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PROGRESS REPORT
of
THE MEDICAL CENTER
STUDY COMMISSION

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THE MEDICAL CENTER STUDY COMMISSION

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LETTER OF TRANSMITTAL

The Honorable Robert W. Scott
President of the Senate

The Honorable H. P. Taylor, Jr.
Speaker of the House of Representatives

The North Carolina General Assembly

Sirs:

Submitted herewith is a Progress Report summarizing the recommendations of the Medical Center Study Commission.

This information is acknowledged to be incomplete and will require fuller analysis. However, inasmuch as the legislative resolution specified that a report be made to the 1965 session, all of the data could not be analyzed and presented in the time available. Consequently, the recommendations are based upon a review of the data thus far accumulated.

It should be explained that the Commission was not appointed until March, 1964. It was necessary to delay the study until the services of a director could be obtained. Dr. John B. Truslow was employed as a consultant to the Commission in October, 1964. Dr. Truslow was formerly Dean of the Medical College of Virginia and was most recently Executive Dean and Director of the University of Texas Medical Center at Galveston. He was consultant to the State of Ohio, Governor's Interim Commission on Education Beyond the High School and has held many consulting positions in medical education. Dr. Truslow is a Fellow of the American College of Physicians.

The Commission recognized there had not been a comprehensive study of State-wide health problems since the Poe Commission report of the mid-'40's. Moreover, it was decided that the feasibility of establishing another medical center should be considered along with the total health needs of the State, including some solutions for relieving the critical shortages of nurses, technicians and other health specialists.

The Commission is unwilling to submit a final report without more investigation into the problems of supply and demand in the health professions. However, in order to comply with the directive of Resolution No. 53, 1963 session, the Commission is submitting this abbreviated report which may require alteration and supplementation after all of the information being accumulated has been more thoroughly analyzed. Also, it is the Study Commission's judgment that a final report should reflect special consideration of the important programs dealing with health and medical care now pending before Congress and their bearing on the needs for future action in North Carolina.

Respectfully submitted for the Commission,

William F. Henderson, Chairman

April 30, 1965

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* Succeeded in March, 1965 by Mrs. Lois Underwood

INTRODUCTION

Resolution No. 53 (1963 General Assembly) establishing the North Carolina Medical Center Study Commission stated the existence of shortages of health and medical personnel in the smaller towns and rural areas of the State. It requested an "exhaustive" study and report to the 1965 General Assembly as to the feasibility of establishing another medical center in North Carolina to provide programs of education for additional health and medical personnel. Special reference was made to the lack of training facilities of this kind in the western and upper Piedmont sections of the State. (The Commission has concluded that this has applicability to other sections as well.)

The Commission was appointed in the spring of 1964 and the Study Director and secretary were employed in October. The three major problems upon which the Commission's studies have concentrated are:

1. The shortage of physicians in rural areas* of North Carolina;
2. The critical shortages of registered nurses, certified laboratory technologists, X-ray technologists and nurse anesthetists - reflecting fundamental factors of recruitment, qualified training programs, early dropouts from active practice, salaries and working conditions and out-migration from the State; and
3. The extent to which the establishment of another major medical center in North Carolina would contribute to the solution of these two widespread and complex conditions.

* Unless otherwise noted, the terms "rural area" and "rural population" conform to the statistics of the United States Census of Population, 1960 - North Carolina Number of Inhabitants - PC(1)-35A-N.C., published by the U. S. Department of Commerce, Bureau of the Census.

An immense amount of statistical data has been compiled needing continuing analysis and study. Much of it suggests the necessity of further search for material more up-to-date or more applicable to the problems at hand. Just received, for example, are March, 1965 listings of all doctors in North Carolina and of all graduates of the medical schools at the University of North Carolina, Duke University and the Bowman Gray School of Medicine by age, type of practice, county, size of town, medical school and (for a substantial sample) by place of origin and of hospital training. One interesting but very limited sampling thus far suggests that young out-of-state doctors are more likely to settle in rural North Carolina than North Carolina graduates.

The absence of prescribed criteria and objective standards for measurement of needs and performance in the health services presents a major challenge in attempting to arrive at valid conclusions. There are clear-cut answers to only some of the questions involved in the shortage picture. The "unanswerable" questions require research in depth which has not been forthcoming - or perhaps even possible under the circumstances of persistent and insatiable demand for modern health and medical care in excess of the capacity of the professions to deliver.

This Progress Report is conceived as a first step in a preliminary project. The recommendations relate to issues pressing for decision, but the real need is extension of time to complete the Commission's assignment and to formulate a longer-range program for presentation to a subsequent session of the General Assembly.

The Commission is deeply indebted to many individuals and agencies for the fullest cooperation in providing advice and very valuable data. They will be fully acknowledged in the final report.

RECOMMENDATIONS

I. The evidence assembled by the Medical Center Study Commission indicates that the 1965 General Assembly should take no action to establish a new medical school.

A. Medical education is not North Carolina's most pressing need insofar as the health professions are concerned. North Carolina with three medical schools ranks 6th in the number of schools among all the states irrespective of wealth or population. There are only 11 states having more annual graduations from schools of medicine.⁽¹⁾ The three North Carolina schools are now planning expansion programs, with partial financing in hand, to provide a total of 95 to 100 additional first-year admissions--the equivalent of another large four-year school--which would probably raise the State's relative ranking in the number of graduates.

The Commission recommends immediate financial support of the proposal to expand the programs of the medical school of the University of North Carolina now pending before the 1965 General Assembly. The Commission also suggests that future support of North Carolina students in the two private medical schools may be more economical than establishing a new medical school.

B. There is little evidence to indicate that the location of medical schools, particularly two-year schools, is an important influence on where doctors practice. The place of residency training following

graduation, however, has been shown to have a more significant bearing on where physicians choose to live and work. It is interesting to note that a study of Virginia's medical schools conducted in 1964 arrives at a similar conclusion. (2)

One important way for North Carolina to retain more of its medical graduates, to attract graduates from other states and to influence distribution of physicians throughout the State would be to establish more attractive internship and residency programs in selected community hospitals. The Commission recommends working partnerships between community hospitals and the three North Carolina medical schools. The implementation of this idea already being explored to a degree, including its financing, should be thoroughly explored.

- C. The construction and operating costs of a new medical school, taking into account the resources of the three existing schools and the State's relative ranking among other states, would appear to be out of proportion to the inadequate support given our schools of nursing and training programs for other health-related specialties.

It is estimated that the construction of buildings required for a first-class two-year school may cost in the neighborhood of \$12,000,000, including clinical and hospital elements, and an annual operating budget of at least \$1,200,000. A four-year medical school would probably involve construction costs in excess of \$30,000,000. (Appendix III)

As of February, 1965, statements from medical and other allied health schools of "intent to apply" pending before the Health Education Facilities Agency totaled requests of \$575 million against a Congressional authorization of \$175 million through June 30, 1966. It has not been determined what action Congress will take to extend this Act. (Public Law 88-129)

D. There is a widespread shortage of qualified instructors in the existing medical schools. It is reported that there are over 400 budgeted vacancies in the basic science departments and some 500 in the clinical departments of 87 medical schools now in operation. The three North Carolina schools report combined vacancies of 32 faculty positions today.

II. It is recommended that the State and its training and accreditation agencies should seek prompt implementation of the recommendations contained in the July, 1964 Report of the Survey of Nursing Education in North Carolina by Ray E. Brown.⁽³⁾ The survey was jointly sponsored by the North Carolina Board of Higher Education, the North Carolina Medical Care Commission and the North Carolina State Board of Education.

The general principles embodied in the proposed revision of the Nurse Practice Act (S. B. 228, 1965 session of the General Assembly) appear to be sound and practical for increasing the quality of training programs for nurses in North Carolina.

III. The Commission recommends financial support to expand health education programs in existing and new technical institutions and community colleges as steps to increase the number of qualified students for professional training in the

health technologies.

- IV. There would be great benefit to the State's many health agencies, community-based health programs and to future General Assemblies in the establishment of a well-staffed department--perhaps within the University system--to provide adequate and continuing investigation of the growing complicated problems affecting the health field. It is envisioned that a service of this nature would provide contributions to the State comparable to those of the Institute of Government, in Chapel Hill and the Agricultural Research and Extension Programs at North Carolina State. The Commission recommends legislation to this end.
- V. The Commission as presently constituted in membership, staff, budget and time does not have the resources to assume the task of continuing this study in the depth that is needed and to provide the State with a recommended, comprehensive, long-range program for training in all areas of health needs. It is recommended that the Commission's work be continued and that its membership be changed to reflect broader representation.

A NEW MEDICAL SCHOOL AT THIS TIME?

The Resolution establishing the Medical Center Study Commission indicated major concern of the sponsors, and of the General Assembly, with the supply and distribution of physicians to the rural areas of North Carolina. Likewise, a major purpose of the study was to determine whether a new medical school would materially increase the supply of physicians in rural areas and whether the appropriate academic, professional and financial elements necessary for a new medical school could be assembled in Charlotte or any other location in the State.

Today there are only five states in the nation with more medical schools than North Carolina, and only 11 with more annual graduations from medical schools within the state.⁽¹⁾ Each of these three schools are well advanced in expansion programs, with a goal of 1970 (Duke, 1972) set to increase the annual freshman admissions by 95-100 students. In the three schools combined, this will assure places for 55-65 additional North Carolinians based on the ratio of in-state admissions over the past 10 years. This is the equivalent of another four-year medical school in almost six years. The Surgeon General's Consultant Group on Medical Education did not include North Carolina among the states recommended for a new medical school on the basis of estimated student potential in 1970; indeed, North Carolina's rating on this basis was far below those states in which a total of 21 schools were described as needed.⁽⁴⁾

The Commission, moreover, can find no evidence to suggest that expansion of opportunities for North Carolina students to enter medicine has increased the relative numbers of graduates choosing to practice in rural areas. Analysis of the experience of other states on this point is still underway, but the following summary of findings in Tennessee, Indiana and Michigan are reported for comparison with North Carolina. (Appendix I)

	<u>No. of Schools</u>	(6) <u>In-State Admissions (15-Year Average)</u>	(7) <u>No. Rural Counties</u>	(8) <u>Rural M.D.s Per 100,000 Population</u>
North Carolina	3	113	77	51
Tennessee	3	168	73	42
Indiana	1	172	54	55
Michigan	2	265	46	48

Studies of location in practice of 1,480 North Carolina residents graduated from the three medical schools over the past 20 years reveal that 36% are now practicing outside of the State. ⁽⁵⁾ On this basis, North Carolina would appear to face the future with the necessity of educating 10 North Carolinians to gain 6.4 for the State. (Appendix II)

Studies on size of town in which graduates are located have been completed only for the 667 who completed the course at the University at Chapel Hill. Of these 667, there are 110 (16%) now practicing in towns of 5,000 or less in North Carolina. This suggests the continuing prospect of providing educational opportunity for 10 North Carolinians to gain 1:6 for the rural areas.

Migration within the State from rural to urban areas is a substantial factor in this picture. Of the 667 North Carolina graduates in this twenty-year period, 238 grew up in rural North Carolina. Today 70 (30%) are practicing in towns of 5,000 or less; 86 (36%) in larger towns and cities of North Carolina and 82 (34%) are practicing out of State.

Indeed, the prospects are merely to extend to higher total numbers the twenty-year record of North Carolinians graduating from the three medical schools in the State and choosing to locate in practice: 36% outside of the State and an estimated 16% in the small towns and rural areas of North Carolina. (Appendix II)

In the nationwide competition for funds and for faculty today, the geographical consideration should not be ignored. The apparent favorable position in this arena of the three medical schools in North Carolina could be jeopardized by a new school at this particular time, at least, in terms of critical delay in achievement of their expansion goals.

In assessing availability of necessary academic, professional and financial elements for a new medical school, the Commission considered carefully not only its own data from official and personal sources but also material prepared in behalf of the interests of the Charlotte-Mecklenburg area⁽⁹⁾ and of East Carolina College.⁽¹⁰⁾

Acknowledging the assets of the Charlotte-Mecklenburg community in respect to many elements vital to medical school development, the Commission believes the only logical base for a medical school in that community to be Charlotte College in the Consolidated University System. However, the Commission feels that it will be a matter of years before the necessary new construction and extension of graduate programs and versatility could justify a medical school. In the meantime, it strongly recommends continuing development of the area hospital teaching programs and close affiliation with similar training programs at the University Medical Center at Chapel Hill or elsewhere.

Faculty

The problem of attracting a faculty to a new two-year school is too great to be disposed of by a quotation from the Surgeon General's Consultant Group to the effect that "Despite these (shortage) problems, the new schools . . . have found it possible to secure . . . well-qualified faculty." (4) (10)

That report was written in 1959. In the prior 16 years, eight new schools had been started, one each in 1943, 1945, 1951, 1952, 1954, 1955 and two in 1956. Today twelve new schools are well advanced toward the stage of faculty recruitment - at a time when there are 401 budgeted full-time vacancies in the basic science departments of the currently operating schools and 514 budgeted full-time vacancies in the clinical departments. Basic science faculty needs of twelve new schools may be conservatively estimated at 750 positions - added to 401 and totaling 1,151 - against annual graduations of 428, annual attrition from retirement and death at about 140 and an annual drain into the pharmaceutical industry of a goodly number of able men. (1)

Reports from the deans of the three medical schools in North Carolina reveal a combined total of 32 vacancies in faculty positions today, of which 15 are in the first two years; and a need, for the expanded programs in 1970, of 160 total faculty, of which 74 would be in the first two years.

Concept

The concept of building a medical school out of one or more natural science departments or in extension of programs in other health professional fields has failed in the past, and for excellent reasons. It can be predicted that this theory, in spite of apparent economies, will not be acceptable to accrediting agencies.

Strength in the biomedical sciences in any new medical school today must be established firmly in the authority of the institution to provide graduate education at the doctoral level. A medical faculty has as great a responsibility for recruitment and education of biomedical scientists and teachers as of physicians. Limitation in the number of qualified teachers in the biomedical sciences today is perhaps the major bottleneck to expansion programs in medical education.

Clinical Teaching

Moreover, clinical faculty and hospital facilities are essential elements in the first two years of modern medical education. This increasing emphasis in the first two years of medicine upon the clinical subjects in the curriculum is here quoted from a two-year medical school dean: "Almost one-third of the curriculum now is in straight clinical subjects which in turn depend on a clinical faculty . . . recruitment in quality to the smaller scale institutions may well be the major challenge to the two-year concept, but unless it is solved on a sound basis, I personally doubt if the two-year school will be a notable entity in American medicine. To put it more bluntly, a two-year school is not just an enlarged college department of biology. It must have a real and genuine involvement in clinical medicine, both teaching and research."

The two-year medical school, in fact, after only a few years of revival of accrediting agency interest in its potentialities has found it necessary already to enter another stage of reappraisal. For, coincidental with this revival which brought five new, two-year schools into being, there developed a long overdue restudy of the four-year school curriculum. Most of the medical schools are increasing the clinical teaching in the first two years of the four-year schools. The byproduct of this development is trouble for transfer students. For two-year medical schools, it clearly means:

1. Substantial increase in cost to support the necessary clinical faculty and hospital affiliation involvement.
2. Loss of the traditional pattern which once assured a wide choice of medical schools for the transfer students.
3. A necessity to keep up with at least several four-year school curriculum patterns.

Transfers and Vacancies

A two-year medical school has a unique responsibility to its students in the fact that its entire philosophy presumes the capacity to assure qualified students of their acceptability in transfer to a reasonable number of four-year schools on their terms of assessment of qualifications.

The Commission has been unable to obtain any confirmation of the 3,000 figure, widely quoted and requoted, as the extent "some experts estimate the country's four-year schools now operate below capacity in the third and fourth years." Indeed, the estimate of possible vacancies nationally in 84 four-year schools today varies between 700⁽¹⁾ and 950⁽¹¹⁾ but the critical figure concerns the three medical schools in North Carolina.

Actual "vacancies" in the three North Carolina medical schools (at the junior year) combined over the past five years (1960-1964) were 2, 2, 6, 2 and 5.⁽¹⁾ Surely, these North Carolina institutions are the schools for whom the two-year school proposal has been advocated as a special asset. This assumption deserves additional review in the light of the fact that the new curriculum to be implemented at Duke in the fall of 1966 "will not permit any transfers at all from two or four-year medical schools."⁽¹²⁾

From the five new, two-year schools now well advanced in their planning and construction programs plus the three now in operation, there will probably be at least 350 two-year school graduates seeking admission to four-year medical schools by 1970.⁽¹⁾

The expansion programs of the three medical schools in the State will give time for more careful consideration of a statewide program and particularly of alternative and additional approaches to the rural doctor shortages, upon which

the Commission would like to concentrate its efforts.

The Commission can see no risks in this decision comparable to the risks of commitment to a new medical school at this time. Action now on a section of the problem rather than a statewide program risks indefinite postponement of perhaps more appropriate actions or invites sectional solutions in the other areas of the State. This latter would be catastrophic - financially and academically.

Alternative Recommendation

The Commission recommends vigorous local efforts to establish a referral medical center hospital in the East Carolina area with internship and residency programs and affiliation with one of the existing medical schools. Hospital training programs of this kind have been repeatedly reported as the most influential factor in the determination of a young doctor's choice of a place to practice. This might be aided by State funds at a later date. The Commission believes this would not only give earlier and more promising stimulus than a two-year medical school to increasing recruitment of physicians to the area, but also time for appropriate studies and planning in new ideas perhaps in medical education - and altogether improve the chances of success and accreditation of a school one day - some years hence.

Some other states have reached this conclusion also. (2)

CRITICAL FACTORS IN HEALTH PROFESSIONAL SHORTAGES

While the overriding problem of doctor shortages is clearly distribution (Appendix IV), the professions of Nursing, the Technologies and Nurse Anesthesia present shortage problems of a more urgent and general nature.

No solution to the shortages in these fields will be possible at the present gross rate of supply and attrition in the practicing professions in North Carolina.

In the field of Nursing, the need is for a 50% increase in the number of registered nurses in full-time practice in order to achieve the nationally anticipated minimum ratio of 3.17 nurses per 1,000 population.⁽³⁾ Over the past three years, the average annual increase in the work force in nursing in North Carolina was about 1,300: 681 graduates from 34 North Carolina schools; 447 licensed by the Board of Nurse Registration by endorsement from other states; and the balance, an estimate of nurses coming out of retirement. In this same three years, the average annual attrition in the work force in nursing was about 1,200: 150 failures of North Carolina graduates in the State licensure examination; 528 endorsed by the Board of Nurse Registration to other states; 452 by retirement; and the balance an estimate of those who never practice.⁽³⁾ ⁽¹³⁾ At this rate, we are barely keeping up with the population increase, and thus maintaining the State's very low ratio of 2.04 registered nurses per 1,000 population.

In Medical Technology, there are about 1,040 technicians doing laboratory determinations in hospitals and clinics over the State, of whom less than 40% are certified laboratory technologists.⁽¹⁴⁾ The total need is for about 1,200 fully qualified technologists, making the current deficit approximately 60% in the hospitals and clinics alone.

In X-ray Technology and Nurse Anesthesia, work-force estimates are still accumulating and no criteria exist with respect to over-all needs. Informed opinions in each of these areas agree that the needs are at least double the current numbers in active practice.

In all of these fields, it is clear that there are multiple factors of increase and of decrease in the numbers of effectively active professionals. At least four of these increase and decrease factors have been sufficiently assessed to justify the prediction that attention and action on only two or three of them will result in little progress in solving the shortage problems in the State.

The first of these is recruitment which refers to the numbers of qualified applicants for health professional training. The second, so intimately related, is the number and quality of training programs. These will be presented together in the section in Recruitment and Training. The third concerns utilization of the personnel now available and will be viewed in relation to recruitment as well as to economy of operation. Finally, there is in North Carolina a significant factor of out-migration from the State of a disproportionate number of its home-trained professional and technical personnel, not only in the health fields but in most other comparable fields of endeavor.

Recruitment and Training

There is a demonstrable shortage of well-qualified applicants to many of the existing health professional schools in North Carolina. In all fields except medicine, there are training schools with vacancies in recent years for lack of qualified applicants.

The Commission finds no evidence of shortage, however, of intelligent youngsters highly motivated at some stage in their lives to careers in the health professions.

What changes their minds or favors a choice of alternative careers and opportunities? At the first level there are certainly factors of misinformation or of incomplete information about health careers, and there is a steadily growing voluntary effort to overcome this situation. There are increasingly attractive and rewarding alternative careers in science and service successfully competing for the most able and dedicated minds and hearts of the younger generations, and there are some very practical considerations to be discussed in the following paragraphs.

Basic Educational Background and Qualifications - Inadequacy in this area is the failing most often cited in reports of school applications in all of these fields.

The Commission believes there is an extremely important implication to recruitment in the health fields in the Governor's program for strengthening the elementary and secondary educational systems of the State.

Both course content and quality of teaching are important to the level of achievement attainable by a student to meet pre-professional requirements today. It is likely that many youngsters are stimulated to far less than their best performance for lack of personalized attention in these often difficult years.

Opportunity near home for professional education is a particularly important factor of recruitment in fields predominantly dependent upon their appeal to bright young girls of 17-18 years of age.

Nothing is more vital and promising to extension of such opportunity than the fullest possible implementation of the Technical Institute and Community College programs in the health professions. Success of the programs in the training

of licensed practical nurses, in only two years, has been phenomenal.

The major graduate program in nursing in the State - and, therefore, the primary source of new faculty for all schools of nursing in North Carolina - is at the University of North Carolina School of Nursing at Chapel Hill. There the growth in only eight years has so far outstripped the availability of space to meet the demand that many well-qualified applicants cannot be accepted.

The faculty-training problem is the most important bottleneck in the development of new schools of nursing. "C" Budget items presently among those approved by the Advisory Budget Commission would make possible expansions more than doubling the current graduate enrollment. But this will only begin to meet the problem and there is urgent need for development of other graduate schools in the State.

New schools of nursing, however, are not the only need in relation to opportunity for many youngsters in nursing today. Among the 34 currently operating schools, there are several with serious problems of budget and of quality of educational program.

Only five schools of nursing in North Carolina - with 22% of the students in training - receive substantial subsidy of the educational programs from tax support. (Up to this point, the maximum Federal grants for which nursing schools may be eligible do not exceed more than 10% of the cost per student per year.) Therefore, the cost of nursing education in 29 schools over the State with 78% of the students in training is largely borne by the hospitals in which they are located, which simply means it must be passed on to the patients in the form of hospital charges. For a number of these hospitals, this is becoming an increasingly unbearable burden.

Quality of the Programs, in some instances, must be regarded as a factor in recruitment and the following data emphasize the problems of upgrading current programs in addition to developing new ones. Here are tabulated the averages of statistics from three annual reports (1962-1964) of the N. C. Board of Nurse Registration and Nursing Education on performance in the licensure examination* of graduates from all North Carolina schools of nursing and from selected groups of schools.

<u>Number of Schools</u>	<u>Average Annual Graduation</u>	<u>% of Total Graduates</u>	<u>Average Annual Failures in Licensure Examinations</u>	
All 34 schools	681	100%	150	22%
14 schools	402	59%	32	8%
12 schools	177	26%	88	50%

This variation emphasizes the importance of strengthening the hand of the accrediting groups in the State, particularly if any form of State subsidy of those schools is contemplated in the near future.

When the drop-out rate in the weaker schools is added to the failure rate in licensure examinations, it can be computed that it has taken more than 290 admissions to the freshman class to assure 100 registered nurses qualified to practice in North Carolina. This surely has a very negative effect on recruitment. The factor of cost would seem to be exorbitant at the estimated average rate of \$2,500⁽¹⁵⁾ per nurse per year!

In this connection, the Commission has studied those provisions in the proposed revision of the Nurse Practice Act which relate to standards and procedures for accreditation of schools of nursing and believes the general principles embodied in these

* This examination is given nationally but graded locally; North Carolina's "passing grades" being set lower than the national average.

sections to be sound and essential to the appropriate solution of this aspect of the nursing shortage today.

Beyond these practical considerations, about which something reasonably specific and effective can be done, there are elements in the recruitment deficit for which no promising solution exists. In nursing and the technologies particularly, these are crucial considerations:

The younger generation today, however highly motivated, knows well that the starting salaries in these fields even after two to four years of "professional" training compare unfavorably in North Carolina with starting salaries in secretarial and other job classifications after less than a year of training, often on the job. (16) (17)

Moreover, they either know or soon find out that, in addition to the round-the-clock hours which cannot be avoided, the professional skills and judgment responsibilities of graduate nurses in practice are frequently overwhelmed by loads of clerical, messenger, and domestic tasks which can be done by lesser-trained persons.

However complex and immense may be the task of hospitals to change these conditions, there can be no doubt of their influence on the shortage of recruits to the professions - and likewise on the relatively short period in active practice of a growing number of graduates each year.

Utilization of Health Professional Skills

The need for management skills and resources in the organization of health and hospital services today cannot be overstated. Today, health insurance, preventive medicine, elective surgery, and the expanding techniques of diagnosis

have combined to change the major load of patient care in the average community hospital from a concentration of critically ill patients to a sprinkling of critically ill patients among the many who are in for "work-ups" and "check-ups" and "follow-ups", semiambulatory, and increasingly "prepaid." The demand for more hospital beds increases and the supply of nurses and health personnel lags still further behind.

The evolution of the hospital as a center for private practice with pooling of nursing and technology personnel and 24-hour ambulant-patient coverage is increasingly made inevitable by the insistence of the personnel shortages to be solved.

There is an important place for professional personnel research. In the dental field, for instance, some national studies have shown that one dental hygienist working with a dentist can increase his professional work load 30% without jeopardy to quality of dental care; and that two dental hygienists can increase the work load 70% without jeopardy to care. The implications of this to the speed with which dental shortages in the State can be overcome can be readily seen. It suggests many possibilities for research in the professions closely allied to medicine.

The need for such projects is reflected in Recommendation IV (page 6)
that there be established a health service and research agency for the State wherein
appropriate studies and evaluations can be made. With reference to the serious problem of physician shortages in rural areas, it is clear that the resources of whole communities and whole regions must be mobilized to bring about a solution. As the demands of modern medical care tend to concentrate facilities and physicians, the problems of distance and the patterns of distribution become predominant issues. The resolution of these problems cannot be accomplished by the health professions

alone! Yet, these and many comparably complex factors in shortage problems of the health professions have no meeting place for study and research and for service to the public.

To the General Assembly - to say nothing of the various agencies and institutions of the State and community-based health programs - such a health-research agency could be a continuing and vital resource in the evolution of programs over the State and especially in increasing correlation with Federal operations.

Out-Migration

Whether the disproportionately high out-migration from North Carolina of outstanding native abilities trained and educated in the State is a fact to live with or to change, perhaps only time will tell. But in health, as in education and science, it is a formidable fact, as Horace Hamilton and others have so well documented. In particular respect to the huge potential of the Negro contribution to the health services of North Carolina, it is altogether discouraging.

The picture in medicine has been referred to previously in this report, but it might be emphasized here that the picture is incomplete until the data on in-migration of doctors to the State, just now made available, has been analyzed.

In nursing over the past three years, the average number of North Carolina graduates passing the licensure examination has been 531 per year and the number of North Carolina nurses endorsed for licensure in other states has averaged 528 per year. Fortunately, in this same period, an average of 447 per year have been accepted for licensure in North Carolina by endorsement from other states.

No figures have been obtainable on the migratory picture in the technologies and nurse anesthesia - but numerous opinions have been expressed suggesting a similar

negative balance.

It is not easy to determine the extent to which these out-migration data simply express the relative restlessness, mobility and courage of this new generation. But to that same extent, the challenge in our State must be to attract a comparable proportion of the Restless, the Mobile and the Courageous.

* * * * *

The Commission has not had the time and resources to accomplish all of the objectives. This report is intended only to summarize some opinions influenced by preliminary studies of the problems.

Appendix I

Preliminary Findings in the Study of Three States with More Than 1,750,000 Rural Population and More Than 175 State-Residents Admitted to Medical Schools in the State - and Correlation with Physician-Population Ratios in Rural Counties of These States.

These studies are continuing in additional states as well, but the findings to date suggest little encouragement to the theory that increasing the numbers of State-resident graduates or the numbers of state medical schools will increase the relative numbers who choose to locate in rural areas.

A. Medical Education Resources in the State - and Percent of Graduates Now Practicing in the State - (Sources: JAMA Education Numbers 1950-1964; JAMA Bulletin 101 and Commission Studies - See Appendix II.)

<u>State</u>	<u>No. of Medical Schools</u>	<u>Admissions of State Residents to All Schools in the State</u>	<u>% of State-Resident Graduates Now Practicing in the State</u>
North Carolina	3	116*	64%
Tennessee	3	180	X
Indiana	1	196	63%
Michigan	2	281	62%
U. S. A.	87	-	-

* To be increased by 1970 to estimated 170 with expansion programs of three schools combined.

X No data available.

Appendix I (Continued)

B. Physician-Population Ratios: Total M.D.'s and M.D.'s in private practice; by State and by Rural and Urban Counties. (Sources: State-wide ratios - 1963 U. S. Census estimates and AMA Directory Report Service April 6, 1964; Rural and Urban County ratios - 1960 Census in-County populations and AMA Directory, *ibid.*)

STATE	STATE-WIDE RATIOS			URBAN COUNTY RATIOS			RURAL COUNTY RATIOS		
	Total Counties	M.D.'s Per 100,000 Pop.		No. Urban Counties	M.D.'s Per 100,000 Pop.		No. Rural Counties	M.D.'s Per 100,000 Pop.	
		Total	Priv. Prac.		Total	Priv. Prac.		Total	Priv. Prac.
N. Carolina	(100)	97	68	(23)	131	89	(77)	*71	51
Tennessee	(93)	94	75	(22)	150	97	(73)	47	42
Indiana	(92)	90	78	(38)	114	90	(54)	61	55
Michigan	(83)	95	78	(37)	133	83	(46)	58	48
U. S. A.	-	113	90	-	-	-	-	-	-

"Rural Counties" here defined as more than 60% rural census.
 "Private Practice" includes active general practitioners and specialists.
 Difference between "Total M.D.'s" and "private practice" includes full-time appointments in administration, teaching and research, interns and residents and "retired or not in practice".
No Government or military physicians are included in either total.

* Includes Chapel Hill, because Orange County is 70.7% rural.

Appendix II

Preliminary Findings in the Study of 1480 North Carolinians Who Have Graduated From All Three Medical Schools in North Carolina since 1944 and Are Now in Practice.

(An additional 441 North Carolinians have graduated from the three schools in this same period, but are still in internships, residences or military service.)

A. School of Graduation and Location in Practice.

<u>Medical School</u>	<u>Total</u>	<u>Now in Practice in North Carolina</u>	<u>Out-of-State</u>
University of North Carolina	667	425 (64%)	242 (36%)
Duke	374	213 (57%)	161 (43%)
Bowman Gray	<u>439</u>	<u>305</u> (69%)	<u>134</u> (31%)
Total	1480	943 (64%)	537 (36%)

B. Selection of Students All Three Schools by Section of the State and in Relation to Section Population.

<u>Section of State</u>	<u>Total</u>	<u>%</u>	<u>Population Distribution</u>	
			<u>1960</u>	<u>Estimated 1980</u>
Coastal Counties	433	30%	34%	30%
Piedmont Counties	865	57%	51%	58%
Mountain Counties	<u>182</u>	<u>13%</u>	<u>15%</u>	<u>12%</u>
Total	1480	100%	100%	100%

C. Location in Practice by Section of the State, and Correlation with Sections of Origin.

<u>Students From</u>	<u>Practicing in North Carolina</u>			<u>Practicing Out-of-State</u>
	<u>Same Section</u>	<u>Other N. C.</u>	<u>Total</u>	<u>Total</u>
Coastal Counties	194	103	297 (69%)	136 (31%)
Piedmont Counties	454	77	531 (61%)	334 (39%)
Mountain Counties	<u>65</u>	<u>50</u>	<u>115</u> (63%)	<u>67</u> (37%)
Total	713	230	943 (64%)	537 (36%)

Appendix II (Continued)

Studies of Locations in Practice and Origins of 667 Graduates of University of North Carolina School of Medicine - by size of town. (Locations in practice include the 36% who have located out-of-state.)

A. 304 Two-year school graduates (1944-51)

<u>Present Location in Practice</u>		<u>Size of Town Where They Grew Up</u>		
<u>Size of Towns</u>	<u>No. UNC Graduates</u>	<u>Same Size</u>	<u>Larger</u>	<u>Smaller</u>
Under 5000	68	35	33	--
5-25000	77	33	19	25
25-100,000	57	20	6	31
100-250,000	47	22	2	23
Over 250,000	<u>55</u>	<u>16</u>	<u>--</u>	<u>39</u>
Total	304	126 (41%)	60 (20%)	118 (39%)

B. 363 Four-year school graduates (1954-64)

<u>Present Location in Practice</u>		<u>Size of Town Where They Grew Up</u>		
<u>Size of Towns</u>	<u>No. UNC Graduates</u>	<u>Same Size</u>	<u>Larger</u>	<u>Smaller</u>
Under 5000	79	43	36	--
5-25000	126	56	30	40
25-100,000	57	9	9	39
100-250,000	55	12	1	42
Over 250,000	<u>46</u>	<u>11</u>	<u>--</u>	<u>35</u>
Total	363	131 (35%)	76 (21%)	156 (43%)

Of the 147 graduates now practicing in towns under 5000 population, 110 are located in North Carolina and 37 outside of the State. Thus, of 667 graduates of the University of North Carolina in the past 20 years who are now in practice, 110, or only 16%, are located in the rural areas of this State.

Appendix IIICost of Construction

The following are quoted from personal communications from deans of the two new state-supported two-year medical schools in which the development has advanced to the point of practical experience:

School A. A school planning 64-80 students per class: "We have found so far that figures published in the USPHS Publication 1180-A-1b are too low for several reasons: Square foot costs are far below those in effect five years later in our part of the country; and there is a substantial difference between our 'costs of construction' which were \$10.1 millions and the \$16.2 millions needed for 'total project costs'. Moreover, I suggest that between \$2 and \$3 million might be a reasonable operating cost figure today."

School B. A new State-supported school planning 60 students per class: "While a \$6,000,000 or \$7,000,000 will house minimal basic science departments for a school with a student body of 60 or so per class, this does not include equipment for such a building nor appropriate modification or remodeling of a community hospital. The competition, furthermore, for Federal matching grants is keen, and nothing is 'virtually assured'."

Appendix III - (Continued)

Square footage needs for a two-year school are presented in the following estimates:

Column A. being quoted from a specific study for the establishment of a two-year school in the Midwest.

Column B. being based upon the USPHS Publication No. 875, adjusted to two-year school needs. Each of these presumed the existence of basic facilities and services on a University Campus.

	<u>A</u>	<u>B</u>
<u>Basic Science Building</u>		
Departmental Facilities	91,000 Sq. ft.	79,000 Sq. ft.
Teaching Research & Supporting Facilities	50,000 Sq. ft.	54,000 Sq. ft.
General Facilities	<u>22,000 Sq. ft.</u>	<u>18,000 Sq. ft.</u>
Total Net	163,000 Sq. ft.	141,000 Sq. ft.
Corridors, elevators, stairs, walls, etc.	<u>88,000 Sq. ft.</u>	<u>74,000 Sq. ft.</u>
Total Gross Area	251,000 Sq. ft.	215,000 Sq. ft.
<u>Clinical Departments</u>		
Departmental Facilities	44,000 Sq. ft.	52,000 Sq. ft.
Corridors, elevators, stairs, walls, etc.	<u>19,000 Sq. ft.</u>	<u>21,000 Sq. ft.</u>
	63,000 Sq. ft.	73,000 Sq. ft.
TOTAL SPACE NEEDS	314,000 Sq. ft.	288,000 Sq. ft.

Local estimates suggest this might reasonably be computed at \$28-30 per square foot.

TEACHING HOSPITAL NEEDS

150 teaching beds (in addition to the needs of private practice) - at \$25,000 - \$30,000 a bed.

Appendix IVPhysicians in Active Private Practice and Total Physicians - By Section of the StateAs of April, 1964

<u>Private Practice</u>	<u>Coastal</u>	<u>Piedmont</u>	<u>Mountain</u>	<u>Total</u>
G. P.'s	385	641	260	1286
Internists	78	246	39	363
General Surgeons	94	209	58	361
Other Specialists	<u>247</u>	<u>730</u>	<u>137</u>	<u>1114</u>
Subtotal	804	1826	494	3124
Full-time Administrators	36	113	35	184
Teaching and Research	34	434	29	497*
Interns and Residents	7	617	10	634*
Retired - Inactive	<u>47</u>	<u>104</u>	<u>58</u>	<u>209</u>
Subtotal	124	1268	132	1524
Total Doctors	928	3094	626	4648

* Almost all of these are very active in the practice of medicine. These figures do not include full-time doctors in State or Federal Government service.

(Source: AMA Directory Report Service, Volume 16, Supp. No. 62, April 6, 1964)

Appendix VS. R. No. 131. Resolution 53 Session Laws of 1963

A JOINT RESOLUTION PROVIDING FOR THE APPOINTMENT OF A COMMISSION FOR THE PURPOSE OF MAKING A STUDY OF THE FEASIBILITY OF ESTABLISHING A MEDICAL CENTER FOR THE TRAINING OF DOCTORS, NURSES, TECHNICIANS AND OTHER MEDICAL PERSONNEL AT CHARLOTTE.

WHEREAS, there exists a shortage of medical personnel in the smaller towns and in the rural areas of the State; and

WHEREAS, it may be desirable for the State to establish a medical center to train additional personnel, and to assist in financing this training program to promote the health and welfare of citizens of our State; and

WHEREAS, a large number of patients of varying illnesses, injuries, and symptoms is required to give experience and training to medical personnel, and therefore the location of a training center should be in an area of high population density; and

WHEREAS, there is a lack of adequate training facilities for medical personnel in the western and upper Piedmont sections of the State:

Now, therefore, be it resolved by the Senate, the House of Representatives concurring:

Section 1. There is hereby created a commission to be known as the Medical Center Study Commission, which shall consist of nine (9) members to be named by the Governor, at least three of whom shall be medical doctors in good standing in North Carolina. The Governor shall designate one of the members as chairman.

Sec. 2. It shall be the duty of the commission herein created to make a detailed and exhaustive study of the feasibility of establishing a medical center for the training of doctors, surgeons, nurses, technicians, nurse anesthetists, and

Appendix V (Continued)

other medical personnel at Charlotte, Mecklenburg County, and the commission may study any other locality in North Carolina that in its judgment should be considered as a location for said medical center. Such study shall include the means of financing, staffing, equipping, and maintaining the training center and shall inquire into the feasibility of plans to provide proportional parts of the tuition and other expenses to trainees who shall agree to serve in towns of less than five thousand (5,000) population, and in rural areas of North Carolina.

Sec. 3. The Commission is authorized to employ such clerical help and other assistants as it may deem necessary to carry out the purpose for which it is created, and the members shall be entitled to receive a per diem allowance of seven dollars (\$7.00) for each day spent in conduct of the commission's business, and actual expenses for travel and subsistence at the rate allowed for State employees generally. Such per diem and allowances shall, with the approval of the Governor and the Council of State, be paid out of the State Contingency and Emergency Fund.

Sec. 4. The Commission shall report, with recommendations, to the 1965 Session of the General Assembly with respect to all matters relating to the establishment of the medical center as hereinabove set forth.

Sec. 5. This Resolution shall become effective upon its adoption.

In the General Assembly read three times and ratified, this the 1st day of May, 1963.

LIST OF REFERENCES

- (1) Journal American Medical Association, Education Number, November 16, 1964.
- (2) Physicians for Virginia, Part 1, A Study of Virginia's Medical Schools - Report of the State Council of Higher Education to the Governor and the General Assembly of Virginia, 1964, page vii

"The most important factor in determining the location of a physician's practice is the place where he takes his residency training. Thus, if Virginia is to retain its graduates and attract other graduates, there must be more attractive internships and residency programs in hospitals in Virginia."
- (3) Report of Survey of Nursing Education in North Carolina, Ray E. Brown, July, 1964.
- (4) Physicians for a Growing America, U. S. Public Health Service Publication No. 709, October, 1959.
- (5) Reports to the Commission from the Deans of Medicine at the University of North Carolina, Duke University and the Bowman Gray School of Medicine give the following data on all graduates since 1944: name, address on application, date of graduation, hospital appointments, type of practice and address in practice.
- (6) Journal American Medical Association, Education Numbers 1950 - 1964.
- (7) U. S. Census of Population, 1960.
- (8) American Medical Association Directory Report Service, Vol. 16, Supp. No. 62, April 6, 1964.
- (9) Feasibility Study: A Medical Center at Charlotte, N. C., Charlotte Chamber of Commerce, November, 1964.
- (10) Memorandum on Medical School Proposed for East Carolina College, Greenville, N. C.
- (11) Statement quoted from Dr. Ward Darley, recent Executive Director, Association of American Medical Colleges.
- (12) Direct statement of the Dean of Medicine, Duke University School of Medicine.
- (13) Special Reports 1962-1964 North Carolina Board of Nurse Registration and Nursing Education.

- (14) Preliminary estimates from Department of Labor research project on Medical Technology in North Carolina.
- (15) National League of Nursing report on the operating costs of Hospital Schools of Nursing, 1964.
- (16) The Duke Endowment, Hospital Salary Survey, March, 1964.
- (17) State Classifications and Salary Ranges, N. C. State Personnel Department, February 1, 1965.