall be for the construction of a veterinary school in the southern part of the nation." This statement does not limit the amount of funds available to veterinary medicine to the $10,616,000. There is, in fact, reason to believe that other projects with state matching funds available may receive favorable consideration for funding during the remainder of this fiscal year. While it is often stated that there is an approximate $55 million backlog of approved but unfunded projects for the construction of veterinary medical educational facilities, state matching funds are available to support projects totaling only about $20,600,000. It would appear, therefore, that the true backlog, assuming that Louisiana State University is funded during the next year, is only approximately $10 million. The trend with respect to construction of veterinary medical facilities would seem particularly encouraging. Only four grants totaling $6,661,000 were made through 1969 to colleges of veterinary medicine. In 1970 one grant of $582,432 was made and in 1971 two grants were awarded totaling $9,172,822. By the statement made in the report of the Conference Committee on 1972 appropriations, it is clearly the intent of the Congress that at least $10,600,000 shall be used in this fiscal year for veterinary medical construction.

The appropriation for special projects grants is considerably higher for the total of the health professions this year than in previous years. During 1971, $684,000 was granted to two veterinary medical institutions under the special project grant authority. It would seem entirely possible that grants at least twice that level could be made to veterinary medical colleges during this fiscal year.

Throughout the period of consideration of the Comprehensive Heath Manpower Training Act of 1971 and the appropriations to fund that authority, it seemed clear that a large number of members of the Congress have strong feelings regarding the needs for federal support of veterinary medical education. We think their concern is carried through in the way the Act was passed and in the appropriations to implement it. Thus, we are relatively enthusiastic for the immediate future of federal financial support for veterinary medical education.

Sincerely,

WMDecker

W. M. Decker, D.V.M.
Director of Scientific Activities

WMD:lb

CHAPTER II

VETERINARY POPULATION OF FLORIDA

To have meaning, data on practitioners of a profession must be carefully referenced both as to source and to time. Professional people, like others, move, retire, die, and new licenses are issued once or perhaps several times during the year.

The Florida Department of Professional and Occupational Regulation has responsibility for monitoring the annual renewal of the license to practice veterinary medicine. A list of licensees, accurate to 16 August 1971 has been obtained. Since that time 113 additional licenses have been issued to those who successfully completed the 1971 examinations. Further data have been obtained from the 1970 edition of the American Veterinary Medical Association (AVMA) Directory and by correspondence with State and Federal offices. From these the following data has been obtained:

Current License Holders, as of December 1971:

	With Florida Addresses	Out of State Addresses
List to 16 August	672	493
1971 Licenses	62	51
Total	734	544

Of the Currently Active 1278 Holders of the Florida License, 734 or 57.5% have Florida Addresses. Data on this Location Factor for the Past Five Years are as Follows:

Year	No. Licenses Issued	No. Currently Active in Florida	% of Licensees Now Active in Fla.
1966	65	33	51%
1967	72	28	39%
1968	83	42	51%
1969	98	51	52%
1970	107	51	48%

To the Number Above With Florida Addresses and Current Licenses (734) may be Added:

Professional practice, not licensed	
State employees	55
Federal employees	17
Foreign graduates	9
Retired, not licensed*	73
Other (military, students, etc.)	13
Total Veterinarians in Florida	901

*Among the 708 veterinarians listed in the 1970 AVMA Directory, 52 are listed as retired. Three of the 52 renewed practice licenses in 1971 (the years of their graduation were 1923, 1939 and 1953).

Obtaining a degree in veterinary medicine prior to 1931 reasonably assures that the holder is now over 60 and therefore is retired, or approaching retirement. A total of 33 who do not show themselves as retired in the Directory do list degree dates of 1930 or before. Of these 33, nine renewed licenses in 1971.

Hence, among Directory listees, 49 are listed as retired and unlicensed, and another 24 appear to be over 60 years of age and do not have a license, for the total of 73 shown above. This amounts to 8.1% of the 901 total in Florida, or 10.3% of those listed in the Directory.

Disregarding the current license, there appears to be 85 (52+33) among the 708 Directory listed veterinarians in Florida who claim retirement or appear to be over 60 years of age. This figure amounts to 12% of the Directory listings.

The NRC Committee (next chapter) concluded by computation and deduction that there are of the order of 777 retired veterinarians in the U.S., although only 284 AVMA Directory veterinarians list themselves as retired. The above figures for Florida would appear to be in line with that observation.

The Distribution by County of the August 1971 Licensees

Does Not Include New (Fall 1971) Licensees

Alachua	16	Hamilton	1	Okaloosa	5
Baker	-	Hardee	1	Okeechobee	3
Bay	6	Hendry	2	Orange	36
Bradford	-	Hernando	3	Osceola	4
Brevard	20	Highlands	3	Palm Beach	36
Broward	79	Hillsborough	43	Pasco	5
Calhoun	2	Holmes	-	Pinellas	50
Charlotte	2	Indian River	4	Polk	26
Citrus	4	Jackson	2	Putnam	4
Clay	2	Jefferson	2	Santa Rosa	2
Collier	6	Lafayette	1	Sarasota	13
Columbia	2	Lake	6	Seminole	5
Dade	112	Lee	11	St. Johns	2
Desota	5	Leon	14	St. Lucie	3
Dixie	-	Levy	2	Sumter	-
Duval	41	Liberty	-	Suwannee	4
Escambia	15	Madison	1	Taylor	1
Flagler	-	Manatee	10	Union	-
Franklin	-	Marion	23	Volusia	16
Gadsden	2	Martin	3	Wakulla	-
Gilchrist	1	Monroe	5	Walton	1
Glades	-	Nassau	-	Washington	4
Gulf	-				

Total 672 (+493 out-of-state = 1165 currently licensed)

Data provided by Department of Professional and Occupational Regulations.

Number of Licensed Veterinarians in Florida Per 100,000 Population

As of August 1971

Alachua	15.3	Hamilton	12.8	Okaloosa	5.7
Baker	-	Hardee	6.7	Okeechobee	26.7
Bay	8.0	Hendry	16.9	Orange	10.4
Bradford	-	Hernando	17.6	Osceola	15.8
Brevard	8.7	Highlands	10.2	Palm Beach	10.3
Broward	12.7	Hillsborough	8.8	Pasco	6.6
Calhoun	26.2	Holmes	-	Pinellas	9.6
Charlotte	7.2	Indian River	11.1	Polk	11.4
Citrus	20.8	Jackson	5.8	Putnam	11.0
Clay	6.2	Jefferson	22.8	Santa Rosa	5.3
Collier	15.8	Lafayette	34.6	Sarasota	10.8
Columbia	7.9	Lake	8.6	Seminole	6.0
Dade	8.8	Lee	10.4	St. Johns	6.5
Desota	38.3	Leon	13.6	St. Lucie	5.9
Dixie	-	Levy	15.7	Sumter	-
Duval	7.8	Liberty	-	Suwannee	25.7
Escambia	7.3	Madison	7.4	Taylor	7.3
Flagler	-	Manatee	10.3	Union	-
Franklin	-	Marion	33.3	Volusia	9.4
Gadsden	5.1	Martin	10.7	Wakulla	-
Gilchrist	28.2	Monroe	9.5	Walton	6.2
Glades	-	Nassau	-	Washington	34.9
Gulf	-				

Data computed from county distribution data and 1970 census.

The distribution of health professionals is a question of equal significance to the total numbers. In order to reveal this factor the ten counties of the state having a population in excess of 200,000 have been lumped together representing the urban areas. In sum they comprise slightly over 70% of the total population of the state. From the table below it can be seen that in each of the groups of the health professionals tested these population centers have more than 70% of the licensed practitioners in the state with the exception of veterinary medicine.

	Veterinarians	Physicians	Osteopaths	Dentists	Optometrists	Pharmacists	Active R.N.'s
Total	459	6,779	471	2,323	445	2,916	23,443
% of State Total	68.5	77.7	82.2	77.9	73.3	72.0	74.2

At the other end of the population scale there are 43 counties in Florida having less than 50,000 population each. In sum they represent 10.9% of the state's population. In each of the health professions except veterinary medicine these rural counties have attracted slightly less than their proportionate share of the licensed health manpower in the state. Veterinary medicine is obviously a more rural oriented profession than the others tested.

	Veterinarians	Physicians	Osteopaths	Dentists	Optometrists	Pharmacists	Active R.N.'s
Total	76	479	21	193	46	381	2,262
% of State Total	11.3	5.5	3.7	6.5	7.6	9.4	7.2

The above breakdown has limitations in its interpretation. Using county boundries does not permit revealing the extent of a major population area just to one side of a county line from another county but providing equal services. In addition, these data are based on addresses supplied the Department of Professional and Occupational Regulation and no distinction is made whether the address is that of the home or of the practice location.

CHAPTER III

THE ESTIMATED NEED FOR VETERINARIANS - NATIONALLY AND LOCALLY

Hardly anyone will contest the assertion that more practicing veterinarians are needed, both in Florida and in the rest of the country.

Veterinary medicine shares with the other health-related professions what was recently described in a Carnegie Commission Report[1] thusly:

> "The U.S. today faces only one serious manpower shortage, and that is in health care personnel."

The determination of real manpower needs in quantitative terms for any field or profession is an almost impossible task. Factors of distribution, efficiency of operation, use of auxiliary personnel, and most of all shifts in the economy of the nation, all serve to obscure predictions of future need.

One recent study by the Joint Committee on Education of the American Veterinary Medical Association and the Association of American Veterinary Medical Colleges, Inc., clearly states their best estimates for "Future Requirements for Veterinarians."

> "The American Veterinary Medical Association estimated that there are today approximately 26,400 active veterinarians in the United States. To maintain the present ratio of veterinarians to population size, 31,221 veterinarians are conservatively estimated to be needed by 1980. Based upon recommendations of the Senate Committee on Government Operations[2], 41,166 veterinarians will be needed to satisfy the public needs including human health related activities of the United States by 1980. The validity of this estimated need has recently been confirmed following extensive study by the Association of American Veterinary Medical Colleges. Unless enrollment in veterinary schools increases substantially, only about 31,221 veterinarians will be available in the United States in 1980 - approximately 10,000 short of the need.

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1. "Higher Education and the Nation's Health." Policies for Medical and Dental Education, New York, McGraw-Hill, 1970.

2. "Veterinary Medical Science and Human Health," Committee on Government operations, United States Senate and its Subcommittee on Reorganization and International Organizations, August 10, 1961.

Number of Veterinarians by Year in the United States
Projected Need and Predicted Shortage

Year	U.S, Population(1)	Veterinarians Available(2)	Number per 100,000 Population	Projected Need	Net Shortage
1970	204,000,000	26,400	13.0	35,700	9,300
1975	220,000,000	29,230	13.2	38,500	9,270
1980	235,200,000	31,221	13.0	41,166	9,945
1985	251,000,000	32,212	12.4	43,925	11,713

(1) Estimates of final 1970 count. Estimates after 1975 based upon 1968 revised population estimates. U.S. Census Bureau.

(2) Based upon current and projected output.

"Most American colleges of veterinary medicine could increase both professional and graduate enrollments if funds for expansion of facilities and for operating expenses and staff were made available. In order to implement the total needed expansion of veterinary teaching facilities, additional colleges must be established and existing colleges expanded, the training of veterinary teachers must be accelerated, and additional loan funds made available to students especially academically qualified students from lower income families. A veterinary education is expensive for the student. The average veterinarian has studied nearly 8 years to earn his DVM degree.

"Expansion of U.S. veterinary educational opportunities is urgently required. There is a critical need for funds for:

a. Expansion of existing veterinary medical colleges.

In 1970 at least 4 qualified applicants were turned away for each one accepted in American veterinary colleges. The limited capacity of veterinary colleges is especially distressing at this time when there is an acute and growing shortage of veterinarians. Lack of funds for the construction of new facilities is the major obstacle to increasing student enrollments at most veterinary colleges.

b. Establishment of new veterinary colleges.

There are 18 colleges of veterinary medicine in the United States. An additional one is in the process of becoming established. Even with expansion, these colleges will be unable to supply all the veterinarians needed in the years ahead. Moreover, many qualified students from the 32 states lacking a veterinary college find it very difficult if not impossible to obtain a veterinary education."

Recently the National Research Council (NRC) appointed a special committee* to look into current and projected needs in veterinary medicine in the United States.

Dr. Terry recently testified before the Committee on Interstate and Foreign Commerce of the United States House of Representatives and stated:

> "During the past two years, I have chaired a committee functioning under the Division of Biology and Agriculture of the National Academy of Sciences - National Research Council. This committee has studied and is developing a report in veterinary medical research and education. Our report will not be available for several months; however, this opportunity to study veterinary medicine and its contribution to human health and well-being has demonstrated to me the great value of this profession. It serves us well, but is inadequate in numbers. Unless some dramatic action is taken now to expand enrollments in many existing colleges of veterinary medicine and to establish new colleges, we will have a profession which will be grossly undermanned to meet demands upon it ten years from now."

The following table summarizes the findings of the recent study by the NRC:

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*Committee members: Luther L. Terry, M.D., Chairman; Wilford S. Bailey, D.V.M., Sc.D.; George C. Christensen, D.V.M., Ph.D.; Willard H. Eyestone, D.V.M., Ph.D.; Robert J. Flynn, D.V.M.; Jack O. Knowles, V.M.D.; Robert H. Kokernot, D.V.M., M.D.; Dr.P.H.; Herbert L. Marsh, D.V.M.; William R. Pritchard, D.V.M., Ph.D., J.D.; Martin H. Roepke, Ph.D.; Wesley W. Spink, M.D.; Harold L. Wilcke, Ph.D.

Data used by special permission.

The Veterinarians in the United States as of 1 January 1970 Classified by the Activity to Which They Devote More Than 50% of Their Efforts, and an Estimate of the Number That Will Be Needed in 1980.

Major Activity*	Number of Veterinarians	
	1970	1980
Food Animal Practice	6,242	6,242
Small Animal Practice	10,931	21,862
Equine Practice	804	1,608
Laboratory Animal Medicine	342	704
Public Health	276	569
Military Veterinary Medicine (exclusive of laboratory animal medicine and research)	770	462
Regulatory Veterinary Medicine other than Meat Inspection	1,227	1,871
Meat Inspection	1,885	1,885
Industrial Veterinary Practice (exclusive of laboratory animal medicine)	506	1,407
Zoo Animal Practice	40	80
Wildlife Animal Practice	14	50
Teaching and research (exclusive of laboratory animal medicine, public health and industrial veterinary practice)	1,611	3,222
Other Veterinary Practice	477	767
Retired	777	1,166
TOTAL	25,902	41,895

*The purpose of this table is to illustrate in a relative way the distribution of veterinarians by principal practice activity. However, few veterinarians are involved in one professional activity to the exclusion of all others. Thus, the apportionment of each individual to one or another classification is artificial and may be misleading. For example, of the veterinarians engaged in private practice, 50.1% are engaged in mixed practice, that is they are community practitioners who provide all needed veterinary services in their area.

Regarding the total for 1980, 41,895, the NRC Committee concluded:

> "Although 41,895 veterinarians will be needed in 1980, the number that can be trained by that time with the existing and planned facilities, less losses from death, will be only about 38,000. Thus, unless extraordinary action is taken, without delay, a serious veterinary manpower deficit will result."

Previous estimates (41,439) calculated from data supplied by the Joint Committee on Education, AVMA and AAVMC, and using 1970 Population Advanced Projects, agree closely with 1980 estimates of both the National Academy Committee report and evaluations by the Southern Regional Education Board. With no new schools and minimal class size increases, the deficiency of veterinarians in 1980 could be as high as 11,000. SREB projections for manpower deficits for 1980 are near 7,000 while the National Academy of Sciences' projections approximated 4,000 taking into account all the existing and planned facilities undergoing maximal expansion nationwide. State support to facilitate many building projects has not been forthcoming.

Projected Needs for Veterinarians in Florida

17.2/100,000 population (NRC Report) would indicate that 1550 active veterinarians would be needed. SREB in 1971 projected needs for 1980 that were similar at 1479 veterinarians. From Chapter II, it was apparent that a total of 901 veterinarians were in the state in 1971 with an estimate of 73-133 retired. With approximately 768-828 active veterinarians presently in Florida, there will be a need to double the number of active veterinarians in the state by 1980 or approximately 628-698 more veterinarians. (See table below with 1970 to 1985 projections.)

VETERINARY MANPOWER NEEDS FOR FLORIDA

Year	Florida Population*	Veterinarians			Deficit
		Available**	Per 100,000	Needed***	
1971	7,001,922	768-828	11.0-11.8	1225	397-457
1975	7,720,000	832-898	10.8-11.6	1351	453-519
1980	9,019,000	889-950	9.9-10.5	1578	628-698
1985	10,535,000	917-983	8.7- 9.3	1844	861-927

*Population for 1971 based on actual figure for 1970 and projected population for 1972. Other figures are official U.S. Census projections.

**Active veterinarians. Range for 1971 is based upon 73 to 133 retired veterinarians out of a total of 901 veterinarians in the state.

***Based on 17.5 active veterinarians per 100,000 (AVMA Report). (17.2 NRC Report)

Calculations by Dr. Cornelius.

Using the state totals of the U.S. Public Health Service publication (see Appendix) and the 1970 U.S. census data, the number of veterinarians per 100,000 population by state has been computed in the following table:

		Population	No. DVM's	Per 100,000 Population
1.	California	19,953,134	2533	12.7
2.	New York	18,190,740	1561	8.6
3.	Pennsylvania	11,793,909	1024	8.7
4.	Texas	11,196,730	1596	14.2
5.	Illinois	11,113,976	1342	12.1
6.	Ohio	10,652,017	1236	11.6
7.	Michigan	8,875,083	984	11.1
8.	New Jersey	7,168,164	566	7.9
9.	FLORIDA	6,789,443	835	12.3
10.	Massachusetts	5,689,170	378	6.6
11.	Indiana	5,193,669	812	15.6
12.	North Carolina	5,082,059	399	7.8
13.	Missouri	4,677,399	778	16.6
14.	Virginia	4,648,494	561	12.1
15.	Georgia	4,589,575	606	13.2
16.	Wisconsin	4,417,933	669	15.1
17.	Tennessee	3,924,164	342	8.7
18.	Maryland	3,922,399	640	16.3
19.	Minnesota	3,805,069	782	20.6
20.	Louisiana	3,643,180	304	8.3
21.	Alabama	3,444,165	453	13.2
22.	Washington	3,409,169	605	17.7
23.	Kentucky	3,219,311	348	10.8
24.	Connecticut	3,032,217	251	8.3
25.	Iowa	2,825,041	1213	42.9
26.	South Carolina	2,590,516	202	7.8
27.	Oklahoma	2,559,253	417	16.3
28.	Kansas	2,249,071	618	27.5
29.	Mississippi	2,216,912	215	9.7
30.	Colorado	2,207,259	588	26.6
31.	Oregon	2,091,385	317	15.2
32.	Arkansas	1,923,295	208	10.8
33.	Arizona	1,772,482	236	13.3
34.	West Virginia	1,744,237	90	5.2
35.	Nebraska	1,483,791	457	30.8
36.	Utah	1,059,273	123	11.6
37.	New Mexico	1,016,000	138	13.6
38.	Maine	993,663	92	9.2
39.	Rhode Island	949,723	44	4.6
40.	Hawaii	769,913	59	7.7
41.	New Hampshire	737,681	86	11.6
42.	Idaho	713,008	166	23.3
43.	Montana	694,409	181	26.1
44.	South Dakota	666,257	207	31.1
45.	North Dakota	617,761	103	16.7
46.	Delaware	548,104	79	14.4
47.	Nevada	488,738	80	16.4
48.	Vermont	444,732	91	20.5
49.	Wyoming	332,416	87	26.2
50.	Alaska	302,173	21	6.9

New Jersey: The state of New Jersey has concluded it cannot at the present afford to undertake the cost of developing a new school but is vigorously pursuing the possibilities of contract underwrite of assured entering places in existing schools. An appropriation to this end has been made to the Chancellor's Office and to date only modest success has been achieved in securing additional places. New Jersey is one of the 18 states that offer no reciprocity but a move is now under way to change this.

North Carolina: North Carolina has sponsored a major study of need by a well known consultant resulting in a recommendation for the establishment of a new school. The legislature and governor have not proposed any action yet.

South Carolina: This state is presently seeking ways to increase the number of entering places under the SREB contract program from 12 to of the order of 20. They have not been successful in this effort. There is no organized movement under way to develop a school in South Carolina. Even though the supply of veterinarians is low many in the state seem to feel that they presently have more pressing problems.

Hawaii and Alaska: No information was obtained from these two states.

West Virginia: No real concern about the shortage in West Virginia has surfaced yet. They have, in the words of the Chancellor, "many more pressing problems that must be resolved before that one can be attacked."

Activity Among the Top Ranked States

South Dakota: South Dakota does not conduct an organized recruitment program but they do a great deal of individual recruiting on the part of persons seeking associates. They offer full reciprocity with any state that will return the favor and estimate that of the order of 25% of those who come in come via this route. One of the significant plus factors for South Dakota is an excellent diagnostic laboratory at the University in Brookings. This serves as a referral point for practicing veterinarians and is looked upon with great favor. In South Dakota about two out of three veterinarians are large animal oriented.

Idaho: The state has not carried on any broadscale recruitment programs but there is a fair amount of individual recruiting. They offer licensure reciprocity with other states having equal requirements and with states that will also grant Idaho reciprocity. The great majority of their new licensees are recent graduates, most of whom have taken the National Board Examination. The veterinary practice act has been recently rewritten to provide a temporary permit until the next meeting of the Board and to reduce the citizenship requirement to Declaration of Intent.

Wyoming & Montana: Both Wyoming and Montana are among the states that do not offer reciprocity privileges. Yet both seem to attract a large proportion of veterinarians and again with a very high proportion of the effort in large animal practice. In part at least their success is related to attracting men who desire that kind of life and more than once the indication has been gained

CHAPTER V

WHAT ARE OTHER STATES DOING?

As was seen in Chapter III, there is wide disparity among the states in terms of the number of licensed veterinarians per 100,000 population. Likewise in Chapter I it was brought out there are equally wide differences in the extent of educational opportunities provided by states for their citizens desiring to study veterinary medicine. There is considerable overlap in these two factors. Seven of the ten states with the highest number of veterinarians also appear among the ten with the highest number of entering students. Likewise seven of the ten states with the lowest number of veterinarians are to be found among the ten with the lowest number of entering students. Such evidence might be interpreted as indicative of widely differing needs and concern for veterinary medicine as a profession. Hence these states have been examined in some detail.

1. Licensure.

   Among those states declaring no reciprocity with anyone, there are three to be found among the top group and three among the lowest group.

2. Citizenship.

   Three of the top ten require full citizenship, as do three of the bottom ten. Idaho has recently rewritten its practice act changing the citizenship requirement to Declaration of Intent. The subject is under active discussion in several other states.

3. Presence of a Veterinary School.

   Veterinary schools are to be found in four of the top ten states but in none of the lowest ten.

Activity Among Lowest Ranking States

Louisiana: Louisiana has planned for the development of a new school of veterinary medicine to be located at Baton Rouge. The school is planned for an ultimate entering class of 80 and the first entering class will be accepted after construction is commenced. The basic construction cost of $16 million for the first phase was approved for Federal participation in 1969 but has not as yet been funded. The release of $10.616 million for this school was mandated in the conference committee report in December and may be expected to result in early funding for this school.

Personal Addendum by Dean Cornelius concerning LICENSURE:

Since much of the body of the report contains certain data and interpretations that were not agreed upon by all members of the Committee, it is important that the interpretation of the summary statement be made clear, particularly on the issue of veterinary licensure. References about examination of licensure rules was, in my interpretation, only regarding the possible change of allowing foreign graduates to take the State Board, which incidentally was only recently approved by the Board of Veterinary Medicine.

Since over 90% of examinees routinely pass the State Board, present licensure practices are very open in the state. In fact, one-half of Florida licensed veterinarians still choose to practice elsewhere due to the national veterinary manpower deficit. In agreeing to the majority of the recommendations of the report, it must be made clear that this does not embody my recommendation of additional unnecessary changes in veterinary licensure practices.

Charles E. Cornelius

Pharmacy

Immediately upon graduation from an accredited school of pharmacy the candidate is eligible to take the written portion of the Florida examination. The oral and practical portions of the examinations must be deferred until completion of a six-months internship.

Florida does not reciprocate with any other state for licensure. In 1969 the requirement for citizenship was reduced to Declaration of Intent.

Results of recent licensure examinations are as follows:

Year	Examined*	Passed	Failed	(% Failure)**
1968	457	281	87	(24%)
1969	513	312	61	(16%)
1970	512	391	29	(7%)

*Includes those taking written portion only, before internship.

**Of those who passed or failed.

Data on present location of pharmacists holding Florida licenses, as of May 1971:

Florida Addresses	4,049
Out-of-State	2,419
Total	6,468

Data supplied by Mr. Bevis, Coordinator, State Board.

Comparison of New Additions to the Professions in Florida

Both the number of current license holders and the number of new licenses in 1971 varied appreciably in the health professions. It is of interest to compare the extent to which the 1971 licenses issued increased the pool of license holders in the various professions.

	Number of License Holders thru 1970	Number of Licenses Issued in 1971	% Increase
Human Medicine	13,505	2,097	(15.5%)
Osteopathic Medicine	1,827	261	(14.2%)
Veterinary Medicine	1,165	113	(9.7%)
Dentistry	3,891	283	(7.3%)
Optometry	677	44	(6.5%)
Pharmacy	6,077	391	(5.7%)
Nursing	54,387	797	(1.5%)

Nursing

Nursing comes closer to achieving universal reciprocity for licensure among the states than any of the other health professions. The examination for the RN is national but each state retains the right to determine the necessary score for licensure.

The examination for the RN is given five times per year in Florida and that for the practical nurse six times. Those who fail may repeat the exam three times, after which they must show evidence of further course work to qualify for candidacy.

Graduates of foreign schools are accepted for examination but license is not issued by reciprocity to foreign graduates.

Some recent experiences of the Florida Board are as follows:

1968-69	784 Took exam first time
	669 Passed
	124 Took exam as repeaters
	91 Passed
1969-70	541 Took exam first time
	462 Passed
	194 Took exam as repeaters
	137 Passed
1970-71	831 Took exam first time
	685 Passed
	159 Took exam as repeaters
	112 Passed

As of 30 June 1971 the Florida State Board of Nurses showed total Registered Nurses as follows:

Florida addresses	31,591 Active
	5,250 Inactive
Out-of-State	5,641 Active
	12,702 Inactive
Total	55,184

Data supplied by Miss Peeples, Coordinator, State Board.

Year	Candidates	Passed	Failed	(% Failure)
1968	317	212	105	(33%)
1969	340	222	118	(35%)
1970	380	240	140	(37%)
1971	452	283	169	(37%)

As of 19 August 1971, the distribution of dentists holding the Florida license was as follows:

Florida Residents	2,959
Out-of-State	1,215
Total	4,174

Data supplied by Dr. Denton, Coordinator, State Board.

Optometry

The Florida Board of Optometry does not reciprocate with any other state for licensure recognition. Neither does it accept the National Board examination for licensure, although some 30 other states do. It is of interest that the optometry students around the country are now leading a movement to establish a single examination which will provide endorsement by all states for licensure.

Florida requires full citizenship but a Declaration of Intent will admit to the examination with the license held until full citizenship is attained.

Recent examination experience in Florida has been as follows:

Year	Candidates	Passed	Failed	(% Failure)
1968	56	36	20	(36%)
1969	48	33	15	(31%)
1970	42	29	13	(31%)
1971	57	44	13	(23%)

The most recent data (August 1971) on location and status of optometrists holding the Florida license is as follows:

Out-of-State	79
Military Service	39
Retired	21
Active Florida Practice	582
Total	721

Data supplied by Dr. Walker, Secretary, State Board.

Osteopathic Medicine

The Florida Board of Osteopathic Medical Examiners requires a written examination of each candidate for licensure with one exception: it may so issue to osteopathic physicians of the U.S. Army, Navy or public health service, provided they are already licensed by a state with equal requirements to those of Florida.
[Florida Statutes 459.11]

In addition to no reciprocity with other states for the Florida license, the Osteopathic National Board Certification may not be used for licensure.

Recent results of the examinations for osteopathic medicine license have been as follows:

Year	Candidates	Passed	Failed	(% Failure)	Licenses Issued by Exam	Licenses Issued by Endorsement
1968	49	49	0	(-)	38	0
1969	306	291	15	(4.9%)	272	78
1970	870	808	62	(7.1%)	783	37
1971	284	244	40	(14 %)	244	17

As of May 1971 only about 29 percent of the osteopathic license holders had taken up residence in Florida. Perhaps in part this low representation may be accounted for by the rather large proportion of 1970 licenses which may not have permitted sufficient time to relocate as yet.

Florida Residents	573
Out-of-State	1,433
Total	2,006

Data supplied by Dr. Meck, Secretary, State Board.

Dentistry

Florida is among the majority (33) of states who do not recriprocate with each other in the transfer of a dental practice license. On the other hand, Florida is in a distinct minority (4) who do not recognize certification by the National Board of Dental Examiners for licensure.

Recent experiences of the Florida Board, which gives an examination composed of written, oral and practical portions, has been as follows:

Human Medicine

Medicine (human) perhaps offers the best insight into the potential effects of changes in the practice act.

In 1969 the requirement for a written basic science examination was eliminated. The following year the citizenship requirement was reduced to Declaration of Intent and finally as of 1 September 1971, Florida became the last of the 50 states to authorize, under certain conditions, the issue of a medical license by endorsement of credentials obtained in another state. Two noteworthy factors of the new reciprocity law are: 1) the previous examination must have been completed within the last eight years and 2) to retain the Florida license obtained by endorsement the recipient must "actively engage in the practice of medicine in this state within three years after issuance of the license, and continue his practice in Florida for a minimum period of one year." [Florida Statutes, 71-122]

The impact of the above on the number of candidates for licensure has been as follows:

Year	Candidates	Passed	Failed	% Failure
1960	664	541	123	(19 %)
1961	587	523	64	(11 %)
1962	409	380	29	(7 %)
1963	454	441	13	(3 %)
1964	507	504	3	(1 %)
1965	526	510	16	(3 %)
1966*	291	291	-	-
1967	616	607	9	(1.5%)
1968	736	699	37	(5 %)
1969	1081	951	130	(12 %)
1970	2349	1761	588	(25 %)
1971	2728	2097	631	(23 %)

*Examination dates changed with only one examination in place of usual two in 1966.

Data supplied by Dr. Palmer, Coordinator, State Board.

It is evident from the above that the recent changes in the practice act have resulted in a three-fold increase in the number of practice licenses issued. As of December 1971 applications for the January 1972 examination and consideration for licensure by endorsement approximately equal those of January 1971, indicating that the 1972 totals may again equal those of 1971.

The in-state/out-of-state distribution of the current license holders as of 31 December 1971 was as follows:

Florida Residents	9,269	(59.5%)
Out-of-state	6,302	
Total	15,571	

Additional data may be found in the Appendix.

Year	Candidates	Passed	Failed	% Failure
1966-67	83	72	11	(13.3%)
1967-68	92	83	9	(9.8%)
1968-69	106	98	8	(7.5%)
1969-70	118	107	11	(9.3%)
1970-71	120	113	7	(5.8%)

Data supplied by Dr. Langford, Secretary, State Board.

As was shown previously, at present there are 1278 holders of a current practice license for Florida, 734 or 57.5%, have Florida addresses.

Foreign Graduates: Full citizenship is a prerequisite to licensure eligibility for veterinary medicine and many other professions in Florida. This is of particular consequence at this time because of the Cuban exiles.

Currently there are 308 veterinarians in exile from Cuba,* 252 of whom are in the U.S. and 113 of whom are in Florida. Within the U.S., 39 have succeeded in obtaining a practice license in 13 different states. Those in Florida are now performing a wide variety of jobs, some in veterinary medicine (State and Federal employment, humane societies, clinic assistants, etc.) but the vast majority are in occupations unrelated to their professional training.

The AVMA has proposed, beginning 1 January 1973, that foreign graduates might attain license eligibility by completing a year of apprenticeship in a "U.S. or Canadian college, clinic or other clinic or practice recognized for this purpose by the AVMA." There is indication Florida's licensure board intends to accept this new proposal. But license eligibility under this plan cannot occur before 1974. Estimates vary as to how many of the 113 graduate veterinarians from Cuba now in Florida might qualify for licensure if they were made board eligible. These estimates range from essentially none to in excess of one half. Cuba's school has not been recognized by the AVMA as an accredited school.

An argument advanced on behalf of the Cuban exiles in Florida is that the climatic relationships between Florida and Cuba are such as to provide appropriate training in tropical and sub-tropical diseases. Also, an overwhelming proportion of Cuban-trained veterinarians are large animal oriented which in turn is in accordance with Florida's primary needs.

Approximately 40 of the 113 Cuban exiles have been in Florida over five years. For the rest, a change of the requirements from citizenship to Declaration of Intent would be necessary to provide license eligibility. On 4 January 1972 the Florida Board changed its procedure to now permit graduates of foreign colleges who are citizens of the U.S. to take the Florida examination.

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*Data supplied by Dr. Mayo, Cuban Veterinary Medical Association in Exile, Miami.

CHAPTER IV

LICENSURE CHARACTERISTICS

Until recently licensure in all of the professions in Florida has been restricted to those who successfully pass the appropriate examinations administered locally, generally both written and oral. This position is now undergoing reassessment in concert with a national pattern of increasing mobility among professionals as well as other citizens. In this connection it is worthwhile to point out that, during the period 1960 to 1968, the 1.244 million population growth of Florida was made up of 68% net in-migration and 32% births over deaths.*

Veterinary Medicine

Licensure among veterinarians in the various states is not readily transferable. Seventeen of the states, including Florida, do not provide for licensure by endorsement of credentials from another state. The relatively few states who do so generally restrict this provision to but a few other states. In the main, discretionary powers are given to the examining boards of many states. It is usually necessary to take both written and oral examinations when transferring a practice from one state to another. An abstract of the veterinary medical practice acts among the states may be found in the Appendix.

Citizenship requirements, too, vary appreciably among the states with the requirement for full citizenship being the more prevalent.

The Florida State Board of Veterinary Medicine is composed of five licensed doctors of veterinary medicine, appointed by the Governor for terms of four years each. The Board office is currently located in Daytona Beach.

Examination for licensure in Florida is conducted at least once per year. In the interim a temporary permit to practice may be issued to qualified applicants good until the next regular examination.

Recent experience and trends in the licensure of veterinarians by the Florida Board is shown in the following table:

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*Florida Statistical Abstract, 1970. p.28.

Urban residents with companion animals and rural residents associated with farm animals may be exposed to more than 150 animal diseases transmittable to man. These diseases are referred to as the ZOONOSES. Among these are rabies, tuberculosis, brucellosis or undulant fever, various types of ringworm, leptospirosis or Weil's disease, anthrax, encephalitis, psittacosis, tularemia, toxoplasmosis, to mention only a few.

During the period of 1968-70, the State's Division of Health reported: 24,579 cases of brucellosis in animals, 1,428 reports of leptospirosis, and 5,884 cases of ringworm. In addition, 389 animals were confirmed as rabies' cases and 928 condemned for tuberculosis. Salmonellosis was reported 665 times in animals. Unfortunately, many animal disease cases never find their way to public health laboratories for a variety of reasons. Data are from the U.S. Public Health Summaries for 1961-70, Florida's Division of Health Summary for 1970, and from the state animal disease diagnostic laboratory.

ZOONOTIC DISEASES*

Disease	1968	1969	1970	Total
Brucellosis (undulant fever)	7,605	7,386	9,588	24,579
Encephala-Equine	41	272	73	386
Leptospirosis (Weil's Disease)	484	563	381	1,428
Rabies	112	180	97	389
Bovine Tuberculosis	61	566	301	928
Salmonellosis	262	202	201	665
Pasteurellosis	47	-	-	47
Ringworm	2,028	1,894	1,962	5,884
Swine Erysipelas (Erysipeloid)	259	218	37	514

*Reported cases are admittedly only a small percent of actual outbreaks.

Data supplied by Dr. Cornelius.

FLORIDA AND U.S. STATISTICAL SUMMARY - 1950 to 1970

Year	Thousands of Dairy Cows		Annual Milk Production Per Cow (lbs.)		Milk Produced Annually (Million pounds)	
	Florida	U.S.	Florida	U.S.	Florida	U.S.
1950	136	21,944	4,400	5,314	598	116,602
1955	175	21,044	5,050	5,842	884	122,945
1960	194	17,515	6,730	7,029	1,306	123,109
1965	178	14,954	7,810	8,304	1,390	124,173
1970	191	12,509	8,592	9,388	1,641	117,436

Data supplied by Dr. Cornelius.

Total cash receipts for livestock in 1970 in Florida are calculated at $397,206,000. Minimal estimates of 20% losses would indicate an $80 million loss each year from animal diseases and parasites. Losses in 1980 from projected estimates will be near $150 million if major losses are not prevented. Specific diseases and losses attributed to them by the Extension Service are listed in the attached additional information.

As was pointed out earlier, it is significant that the states most adequately supplied with veterinary medical manpower are those with a large effort devoted to food animal practices and with colleges of veterinary medicine in many cases. It is of interest to note that many states appear to be oversupplied with veterinarians. The obvious fallacy in this deduction arises from the fact the number of veterinarians needed in a state or an area should not be computed only on the basis of human population. Each state such as Florida must assess its own needs; however, a rapidly growing state like Florida with an ever increasing livestock industry may well better fit the national average estimate of 17.5/100,000 people than most states. Florida's needs will continue in all areas: urban medicine, public health, in the protection of its food supply, large animal practice, environmental medicine, marine biology and medicine, and in equine medicine.

Additional data relative to Florida's veterinary medicine needs may be found in the Appendix.

THE SIGNIFICANCE OF VETERINARY PUBLIC HEALTH ACTIVITIES IN FLORIDA

The veterinary medical profession through the diagnosis of animal diseases, the treatment, isolation, and quarantine of sick animals, and the inspection of meat and other foods, protects the state's residents against animal diseases transmittable to man. This activity occurs daily in many professional areas including the small animal hospitals in major cities and the meat packing plants and on ranches throughout the State.

7. The expected increase in beef cattle population and the number of cattle slaughtered would appear to require an increase of about 20% in the number of food animal practitioners, but when one takes into account the probable decrease in veterinary services required as the number of cattle maintained in lots of over one thousand head is increased, and the anticipated large decrease in dairy cattle population, it appears that the number of food animal practitioners required for cattle practice will remain about the same.

8. The effects of the last two factors, the expected increase in depth of services provided and the anticipated increased utilization of paramedical personnel are difficult to estimate, but they will probably offset one another.

Therefore, it appears nationally that the number of veterinarians needed in 1980 whose major activity is food animal practice will be approximately the same as the number engaged in this type of practice in 1970. This may not be the picture for Florida, however.

The report concludes:

"It is urgent, however, that despite the lack of anticipated need for an increase in numbers of food animal practitioners, that the profession and the general public be made aware of the shortages that are beginning to occur (see text), and the extreme shortages likely to occur in numbers of this type of veterinary practitioner in the future. The increased competition for veterinarians to fill the need for small animal practitioners will rapidly reduce the numbers available for food animal practice unless great efforts are made (1) to increase the number and capacity of the veterinary schools in the United States in order to increase the total number of professional manpower, (2) to induce new graduates to enter food animal practice by improving its current image and orientation, and (3) to make food animal practice more satisfying both personally and financially through wider establishment of group practices and restriction of services to professional areas by greater utilization of paramedical personnel."

There is a dramatic increase in the number of dairy cows in Florida during a period in which the numbers in the country are declining. This coupled with the increase in production per cow has nearly tripled Florida milk production from 1950-1970 while national milk production has remained steady at around 120 billion pounds annually. Cash values have also tripled in the dairy industry during this period in Florida history. The national and Florida data are presented as follows:

Returning to the NRC Committee's projection of veterinary medical needs in 1980 (at the beginning of this chapter) the figure of 41,895 veterinarians by 1980 was developed. This increase of nearly 16,000 was apportioned, to:

Small animal practice	+10,931
Teaching and research	1,611
Industrial veterinary practice	901
Equine practice	804
Regulatory veterinary practice	644
Retired	389
Laboratory animal medicine	362
Public health	293
"Other" veterinary practice	290
Zoo animal practice	40
Wildlife animal practice	36
Food animal practice	0
Meat inspection	0
Military veterinary medicine	- 308
TOTAL	+15,993

In view of Florida's needs being primarily for food animal practitioners, it is somewhat surprising that the National Research Council Committee concluded that the present national supply of veterinarians in this category would be adequate for 1980 whereas nearly all of the indicated increase should come in the small animal practitioners.

Among the factors analyzed that led the NRC Committee to its conclusions were:

1. The amount of pork consumed per capita is expected to decrease from about 63 lbs. in 1970 to 58 lbs. in 1980. At the same time the amount of pork produced is expected to increase about 3% from approximately 84 million pounds in 1970 to 86.5 million pounds in 1980. The yield of pork per hog slaughtered is expected to increase about 2% between 1970 and 1980.

2. The amount of beef consumed per capita is expected to increase about 12.7%. The beef cattle population is expected to increase about 17.6%. The number of cattle slaughtered is expected to increase about 19%.

3. The percentage of hogs and beef cattle maintained in lots of one thousand head or more is expected to increase greatly.

4. The dairy cattle population is expected to decrease by about 23.5%.

5. Food animal practitioners are expected to increase the depth of services they provide and are expected to increase their utilization of paramedical personnel.

6. The anticipated increase in the total pounds of hogs to be slaughtered is neglibible and about equal to the expected increase in yield per animal. Therefore, the number of animals will remain about the same.

Florida will have a greater need for veterinarians over the next decade than will the nation as a whole. The rate of population increase in this state will continue to exceed that of the United States. Additional veterinarians are needed in (1) urban practices involved in local public health problems, providing humane care for our many companion animals, and preventing the spread of over 200 diseases from animals to man; (2) equine and canine medicine to support the key horse and dog breeding and racing industries; (3) environmental control programs, marine pathology, mariculture, laboratory animal medicine; (4) protection of our health by providing safe meats and foods for our consumption free of disease and residues, and (5) a host of an ever increasing array of responsibilities.

Also there is abundant evidence for a much larger growth in Florida in food animals (beef, poultry and swine), dairy cattle and horses than the U.S. average. Further, due at least in part to the semi-tropical climate of Florida, with its related effect on disease vectors, Florida's livestock losses are considered to be higher than for more temperate climates. More veterinarians will be needed to oversee this growing industry.

Florida has food animal populations more nearly resembling the Midwest farm belt than the more urban Eastern states. Data for 1 January 1971 livestock inventories placed Florida as follows:

	Rank Among States
Total Cattle and Calves	22
Milk Cows	18
Beef Cows	15
Hogs and Pigs	25

In addition, it was estimated in January 1970 that Florida ranked third in number of thoroughbred horses and sixth in number of total horses. (Janos Shoemyen, "Sunshine State Agricultural Research Report.")

In general the food animal producing states tend to be much better supplied with veterinarians than do the more urban oriented states, this in spite of an unmistakable trend toward urban small animal practice among veterinary graduates. In those ten states shown to have the highest ratio of veterinarians to population exactly 50% of the veterinary effort was declared to be all or mainly large animal. By contrast, in the ten least well supplied states under 12% of the total veterinary effort is classified as large animal.

Nationally, the feeling of shortage among veterinarians appears to be more strongly felt in the urban population as opposed to the food animal belt.

Number of Veterinarians Per 100,000 Population

in Rank Order

States With Vet. School	Vets/100,000 Population
Iowa	42.9
Kansas	27.5
Colorado	26.6
Minnesota	20.6
Washington	17.7
Missouri	16.6
Oklahoma	16.3
Indiana	15.6
Texas	14.2
Alabama	13.2
Georgia	13.2
California	12.7
Illinois	12.1
Ohio	11.6
Michigan	11.1
Pennsylvania	8.7
New York	8.6
AVERAGE	17.0

States Without Vet. School	Vets/100,000 Population
South Dakota	31.1
Nebraska	30.8
Wyoming	26.2
Montana	26.1
Idaho	23.3
Vermont	20.5
North Dakota	16.7
Nevada	16.4
Maryland	16.3
Oregon	15.2
Wisconsin	15.1
Delaware	14.4
New Mexico	13.6
Arizona	13.3
Florida	12.3
Virginia	12.1
New Hampshire	11.6
Utah	11.6
Arkansas	10.8
Kentucky	10.8
Mississippi	9.7
Maine	9.2
Tennessee	8.7
Connecticut	8.3
Louisiana	8.3
New Jersey	7.9
North Carolina	7.8
South Carolina	7.8
Hawaii	7.7
Alaska	6.9
Massachusetts	6.6
West Virginia	5.2
Rhode Island	4.6
AVERAGE	13.5

The distribution of veterinarians among the states varies widely. Among the ten states with the highest ratios the number of veterinarians is nearly four times what it is among the ten states with the lowest ratios.

10 States with Highest Ratios of Veterinarians		10 States with Lowest Ratios of Veterinarians	
*Iowa	42.9	Connecticut	8.3
South Dakota	31.1	Louisiana	8.3
Nebraska	30.8	New Jersey	7.9
*Kansas	27.5	North Carolina	7.8
*Colorado	26.6	South Carolina	7.8
Wyoming	26.2	Hawaii	7.7
Montana	26.1	Alaska	6.9
Idaho	23.3	Massachusetts	6.6
*Minnesota	20.6	West Virginia	5.2
Vermont	20.5	Rhode Island	4.6
Average	27.56	Average	7.11

*States having a veterinary school

[Florida 12.3]

The 18 veterinary schools of the U.S. are located in 17 states with Alabama having two. Comparison of the number of veterinarians per 100,000 in those states compared with the other 23 states is shown in the next table.

that there is now occurring a migration from some of the large cities elsewhere in the country to the more rural oriented areas by practitioners who no longer desire to live in the large cities.

Nebraska: Nebraska is favorably situated to draw students from the schools in Iowa, Kansas and Colorado. A deliberate effort has been made to make licensure easy. They do reciprocate and provide for an application of a candidate at any time without waiting for the next meeting of the Board. A special interview will be arranged. They indicate that they want only competent people but wish to provide no impediments to their coming. As a rough guess as many as 30% of the licenses issued are to those previously licensed elsewhere with the other 70% coming directly from school. As with the majority of states well supplied with veterinarians, especially those in the mid-West, the proportion of Nebraska veterinarians devoting attention to food animal practice is high (55%).

Among other states, only Wisconsin and Maryland are known to have conducted in-depth studies of ways to improve their veterinary medical supply with each study recommending the establishment of a school which has not yet been accepted by the respective governmental units of those states. Also, Oklahoma has reviewed its program and needs for expansion of the school at Oklahoma State University but must have additional facilities to carry out those plans.

A Regional Consortium

Three of the New England states are among the lowest ten, two (Maine and New Hampshire) are below average and only Vermont appears to be well supplied with veterinarians.

Connecticut has in the recent past given some thought and effort to ways of solving their veterinary medical shortages. More recently the six New England states through the mechanism of the New England Board of Higher Education (NEBHE) have determined that a consortium approach might be their best answer. A study has been carried out under the direction of Dr. Allan D. Ferguson of NEBHE. A document justifying the development of a regional school has been prepared. Much of the study has been conducted under an advisory committee of veterinarians representing all six states. They are now beginning a study of the economics of starting a school but as yet essentially nothing has been done on this aspect of the problem.

At present they are estimated to be approximately two years away from presentations to the individual state legislatures. The exact manner of how the capitalization sharing can take place has not been worked out. They have had encouragement from Washington to take such an approach but there is no precedent yet for allowing state funds to flow across a border for construction purposes. The University of Massachusetts has shown interest in becoming the site of such a school and the state universities in all six states have approved the concept. However, no legislative action has been initiated.

CHAPTER VI

ANALYSIS OF ALTERNATIVES

CAN ADDITIONAL SCHOLARSHIPS, GRANTS OR INTERSTATE AGREEMENTS INCREASE THE EDUCATIONAL OPPORTUNITIES?

Presently Florida has a contract administered by the Southern Regional Educational Board (SREB) providing for a guarantee of 20 entering spaces in the veterinary school of Auburn University and six at Tuskegee Institute. In addition, a separate contract operates outside of, but with the same conditions, with Ohio State University for up to six entering places per year.

In the current academic year, one out of three students who sought entry into veterinary school was successful (32 of 102). It is quite likely that the number of students desiring to enter the veterinary medical profession will increase substantially over the next decade.

Between 1949 and 1970 Florida paid a total of $1,475,275 to help underwrite the educational costs of 1,053 student spaces at Auburn and Tuskegee. In that time the fee structure has been, per student space:

1949-57	$1000
1958-67	1500
1968-71	1800
1972-	3000

The results of this program have been quite advantageous to Florida. All graduates supported by Florida between the years 1959 and 1970 have been traced with the following results:

Total graduates between 1959 and 1970, Florida quota.....161

Number of graduates holding Florida license to practice in 1971.....140

Number of graduates holding 1971 Florida license and Florida address.....114 (71% of 161 graduates)

Number of graduates in military service in 1971..... 8

The 71% to return to Florida (plus potentially a few more following military service) can be considered an excellent return on the investment by the State.

In consequence of the low number of veterinary schools in the U.S. (18 in 17 states) the number of interstate agreements in force is considerable. Debate is now taking place relative to what is an appropriate subsidy of a state in exchange for a certain number of guaranteed places in a school. A special committee of the Southern Regional Education Board addressed itself to this issue recently as follows:

"Increased SREB fee. Each time there has been an increase in any SREB contract-for-service fee, the increase could be justified in the context of increased costs of higher education. In each case the Board has given special consideration to the original philosophy that contract payments were not designed to care for all costs but that a fixed fee added to regular tuition would constitute a reasonable payment for the service provided--reasonable to the institution and to the paying state.

"The Committee feels that any attempt to tie payments in the veterinary program directly to expenditures would make the system too complex. There are certain benefits to the state in which a school is located. However, it is believed that there should be a better balance between the cost to the state which sponsors a veterinary medical school for educating a student and the SREb fee paid to the institution for reserving a space. In light of the great pressures in veterinary medical education, the Committee feels that a sizeable increase in the fee is necessary. The Committee recommends that the flat fee for reserving a veterinary medical space be increased from $1800 to $3000 a year, effective in the fall of 1972."*

The Board unanimously approved this 66% increase in the SREB fee, effective in the Fall of 1972.

Ohio State University has just reassessed its position on the subject and has concluded it must increase its charge to $5000 per student place beginning in September 1972 to cover rising costs (see Appendix). Oklahoma State University is currently entertaining a recommendation to raise their charge to $7200 on the basis of their computed cost per student figure.

Even with such increased subsidies, new places appear to be unavailable. Pressures from residents of the state generally are such as to preclude consideration of expanding the contracted spaces for most schools.

Louisiana State University has a fully planned new school awaiting Federal funds participation. This project was discussed on page V-1. That school has planned for an ultimate class size of 80 with approximately one third of those spaces available to the other states in the SREB region.

Louisiana last year contracted for 21 entering places in four schools in the SREB region. When their new school becomes fully operable perhaps as many as 12 of those spaces may become available to others (Texas will retain those at Texas A&M). These, along with perhaps 25 places to be offered by LSU, might provide as many as 37 more openings in first year classes than now. There are now 11 states in the SREB region "buying" places; hence the prospects for expansion of any one state's contracts is not great.

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*"Veterinarians for the South," by a Special Committee of the Southern Regional Education Board, 1971, pgs. 24-25.

All five of the veterinary schools in the area of the Southern Regional Education Board now provide a portion of their first year enrollment places to other states within the region. In brief, the current status of these schools is as follows:

Auburn: This school is in newly completed teaching facilities. The school now admits 105 students, 36 from Alabama and the rest from five contracting states, including 20 from Florida.

Georgia: In the entering class of 69, 22 are residents of Georgia and the rest from four contracting states and D.C. There has been talk of expansion to 120 students but this will require extensive physical facilities.

Oklahoma State: Thirty-two of an entering class of 49 are residents of Oklahoma, the rest from four contracting states plus Nebraska. A recent study by the Oklahoma Board of Regents proposes that the number of places for Oklahoma residents be increased to 48 with any additional students (not necessarily from SREB states) required to pay a greater proportion of the actual costs of education. Again expansion of class size is dependent upon expansion of physical plant.

Texas A&M: This is the largest school in the U.S., admitting 128 students per year. Of these all but nine (from Louisiana) are Texans and when Louisiana gets its own school all places will be reserved for in-state applicants.

Tuskegee Institute: This is the smallest school in the U.S., admitting only 39 students last year. These 39 came from 19 states with the largest number, four, each, from Florida, Louisiana and North Carolina. The present mix is approximately 70% Black. Prospects for expansion are not good for once more additional facilities would be a prerequisite. A small grant for this purpose has been received recently.

In regard to other schools in the U.S., all were contacted with no interest shown for students other than from their designated areas.

Finally, the Chancellor's Office of the State University System of New Jersey was funded last year to seek new contract places in veterinary schools for that state with, at least to now, very little success.

IS IT POSSIBLE FOR A CONSORTIUM OF STATES TO BUILD AND OPERATE A NEW SCHOOL?

Within the 14-state region of the SREB, only three states now have veterinary schools (Texas, Alabama and Georgia). Several of the other states in the region have expressed need for expanded veterinary medical education but in each instance financial constraints have tempered positive action.

The six-state area of New England has a total population of nearly 12 million. The New England Board of Higher Education (NEBHE) has recently prepared a report emphasizing the advantages of multi-state cooperation and has recommended that a new college of veterinary medicine be cooperatively founded and that the capitalization and operational funding of the college be equitably shared by the six New England states.* To date, however, none of the state legislatures has been asked to supply capital funds for construction across the state line.

In 1971 a special committee of the SREB found, in light of political realities and legal problems, that there was little prospect for joint state support for capital expansion of one or two selected schools.**

This committee investigated the possibility of cooperative arrangements by the State of Florida and one or more other SREB states to provide substantial state financial support to an existing veterinary medical school in return for significant expansion of quotas allocated to the supporting states.

The committee discovered little present promise of success for capital expansion of a selected veterinary medical school by joint state support. The legal difficulties and political realities of such joint support appeared to be considerable. However, the committee feels that SREB states and the regional veterinary medical schools should continue to give this possible approach consideration.

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*"Needed: A College of Veterinary Medicine in New England." NEBHE, Wellesley, Massachusetts, October 1971.

**"Veterinarians for the South." SREB, 1971, p.5.

ARE THERE EDUCATIONAL ALTERNATIVES?

Due to the needs for expansion and for new colleges in all of the health-oriented professions, the need and demand for capital funds is great. A few schools have begun to plan for alternative ways of meeting expansion pressures. These include many innovations in thinking about how effective teaching research and service programs might be carried out.

Veterinary medicine was included in construction and capitation programs but was not included with medicine, osteopathy and dentistry in subsidies to convert four-year programs to three-year. Three-year programs do offer the possibility of one-third expansion of the student bodies if additional state support per year is forthcoming and physical facilities will allow it. Ohio State's Veterinary College has returned this year to the conventional four-year program; Texas and Michigan State remain the only two Colleges of Veterinary Medicine on such accelerated programs.

Some biological and physical sciences are basic to the clinical studies of several of the health professions. A few schools are beginning to give thought to ways of providing this instruction as a part of the college science offerings rather than in the professional schools, thereby relieving some of the critical space requirements in the specialized facilities of the professional schools. At the other end of the educational spectrum, the greater utilization of practice clinics, hospitals and similar facilities is being explored. There is also much concern about what effect abbreviated curricula will have on the quality of professionals.

In regard to changes in teaching methods in veterinary medical education, the SREB committee concluded (p. 25):

> "It is no longer realistic for each veterinary medical student to take the same curriculum in the same way; an elective approach is needed to a veterinary medical curriculum which is changed in breadth and depth. A core curriculum and electives are needed for students who intend to concentrate, for example, in public health, in equine practice, in laboratory work.
>
> "Examination should be given to measures which will reduce the total number of years required for pre-veterinary and veterinary medical education combined. Where possible, subject matter covered in the school of veterinary medicine, such as the basic sciences, should be moved out of veterinary medicine curriculum and into the pre-professional program. The pre-professional programs are as widely available as feasible throughout the state educational institutions, so that young people of diverse backgrounds and interests may have ready access to pre-veterinary programs.

"The Committee recommends that veterinary medical and pre-veterinary curricula be studied, to reduce the total years involved, to better mesh pre-professional and professional training, and to offer wider opportunities for young people of diverse backgrounds and interests to secure pre-veterinary training."

One additional evolving change in veterinary medical education is shared in part with several of the other health professions. This has to do with the training of more associates or technicians to whom some routine tasks can be delegated. On this subject the SREB report, "Veterinarians for the South," stated (p. 27):

"Colleges of veterinary medicine should not necessarily do all of such training; community colleges with access to the appropriate medical environment may do some of it. But schools of veterinary medicine should play a part in this training. The education of prospective DVM's should include understanding of such technicians, their abilities, and should allow some work with them.

"Colleges of veterinary medicine and state professional associations should take leadership in developing and supporting the programs for the training of veterinary technicians.

"The Committee recommends consideration of expanded training of technical veterinary personnel and the involvement of veterinary medical schools in appropriate portions of the training."

So, while it would appear that veterinary medical education may well be on the threshold of some substantive changes, the benefits of these changes are some years away. In the foreseeable future it is unlikely these changes will have substantial benefit either in enhancing the number of opportunities for study or the production of significantly more veterinarians for society.

A new two-year program for small animal veterinary technicians has been initiated at St. Petersburg Junior College. According to Dr. Jack Knowles, a veterinarian and member of the NRC Committee on Veterinary Medicine, trained animal technicians are needed for the veterinary profession but will not lower the needs for more veterinarians in Florida or the country.

STUDENT DATA
COLLEGE OF VETERINARY MEDICINE

1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-80
			80	160	240	320	320	320
	1	3	5	7	9	11	13	15
	1	5	10	13	16	19	22	25
					6	10	14	14
	2	8	95	180	271	360	369	374
	23	91	1,083	2,052	3,021	3,990	4,047	4,104
	1	5	57	108	159	210	213	216
	24	96	1,140	2,160	3,180	4,200	4,260	4,320

Table 3: EXPENDITURES PER STUDENT FOR VETERINARY MEDICINE ($ Thousands)

Function	1971-72	1972-73	1973-74	1974-75	197
Instruction (Faculty & Grad. Asst. Salaries)					
Within College				31.3	2
Other Colleges				.06	
Total				31.4	2
Research (Faculty & Grad. Asst. Salaries)				23.5	2
Public Service (Faculty Salaries)				11.1	
Academic Support					
Faculty Administration (Fac. Salaries)				81.9	2
Academic Administration (OE, OCO, OPS & CAR. SER.)				156.7	8
Library				.2	
Computer (I&R)				.2	
Audio/Visual				.3	
Hospital					
3.77 Animal Lab				.05	
Student Services					
Academic Advisement					
Financial Aid-Fellowships					
Counseling & Career Guidance					
Other					
Administrative Direction & Support Services				7.5	
Executive Management					
Management Analysis					
Public Affairs					
Administrative Services					
Capital Facilities & Equipment Management				.33	
Fixed Capital Outlay					
Annual Cash Flow				5,186.2	
Total Annual Cash Flow				5,499.4	18
Annual Depreciation (Fixed Cap. Outlay)					2
Total Annual Cost				5,499.4	20

3: EXPENDITURES PER STUDENT
FOR VETERINARY MEDICINE
($ Thousands)

72-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
		31.3	29.0	3.9	3.0	2.5	2.2	2.3	2.4
		.06	.06	.06	.06	.06	.06	.06	.06
		31.4	29.1	4.0	3.1	2.6	2.3	2.4	2.5
		23.5	23.3	2.9	2.1	1.8	1.5	1.7	1.7
		11.1	6.7	.8	.5	.5	.4	.4	.4
		81.9	24.7	2.1	1.1	.7	.5	.5	.5
		156.7	87.5	6.3	4.3	3.4	2.7	2.7	2.7
		.2	.2	.1	.1	.1	.1	.1	.1
		.2	.1	.2	.2	.2	.2	.2	.2
		.3	.4	.5	.5	.5	.5	.5	.5
			4.2	1.9	1.9	1.3	1.0	1.0	1.0
		.05	.06	.06	.05	.05	.05	.05	.05
		7.5	5.1	.6	.5	.4	.4	.4	.4
		.33	.33	.33	.33	.33	.33	.33	.33
		5,186.2							
		5,499.4	181.7	19.8	14.7	11.9	10.0	10.3	10.4
			25.9	2.2	1.2	.8	.6	.6	.6
		5,499.4	207.6	22.0	15.9	12.7	10.6	10.9	11.0

Table 3: EXPENDITURES PER STUDENT FOR VETERINARY MEDICINE ($ Thousands)

	1971-72	1972-73	1973-74	1974-75	1975-
Breakdown of Total Annual Cash Flow					
Source of Funds					
State					
Present Vet. Science Budget					
Present Adm. & Gen. Budget in Vet. Sci.					
New State Cash Flow			2,040.9	147	
Total State Cash Flow			2,040.9	147	
Trust (Maximal Projection)					
Hospital Income					
Other (SREB, Tuition, Capitation, Endowment & Gifts)			1.0	24	
Contract & Grant Overhead				1	
Total Trust			1.0	25	
Total State & Trust			2,041.9	172	
Contracts & Grants			3,457.5	8	
Total Annual Cash Flow			5,499.4	181	
Anticipated Use of Annual Cash Flow					
College Operating Budget			304.7	175	
Fixed Captial Outlay			5,186.2		
Overhead			8.5	6	
Total Annual Cash Flow			5,499.4	181	

ble 3: EXPENDITURES PER STUDENT
FOR VETERINARY MEDICINE
($ Thousands)

72-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-8
			2.7	1.8	1.4	1.3	1.3
			.1	.1	.1	.1	.1
2,040.9	147.0	13.9	6.4	4.3	3.1	3.3	3.5
2,040.9	147.0	13.9	9.2	6.2	4.6	4.7	4.9
		.5	.6	.7	.7	.7	.7
1.0	24.2	4.2	3.8	3.6	3.2	3.2	3.1
	1.6	.2	.2	.3	.3	.3	.3
1.0	25.8	4.9	4.6	4.6	4.2	4.2	4.1
2,041.9	172.8	18.8	13.8	10.8	8.8	8.9	9.0
3,457.5	8.9	1.0	.9	1.1	1.2	1.4	1.4
5,499.4	181.7	19.8	14.7	11.9	10.0	10.3	10.4
304.7	175.5	17.9	13.0	10.3	8.4	8.7	8.8
5,186.2							
8.5	6.2	1.9	1.7	1.6	1.6	1.6	1.6
5,499.4	181.7	19.8	14.7	11.9	10.0	10.3	10.4

Table 3: EXPENDITURES PER STUDENT FOR VETERINARY MEDICINE ($ Thousands)

	1971-72	1972-73	1973-74	1974-75	1975-7
Breakdown of College Operating Budget					
Source of Funds					
State					
Present Vet. Science Budget					
New State Operating Budget				303.6	140.8
Total State Operating Budget				303.6	140.8
Trust					
Hospital Income					
Other (SREB, Tuition, Capitation, Endowment & Gifts)				1.0	24.2
Contract & Grant Overhead					1.6
Total Trust				1.0	25.8
Total State & Trust				304.6	166.6
Contracts & Grants					8.9
Total College Operating Budget				304.6	175.5
Fixed Capital Outlay					
Source of Funds					
State				1,728.7	
Federal				3,457.5	
Total Fixed Capital Outlay				5,186.2	

EXPENDITURES PER STUDENT
FOR VETERINARY MEDICINE
($ Thousands)

1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
				2.7	1.8	1.4	1.3	1.3
	303.6	140.8	12.0	4.8	2.8	1.6	1.8	2.0
	303.6	140.8	12.0	7.5	4.6	3.0	3.1	3.3
			.5	.6	.7	.7	.7	.7
1.0		24.2	4.2	3.8	3.6	3.2	3.2	3.1
		1.6	.2	.2	.3	.3	.3	.3
1.0		25.8	4.9	4.6	4.6	4.2	4.2	4.1
	304.6	166.6	16.9	12.1	9.2	7.2	7.3	7.4
		8.9	1.0	.9	1.1	1.2	1.4	1.4
	304.6	175.5	17.9	13.0	10.3	8.4	8.7	8.8

1,728.7

3,457.5

5,186.2

Table 4: ANTICIPATED TRUST FUNDS DETAIL

	1974-75	1975-76	1976-77	1977-78	1978
Hospital Income			50,000	100,000	200,
SREB Income			60,000	120,000	180,
Instate Tuition	1,920	7,680	98,400	187,200	276,
Capitation Grants		136,000	136,000	272,000	408,
Endowment & Gifts		50,000	100,000	100,000	100,
Total Trust Funds	1,920	193,680	444,400	779,200	1,164,

NTICIPATED TRUST FUNDS DETAIL

1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
50,000	100,000	200,000	250,000	250,000	250,000
60,000	120,000	180,000	240,000	240,000	240,000
98,400	187,200	276,000	364,800	369,600	374,400
136,000	272,000	408,000	408,000	408,000	408,000
100,000	100,000	100,000	150,000	150,000	150,000
144,400	779,200	1,164,000	1,412,800	1,417,600	1,422,400

ESTIMATED COSTS

Construction Costs

Federal participation in construction commencing July 1972 can be up to 80% of the construction costs for veterinary medical colleges, rather than the previous two-thirds participation. State funds needed could therefore vary from as little as $2 million at 80% participation to $3.6 million for construction if federal participation was at the 70% level.

Present construction costs for colleges of veterinary medicine vary due to the nature of the college program and goals, which includes (1) the amount of research activities planned; (2) whether the state diagnostic laboratories are included; (3) general campus teaching responsibilities; (4) climate; (5) philosophy of level of hospitalization of animals; (6) degree of satellite teaching away from the campus; (7) the existing facilities that can be shared on campus, and (8) how much space is allotted for auditoriums, amphitheaters, etc.

Existing and available resources on campus necessary for a College of Veterinary Medicine are:

1. Construction site adjacent to VA hospital--approximately 100 acres.
2. Medicine library and visual aids in Health Center.
3. Lecture halls in Health Center.
4. Learning Resources Center--Health Center.
5. Teaching and research animal resources--Health Center.
6. Mechanical room space, bioelectronic shop, central stores, purchasing, physical plant facilities--Health Center for basic sciences.
7. Health Center residency and graduate programs.
8. Common Health Center basic science departments (no duplication).
9. Common courses in organ specialties in Health Center.
10. Department of Veterinary Science and its animal facilities; existing teaching and research faculty--IFAS.

11. Common courses in animal sciences for elective "track" program in the College of Veterinary Medicine--IFAS.

12. Continuing Education Division at the University.

13. Institute of Aquatic Sciences--UF.

14. Marineland research program and Sea Horse Key Marine Station--UF.

15. Graduate programs in IFAS and other departments.

16. New equine research farm--IFAS.

17. IFAS beef, dairy, swine, and poultry operations.

18. A multitude of others.

The necessary additions to the Health Center and IFAS for the College teaching and research program will cost between $9-12 million dependent upon when construction would begin. Preliminary estimates are presented below:

VETERINARY COLLEGE FACILITIES UNDER CONSTRUCTION OR CURRENTLY PLANNED - 1971

State	Information Source	Type of Facility	Approx. % of Total Facility	Gross Ft.^{2}	Estimated or Bid Cost	Cost per Gross Ft^2	Date of bid or Estimate
Auburn	H. C. Morgan	Basic Science, Small An. Clin, Admin, Library	75%	138,000	$4,762,000	$34.5	Jan 1969, bi
LSU	Dean E. Besch	Teaching, Research, & Clin. Facility	100%	324,000	15,950,000	$49.2	1971-72 est.
Kansas	Vince Cool, Asst.V.P.	Teaching & Research (No clinical)	60%	Basic Science - 93,824 Teaching & Library - 98,800 192,624	3,147,675 5,218,109 8,365,784	$43.5	Spring 1970, bid Fall 1971, bid
Iowa	Dr. Frank Ramsey	Basic Sciences Teaching, no Clinical, Road & Land Develop., Relocation, Entire Physical Plant, Power Lines	65%	238,000	14,700,000	$61.5 (includes entire land develop. & physical plant for entire new satellite campus)	1971-72 es

PROPOSED FACILITY REQUIREMENTS FOR COLLEGE OF VETERINARY MEDICINE (CVM)

Proposed CVM (gross ft^2 = 205,491; average costs $51/$ft^2$)

1. Additions to Health Center	3,543,170	
2. Clinical Teaching Hospital	6,829,240	
Subtotal		$ 10,372,410

Existing Supporting Units (new or replacement costs & gross ft^2)*

1. IFAS: Veterinary Science Dept. (21,081 ft^2 @ $40) $843,240

2. J. HILLIS MILLER HEALTH CENTER:

			Space Need	Sq.Ft.
lecture halls	(23,200 ft^2)	x	20% =	4,640
audio-visual shops	(29,800 ft^2)	x	50% =	14,900
audio-visual work area	(43,000 ft^2)	x	20% =	8,600
library-medical	(72,000 ft^2)	x	50% =	36,000
bioelectronic shop	(2,240 ft^2)	x	100% =	2,240
7 basic science dept.	space @ 1,000	x	100% =	7,000
auditorium	(7,050 ft^2)	x	100% =	7,050
storage	(1,200 ft^2)	x	100% =	1,200
Total Sq. Ft.				81,630

81,630 x $50/$ft^2$ = $4,081,500

animal resource bldgs. (80,000 ft^2) x 50% x $40/$ft^2$ = $1,600,000

TOTAL NEW AND EXISTING RESOURCES $16,897,150

*Not included are many other unique teaching resources such as the IFAS equine institute; beef cattle, swine and poultry programs; dairy unit; clinical specialty area in the Health Center; marine biology program at Seahorse Key and Marineland; and the utilization of state diagnostic and public health laboratories in the clinical teaching program.

RISING COSTS: If the costs for new facilities increases at 5% per year, construction costs could be near $12 million in 1974 at the time of bids. However, since new Health Manpower legislation will now provide up to 80% of the funding, as little as 2.4 million dollars might be required from state revenues. Funding by the federal government if at 70% would require 3.6 million state dollars for a 12 million dollar addition.

S U M M A R Y

TENTATIVE CONSTRUCTION NEEDS OF THE COLLEGE OF VETERINARY MEDICINE

		Dollars
ADDITION TO J. HILLIS MILLER HEALTH CENTER		
1. Teaching Space		$1,198,543
2. Faculty Space		1,685,502
3. Teaching & Experimental Animal Resources		659,125
TOTAL ADDITION TO JHMHC		$3,543,170
CLINICAL TEACHING FACILITIES		
1. Administration		$ 233,888
2. Faculty Space		1,880,820
3. Teaching Hospital		
A. Small Animal Area	$ 634,095	
B. General Use Area	1,358,775	
C. Clinical Pathology	157,410	
D. Radiology	129,600	
E. Necropsy	263,587	
F. Ambulatory	68,310	
G. Large Animal Area	493,762	
H. Outside Animal Barns	704,025	
Total Teaching Hospital		3,809,564
TOTAL CLINICAL TEACHING FACILITIES		$5,924,272
SATELLITE TEACHING & EXTENSION CENTERS		
1. Food Animal Unit		$ 45,000
Bovine Barn		350,784
Teaching Space		350,784
		158,400
2. Equine Teaching Unit		
3. Marine Biology		
TOTAL SATELLITE TEACHING & EXTENSION CENTERS		$ 904,968
GRAND TOTAL		$10,372,410*

*Includes $1,043,650 for equipment

TENTATIVE CONSTRUCTION NEEDS OF THE
COLLEGE OF VETERINARY MEDICINE

	Sq. Feet	Dollars
ADDITION TO J. HILLIS MILLER HEALTH CENTER		
1. Teaching Space (constructed near learning resources)		
2 multidisciplinary labs @ 90 sq. ft. per student, 180 students	16,200	
1 anatomy cold room	400	
4 seminar rooms @ 200 sq. ft. ea.	800	
1 chromatography room	200	
1 refrigerated room	85	
1 incubator room	85	
2 animal rooms @ 300 sq. ft. ea.	600	
1 storage area	600	
1 demonstration room	400	
Net sq. ft.	19,370	
x 1.25 = Gross sq.ft.	24,213	
x $45/sq. ft.		$1,089,585
+ 10% equipment		108,958
TOTAL		$1,198,543
2. Faculty Space (basic sciences constructed adjacent to the pharmacy wing)		
26 FTE x 120 sq.ft./office	3,120	
26 FTE x 400 sq.ft./lab	10,400	
4 refrigerated rooms @ 85 sq. ft.	340	
3 incubator rooms @ 85 sq. ft.	255	
1 isotope room	400	
6 equipment rooms @ 350 sq. ft.	2,100	
2 special chemical rooms @ 350 sq.ft.	700	
3 chromatography rooms @ 200 sq. ft.	600	
1 electron microscope suite	400	
2 environmental rooms @ 350	700	
2 seminar rooms @ 200	400	
1 secretary office - pool	400	
2 storage areas @ 500	1,000	
Net sq. ft.	20,815	
x 1.5 = Gross sq.ft.	31,213	
x $45/sq. ft.		$1,404,585
+ 20% equipment		280,917
TOTAL		$1,685,502

	Sq. Feet	Dollars
3. Teaching & Experiment Animal Resources		
equine & bovine barn - 20 stalls @ 225 sq. ft. @ $35/ gross sq. ft.	4,500	$157,500
sheep & swine barn - 10 stalls @ 225 sq. ft. + 5 pens @ 500 sq. ft. ea. @ $35/gross sq. ft.	4,750	166,250
lab animal building - various size rooms @ $40/gross sq. ft.	4,000	160,000
poultry building - various size rooms @ $35/gross sq. ft.	2,000	70,000
Gross sq. ft.	15,250	
+10% equipment		55,375
Canine holding facility (30 outside runs @ $1000/run)		30,000
Corrals		20,000
TOTAL		$ 659,125

CLINICAL TEACHING FACILITY
(Adjacent to Veterans Administration Hospital)

1. Administration		
Dean's office	250	
2 Assoc. Deans' offices @ 250 sq. ft.	500	
1 Asst. Dean's office	120	
4 secretary offices	480	
conference room	200	
business offices @ 300 sq. ft.	600	
supply storage room	400	
reception area	300	
file & storage room	300	
Net sq. ft.	3,150	
x 1.5 = Gross sq.ft.	4,725	
x $45/sq. ft.		$ 212,625
+ 10% equipment		21,263
TOTAL		$ 233,888

	Sq. Feet	Dollars
2. Faculty Space		
(5 FTE at satellite centers; 10 FTE in full-time teaching & 30 FTE in teaching & research (4 FTE G.A. & 10 in Vet Sci facilities)		
Clinic Director's office, lab & secretaries	1,000	
10 teaching staff offices @ 120 sq. ft.	1,200	
30 teaching & research staff offices @ 120 sq. ft.	3,600	
30 teaching & research labs @ 400 sq.ft.	12,000	
1 isotope lab	400	
2 chromatography rooms @ 200 sq. ft.	400	
2 refrigerated rooms @ 80 sq. ft.	160	
2 incubator rooms @ 80 sq. ft.	160	
1 environmental room	500	
4 special equipment rooms @ 300 sq. ft.	1,200	
secretarial pool area	400	
time sectioning room	500	
media preparation room	400	
central washroom	500	
2 storage rooms @ 400 sq. ft.	800	
Net sq. ft.	23,220	
x 1.5=Gross sq.ft.	34,830	
x $45/sq. ft.		1,567,350
+ 20% equpment		313,470
TOTAL		1,880,820
3. Teaching Hospital		
A. Small Animal Area		
6 wards 12' x 30' (surgical & medical)	2,160	
2 wards 12' x 20' (infectious)	480	
1 ward 10' x 20' (temporary holding)	200	
1 case record room	400	
1 reception area	500	
4 examination rooms @ 200 sq. ft.	800	
2 student examination rooms @ 300 sq.ft.	600	
reception office area	400	
computer records & storage	400	
3 surgical rooms, average @ 300 sq. ft.	900	
surgical preparation area	300	
surgical storage	200	
3 treatment rooms @ 300 sq. ft.	900	
1 bathing, clipping room	300	
Net sq. ft.	8,540	
x 1.5 = Gross sq.ft.	12,810	
x $45/sq. ft.		$ 576,450
+ 10% equipment		57,645
TOTAL		$ 634,095

		Sq. Feet	Dollars
B.	General Use Areas		
	2 locker rooms (students) (large & small animal areas)	800	
	2 shower & dressing area (men & women)	400	
	2 locker, dressing area, male faculty, female faculty	500 300	
	4 intern dormitory areas @ 120 sq. ft.	480	
	1 student lounge	1,000	
	Faculty, intern, resident room	400	
	1 reading room	400	
	4 clinical seminar rooms @ 200 sq.ft.	800	
	2 lecture halls: one for grad. rounds & clinical conferences (200 capacity);	2,500	
	one for other lectures (90 students)	1,800	
	1 kitchen & laundry	400	
	1 pharmacy (large & small animal)	600	
	1 autotutorial room	600	
	1 practice surgery room (40 stu./sec.)	1,500	
	1 obstetric - GYN lab (40 stu./sec.) @ 90 sq. ft./stu.	3,600	
	5 interspecies speciality rooms i.e. @ 300 sq. ft.	1,500	
	6 offices (2/office) for 12 residents & interns @ 120 sq. ft.	720	
	Net sq. ft.	18,300	
	x 1.5=Gross sq.ft.	27,450	
	x $45/sq.ft.		$ 1,235,250
	+ 10% equipment		123,525
	TOTAL		$ 1,358,775
C.	Clinical Pathology		
	Clinical chemistry	400	
	Hematology	300	
	Microbiology	400	
	student seminar area	200	
	isotope room	200	
	chromatography room	200	
	preparation & record room	300	
	office	120	
	Net sq. ft.	2,120	
	x 1.5=Gross sq.ft.	3,180	
	x $45/sq. ft.		$ 143,100
	+ 10% equipment		14,310
	TOTAL		$ 157,410

		Sq. Feet	Dollars
D.	**Radiology**		
	seminar room	300	
	dark room	300	
	small animal room	400	
	large animal room	600	
	Net sq. ft.	1,600	
	x 1.5 = Gross sq.ft.	2,400	
	x $45/sq. ft.		$ 108,000
	+ 20% equipment		21,600
	TOTAL		$ 129,600
E.	**Necropsy**		
	small animals	400	
	large animals	1,600	
	autoclave, incinerator area	300	
	necropsy preparation room & storage	800	
	cold room	200	
	moribund animal stall	250	
	Net sq. ft.	3,550	
	x 1.5=Gross sq. ft.	5,325	
	x $45/sq. ft.		$ 239,625
	+ 10% equipment		23,962
	TOTAL		$ 263,587
F.	**Ambulatory**		
	reception room	200	
	drug room & equipment	200	
	tack room	200	
	storage	200	
	office	120	
	Net sq. ft.	920	
	x 1.5=Gross sq. ft.	1,380	
	x $45/sq. ft.		$ 62,100
	÷ 10% equipment		6,210
	TOTAL		$ 68,310
G.	**Large Animal Area**		
	3 reception, office, records	600	
	1 treatment room	1,200	
	1 bovine surgery room	600	
	1 equine surgery room	800	
	1 surgical preparation room	300	
	10 recovery & emergency stalls @ 225	2,250	
	1 tack room	100	
	1 storage room	400	
	1 feed room	400	
	Net sq. ft.	6,650	
	x 1.5 =Gross sq.ft.	9,975	
	x $45/sq. ft.		$ 448,875
	+ 10% equipment		44,887
	TOTAL		$ 493,762

	Sq. Feet	Dollars
H. Outside Animal Barns		
Large animal & miscellaneous species		
1 equine barn (30 stalls @ 225 sq. ft./stall) + treatment area of 400 sq.ft. @ $35/gross sq.ft.	7,150	$250,250
1 bovine, porcine, & ovine barn - misc. pens, stalls & treatment area @ $35/gross sq. ft.	7,150	250,250
1 hay barn (tin roof & poles) 1000 sq. ft. @ $10/gross sq.ft.	1,000	10,000
1 misc. species bldg. (including cage washer room) 400 sq.ft. @ $40/gross sq. ft.	4,000	160,000
Gross sq. ft.	19,300	$670,500
+ 5% equipment		33,525
TOTAL		$704,025

SATELLITE TEACHING & EXTENSION CENTERS

(To be built at sites of animal concentrations in conjunction with existing experiment stations)

1. Food Animal Unit (inexpensive construction) on state property		
bovine barn with 10 stalls @ 225 sq.ft./stall @ $20/sq.ft.	2,250	$ 45,000
Teaching Space		
2 faculty offices @ 120 sq.ft.	240	
1 secretary office	120	
1 surgery room	800	
1 treatment area	1,000	
1 seminar room	400	
1 laboratory	600	
1 storage room	200	
1 kitchen & eating area	400	
5 dorm rooms @ 200 sq. ft.	1,000	
1 locker, shower room	400	
1 tack room	400	
1 drug room	200	
Net sq. ft.	5,760	
x 1.5=Gross sq.ft.	8,640	
x $35/sq. ft.		$ 302,400
+ 10% equipment		30,240
+ 6% archit.		18,144
TOTAL		$ 350,784

		Sq. Feet	Dollars
2.	Equine Teaching Unit (similar unit)		$ 350,784
3.	Marine Biology Building (possibly at Cedar Key)		
	3 dormitory rooms @ 200 sq. ft. ea.	600	
	1 locker, shower room	400	
	1 kitchen & eating area	300	
	1 storage, specimen room	400	
	2 laboratories @ 400 sq. ft.	800	
	1 office & file room	200	
	1 fish tank area	500	
	Net sq. ft.	3,200	
	x 1.5=Gross sq.ft.	4,800	
	x $30/sq. ft.		$ 144,000
	+ 10% equipment		14,400
	TOTAL		$ 158,400
	GRAND TOTAL (Dollars)		$10,372,410*

*Includes $1,138,191 for equipment.