CAMPUS ACADEMIC AND DEVELOPMENT PLAN
HEALTH SCIENCES CENTER
STATE UNIVERSITY OF NEW YORK
AT STONY BROOK

February 1, 1968

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PART A. ACADEMIC PLAN UP TO YEAR 1975

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I. PREFACE AND INTRODUCTION

It is a difficult undertaking to elaborate an imaginative and reliable academic campus plan even in a fully developed university. The attempt to do so for the new Health Sciences Center at Stony Brook while it is in its very earliest stages of development is fraught with obvious uncertainties.

Detailed planning for the Center began in September, 1966. The present staff consists of two physicians and two administrative assistants. While many of the questions requisite for the development of an academic plan must be faced even now, all projections must be subject to the critical and expert review of the Deans and faculty yet to be recruited in all the units of the Health Sciences Center.

Even if it were possible to make detailed plans for the programs and curricula of each college, it would be highly undesirable to do so. The unique chance to create something new in each of the health professions will be the single most attractive factor in recruiting a high quality faculty to Stony Brook. To predetermine any program too rigidly would not only be imprudent, but it would seriously impair our ability to attract creative academic leaders to our campus.

Every facet of education in the health sciences is currently the subject of widespread critical re-examination. Today's projections and hopes may, in the rapidly changing health field, be outmoded by the time the Center is in operation. Flexibility is an essential ingredient in planning for so large a complex. This implies the freedom to change objectives as new dimensions and challenges make themselves apparent.

Academic goals and philosophy must, in consequence, be treated broadly and in principle. Nonetheless, the major commitments we have outlined in this academic plan should be valid for the next decade.

This plan will undoubtedly undergo maturation, emendation and refinement as our faculties grow. It should be regarded as the first attempt at a definition of the philosophical pivots upon which the programs in the health sciences at Stony Brook will turn.

Implicit in the charge to plan and develop any new educational institution is the responsibility for a critical and imaginative reinterpretation of the mission of that institution, in terms of current and future scientific and social forces. Nowhere is this responsibility so compelling as in the genesis of a comprehensive Health Sciences Center. In few situations is the intermingling of the traditional and the innovative so urgently demanded.

The half-life of human enthusiasm for innovation is rapidly shortened as planning imperceptibly yields to the exigencies of operation. To effect the synergism of new ideas with the traditional, it is mandatory that the short fertile period of the early days of planning be utilized maximally.

The new Health Sciences Center will develop within the favorable environment of a growing comprehensive university dedicated to a fresh approach to teaching, research and service. The opportunity is unexcelled for imaginative and vigorous confrontation with some of the major problems of service and education in the health sciences. The major responsibility of the planning staff is to use the clean slate to create a Health Sciences Center which is scientifically based, sensitive to the needs of the community it serves, and courageous enough to initiate experimentation. It must explore ways to generate new knowledge simultaneously with improving ways to deliver what is already known in the most responsible and effective manner.

II. THE HEALTH SCIENCES CENTER

A.) ACADEMIC MISSION AND COMMITMENT

The decision to place a new Health Sciences Center on the Stony Brook campus was derived after careful study, culminating in the Report of the Muir Committee to the Regents in 1963. As presently conceived, the Center is expected to include Colleges of Medicine (1971), Dentistry (1972), Nursing (1972), Allied Health Professions (1972), a School of Social Welfare (1970), a University Hospital (1973) and a new Veterans' Administration Hospital (1974). A comprehensive program of education, research and public service in all the health professions is thus contemplated, with a full-time student body at full development in excess of 3000.

Academic programs will range from molecular biology, through the usual clinical disciplines, to community medicine and service. The majority of programs are to be of the baccalaureate, master's and doctoral levels and geared to the future and present health needs of our region and the nation. We hope to confront some of the major issues in providing optimal medical care in a socially relevant way.

Such an undertaking demands a heavy commitment to planning for physical facilities, of course, and we have already entered deeply into that process. But, facilities planning must not obscure the ideas which alone will distinguish our new Center and justify public expectations and expenditures.

Certain academic commitments will characterize the Health Sciences Center at Stony Brook. These commitments are the basis of this academic plan and they define the mission of the Center which will guide planning for the next decade.

First, the Health Sciences Center is committed to the cultivation of all the health professions as university disciplines. "The task of the university", in the words of the Cambridge philosopher A. N. Whitehead, "is the creation of the future". In the thirty years since this utterance, society has even more explicitly charged the universities to engage the relevant issues of the day and use their resources

for the more direct betterment of the human condition. For a new University like Stony Brook, Whitehead's words have particular acuteness. With the Health Sciences Center as an integral part, the university can extend the range of its concerns to some of man's oldest problems — disability and disease.

The Health Sciences Center could not fully "create the future" in health care without the most intimate relationship with the biological sciences, humanities, social sciences and other professional schools in the university. While most medical schools are under university aegis in this country, the association is best characterized as uneasy. Mutual advantages have nowhere been fully developed. How to make the potential of a Health Sciences Center available on a wider basis to all disciplines, is one of the major academic issues of today. At Stony Brook we have the advantages of physical proximity, of concurrent growth and cooperative planning, and of conscious efforts to inter-relate Health Sciences Center and University. We have an opportunity shared by only a few new institutions — e.g. San Diego, Irvine — to develop a Health Sciences Center simultaneously with a new university.

A second major commitment is to develop a viable conception of the Health Sciences Center from the outset. There are many "medical centers", but few which have developed all the health sciences and professions in a genuinely unified and cooperative way.

One of the major deterrents to the delivery of optimal medical care today, is a failure of communication and of precise definition of functions among the steadily increasing numbers of health professions. Too often the health professions have approached patient care in isolation from each other. We think it essential that medicine, dentistry, nursing and the other health professions develop their programs of education, research and patient care in close collaboration with each other from the outset. The Health Sciences Center can be the instrument whereby the health professions can jointly examine the health needs of patients and society and determine what roles must be developed to meet those needs in new and more effective ways. Public interest in health is too high to permit dalliance or blind defenses of professional prerogatives to

interefere with the cooperative efforts so urgently called for if we are to provide optimal care for all our citizens.

A third major commitment is to the fullest development of the interface with the Nassau-Suffolk community. Medical centers are belatedly awakening to their responsibilities to make their resources available to the communities they serve. A few, like Kentucky and Florida, have pioneered in this direction. But, most medical centers are still effectively isolated from their communities.

In our planning at Stony Brook we have already begun to make contact with voluntary health agencies, hospitals, public agencies and professional societies. Under the provisions of the legislation on Heart Disease, Cancer and Stroke, Stony Brook will play an important role in regional medical planning of all types. We contemplate a two-way relationship involving continuing education, hospital affiliations, sharing of facilities and specialized personnel and equipment.

In addition, we consider a community-based experience of some kind as essential for students and faculty in all the health professions. We plan to make our Department of Community Medicine one of the broadest and strongest. It will cultivate all aspects of the community's health needs on a center-wide basis. Affiliations with community hospital and health agencies, cooperative arrangements with health departments, and public education programs are some of the planned expressions of community interest.

A fourth and very important commitment is the requirement to experimentation in how best to deliver to every patient, in every community, the knowledge and technology needed in contemporary health care. Here, too medical centers have lagged. Much of recent federal legislation -- Regional Medical Planning and Comprehensive Health Planning -- as examples, reflect public awareness of the need for new patternsof medical care. This awareness is running ahead of professional perceptions.

Health Sciences Centers must wrestle more directly with this question by designing and operating experimental models of

patient care. Here, in the living laboratory of actual medical care, they can study such things as — the best alignment of roles and functions between health professionals, optimal organizational patterns and the best use of computers and other technology. Here students in all the health professions can be taught to work together cooperatively and to examine their own effectiveness in objective ways and in relation to the contributions of others.

A fifth major commitment is to innovation in the educational process and in curricula. The details of a curriculum in medicine and the other health professions will be developed by Deans and faculties yet to be appointed. There is a veritable revolution in this sphere today. Every new medical school is impelled to design a new curriculum defined in terms of what will be demanded of the physician tomorrow. The outlines of the curriculum of the Medical College will be described in more detail later in this document. Certain general features will, however, characterize the curricula in all the component colleges of the Health Sciences Center.

In place of the present rigid programs we can expect more flexible and variable curricula adjusted to student needs and interest and more in keeping with the principles of graduate education. Thus, in place of complete coverage of all subjects, emphasis will be placed upon learning a smaller number of widely applicable concepts. Reliance will be placed on "core curricula" designed to teach two languages — one in the basic sciences and one in the clinical. All students will share these two core courses, but after this, for at least half of the curriculum, students will take multiple tracks to their degrees. Some who have not made a definite decision will take courses like the present ones, others will pursue one of several tracks — basic sciences and research, clinical specialties, general and family medicine, or nursing, community medicine, etc. Each track will be designed to teach different skills, and graduates will be prepared for different roles in medicine.

We can also expect much greater emphasis on the students learning processes as well as on the techniques of teaching. Technologic aids — the computer, television, films, automated carrels will often replace lectures and long laboratory sessions. Seminar and tutorial teaching can assume a more prominent place as the curriculum becomes more flexible.

Greater attention will be given to combining pre-professional and professional education into assimilable packages in which the student can more readily see the goals before him. Collaborative efforts are required to accommodate existing university undergraduate courses more closely to the later needs of the health professions, with effective adaptation. The amount of time required for a medical education can be materially reduced.

A sixth commitment is to continuing education to equip all the health professions to combat the invariable obsolescence of knowledge which follows so rapidly upon graduation.

Present methods of continuing education are admittedly inadequate to meet the needs of today's practicing professionals. Use will be made of audiovisual techniques, closed circuit television and computer assisted educational programs. But, these must be supplemented by the more lasting effects of education of physicians, nurses, dentists and others in their own hospitals and in the course of their daily work. The Health Sciences Center must assist every community hospital to become an educational institution. Provision of faculty, consultation in educational methods and training of an indigenous faculty are responsibilities the Center must undertake.

A seventh major commitment of the health professions must be to maintain the human and compassionate aspects of medical care in the tightly organized and highly technical systems of medical care now emerging. Special attention in education must be given to underscoring the humanistic, ethical, social, historical and economic dimensions of health. This implies a much closer interchange with the university disciplines and their actual involvement in clinical teaching. Opportunities for continuation of a student's general education while in the professional schools must be developed.

Lastly, earlier contact with patients is a requisite to enable today's student to see the social relevance of the profession he is entering as soon as possible. Work experiences will become a part of many students' educational experience. Curricula will obviously need to be sufficiently flexible to permit these excursions into the real world of medical care.

B.) CHALLENGE AND OPPORTUNITY

To create a Health Sciences Center today is the most exciting and complex task imaginable. It is pregnant with possibilities which no one institution can fully encompass — even one as large as Stony Brook will be. There is danger of succumbing, on the one hand, to tried and tired safe formulae which ensure success and, on the other, to the evanescent triumphs of trivial innovation.

The critical questions before us are to select the most significant intellectual and practical challenges in a world continuously transformed by science, technology and social change. This brief listing of commitments is a configuration of the challenges we are selecting for Stony Brook. They will inevitably define its ultimate character and delineate its special mission.

The major commitments of the Health Sciences Center described above are applicable to each of the component colleges modified to meet the needs and future developments of each of the health professions. Dedication of each of the colleges to a series of common commitments, albeit somewhat differently expressed, is an important way to unite the health professions in a common endeavor. The ultimate aim is the betterment of the health care delivered to the American public. The opportunity to develop the health professions in close collaboration with each other in the planning and operational phases of this new Health Sciences Center is unique and may constitute one of the major opportunities open to Stony Brook.

C.) ORGANIZATION OF THE HEALTH SCIENCES CENTER

In achieving the objective of cooperative teaching, research and service objectives, the Health Sciences Center must be so organized that each health profession has an opportunity to participate equally in policy making and implementation. Accordingly, the administrative organization of the Health Sciences Center will be such that the Deans of each of the Colleges — Medicine, Nursing, Dentistry, Social Welfare and Allied Health Professions will report directly to a Vice-President for the Health Sciences on all matters of budget, academic program and policy.

The Vice-President for the Health Sciences is the President's delegate for all matters relating to the health professions. He, in turn, reports directly to the President on matters of budget, programs of service and administrative policy. He will process all academic matters such as appointments, curricula and new academic programs to the President through the Academic Vice-President in keeping with general university policy.

The design and implementation of the curriculum and the course in each of the component colleges will be the prerogative of the Deans of the component colleges and their faculties. Recruitment, processing of new appointments, promotions and advancement to tenure will be initiated by departmental chairmen and transmitted through the appropriate Dean to the Vice-President for Health Sciences.

The Director of the University Hospital and Patient Care Services will have the status of a Dean and will also report to the Vice-President for the Health Sciences. The University Hospital is conceived as a center-wide facility not limited to the use of the Medical College, but essential to all the health professions.

The Deans of the component colleges, the Director of the University Hospital and the Director of the Biomedical Library will constitute the Health Sciences Center Council. This group will be responsible for policy matters relating to the operation and administration of the various units of the Health Sciences Center.

D) RELATIONSHIP TO UNIVERSITY ADMINISTRATION

The relationships of the Vice-President of Health Sciences to the President, Academic Vice-President has been defined above. The size, complexity and specific nature of the programs in a Health Sciences Center are such that considerable decentralization of administrative functions will prove necessary. Further, the special problems of patient care, University Hospital business affairs, relationships with community professional and lay groups require specific coordination in the Health Sciences Center. The Vice-President for Health Sciences will need a staff of coordinating

administrative assistants. Each will have a direct relationship with his counterpart in the general university administrative structure. We anticipate the need for assistants on the staff of the Vice-President for the Health Sciences for the following functions — 1) business and fiscal affairs, 2) personnel, 3) community relations, 4) purchase and supply, 5) plant and maintenance, 6) grants and research administration, 7) planning and development, 8) student affairs, 9) instructional resources, and 10) animal care. Each of these assistants will maintain liaison with his counterpart on the general campus. Administrative procedures and policies will be those established for the general campus, unless by specific arrangement some facet of patient care or clinical activity requires modification.

Cooperative efforts are as essential in the administrative sphere as they are in the academic. Decentralization should be regarded as a tool for efficiency of operation, geared to meet the somewhat specific needs imposed by the size of the Health Sciences Center and the complexities of its operation. In addition, very special dimensions are introduced by the need to respond quickly and effectively whenever the needs of patients are concerned.

E.) RELATIONSHIP TO UNIVERSITY ACADEMIC ORGANIZATION

The relationship of the Vice-President for the Health Sciences to the Academic Vice-President has been described briefly above.

1) RELATIONSHIP TO UNDERGRADUATE DEPARTMENT

All departments in the university, including those in the Health Sciences Center are all-university departments, i.e., they will not be duplicated and each is expected to meet the teaching responsibilities in their disciplines from the undergraduate to the graduate levels and in continuing education.

The component colleges of the Health Sciences Center will depend upon university departments to provide the non-professional instruction requisite in their programs.

Thus, the School of Social Welfare will require instruction from the Departments of Sociology, Psychology, Political Science, Humanities and others. In the case of Nursing and the College of Allied Health Professions, at least half of the requirements for the baccaleaureate degree will consist of general education in the social sciences, humanities and physical sciences. Manifestly, the Deans in the Health Sciences Center will be dependent upon the Dean of Arts and Sciences and his departmental chairmen to arrange suitable and relevant course work in general education for their students.

Conversely, suitable non-clinical courses in the Colleges in the Health Sciences — physiology, microbiology, anatomical sciences, social welfare, community organization, and epidemiology, as examples, would be available to students in the general university.

Much of the commitment of the Health Sciences Center to the closest interface with the university discipline will be expressed in this cross participation in courses, interchanges of students and faculty.

It is assumed, of course, that faculty members in the health sciences will participate fully in the life of the university, taking their turns on suitable committees and participating in Senate activities locally and in the State University as required.

A more detailed dovetailing of Health Sciences Center and university departments is epitomized in the relationship described elsewhere in this document (E)5), between medicine and biological sciences.

2) GRADUATE PROGRAMS

Doctoral programs in the sciences basic to medicine are planned, as well as master's and doctoral programs in Nursing, Social Welfare, Dentistry and the Allied Health Professions. The same policies which apply to graduate

programs in the university will also apply to all non-professional doctoral and master's degree programs in the Health Sciences Center. Students will be expected to meet the criteria for admission to the Graduate School and will be registered therein. All academic programs will be submitted by the faculties and Deans of the Colleges in the Health Sciences Center to the graduate council for review and approval. The Dean of the Graduate School will have the same jurisdiction over the non-professional degree programs as he does in all other university master's and doctoral programs.

Interdisciplinary doctoral programs will be encouraged between members of the Health Sciences faculties and those in the university disciplines. The two members of the Health Sciences Center staff are already participating in the graduate program in molecular biology, as an example.

3) JOINT ACADEMIC APPOINTMENT

Joint appointments will be encouraged between departments in the Health Sciences Center and the other departments in the university. They are regarded as an important means of liaison between the university and the Colleges in the Health Sciences Center. The most likely joint appointments will be shared with the Biological Sciences and in Sociology, Psychology and Anthropology.

The details of the joint appointment arrangement — namely, the amount of participation in departmental affairs, teaching, graduate work, etc., should be individualized to meet the needs of the faculty member and the departments he is serving. These requirements will vary considerably from person to person and general rules cannot adequately describe every facet of such a relationship.

Promotion and tenure in a joint appointment would be handled in the usual fashion by each department. To advance in rank, a person with a joint appointment would have to pass through the procedure in each department if he were to advance in grade in both departments. It is

conceivable that he might have a higher rank in one department than in another.

To avoid conflicts in interest or work assignments it is preferable if one department pays the salary. The paying department will ordinarily have primary call on the faculty member's services. If at any time it appeared that the interests of the individual shifted and he wished to be paid primarily by the other department, he could retain his joint appointment but switch his primary emphasis.

4) APPOINTMENT, PROMOTION AND TENURE

Essentially the same procedures will be followed as elsewhere in the university with perhaps very minor variations. The process envisioned is as follows: The chairman would be responsible for conduct of the search for new faculty members with the advice of the senior members of the department. A candidate would be interviewed by members within the department and those in other departments who share a common interest. The chairman would collect the usual letters of recommendation. These letters and all other supporting data would be presented to the tenure members of the department who would be asked to signify their approval of the appointment in writing. Following a satisfactory response, the chairman would then clear the appointment with the Dean. The Dean would comment further on the academic capabilities of the candidate and also agree to commitments of space, equipment and salary, accompanying the appointment.

The Dean would submit all supporting data to a Faculty Committee on Promotions and Tenure. This committee would eventually be elected but would have to be appointed until the faculty was large enough for a reasonable election to occur. It would consist of three clinicians, two basic scientists, one biologist, and one member from the university at large. This committee would review the academic credentials of the candidate and submit a recommendation to the Dean.

If the committee report were favorable, the Dean would then pass the nomination on to the Vice-President for the Health Sciences Center. Following this, it would proceed in the usual fashion through the Academic Vice-President, President, etc. If the response of the Faculty Advisory Committee was negative, the Dean would return the nomination to his departmental chairman. Under these arrangements, the Dean has perhaps a more influential role than is ordinarily the case. This is deemed appropriate since commitments on space, future salary, and equipment are institutional obligations and he must have knowledge of them. The Dean also has the right to veto the action of the committee.

As stated in existing guidelines for promotion and tenure for the university as a whole, any faculty member may submit a letter to the committee. Tenure members can also submit letters of dissent and the judgment of authorities outside the university will regularly be sought.

5) SPECIAL RELATIONSHIPS WITH DEPARTMENT OF BIOLOGICAL SCIENCES

Because of its size and the specificity of its mission, a Health Sciences complex places certain strains on the organizational patterns of any university. These are particularly noticeable in the relationships between Departments of Biology and the departments traditionally considered basic to education in Medicine and the other health professions. On few campuses have these relationships been defined optimally.

In most instances there is a real, but often unacknowledged, division between medical and other university faculties. This has arisen as a consequence of the historical development of medical education in our country as a non-university function. It has been exaggerated by the frequent geographical separation of the medical and the university campuses.

Where the medical school has been a part of the university, it has usual developed its own basic science departments often duplicating those in the rest of the university. Even more importantly, however, there has too often been a failure to create that synergism of effort which is increasingly essential to the optimal development of both medicine and biology.

In establishing a Health Sciences Center on a new campus like ours at Stony Brook, we have a responsibility to re-examine a critical question — How can we best make the Health Sciences Center an integral part of the university? i.e., how can its resources be made available to the whole university and how can the university disciplines have their impact on education and research in the health professions?

The arrangement proposed here is considered the most feasible one at this time. It must be re-examined periodically to see whether or not it achieves the purposes for which it is designed. It is constructed with the realization that certain aspects of traditional organization are useful, while others are in need of change and adaptation to the present situation at Stony Brook.

Certain principles are essential in any organizational arrangement and these are as follows:

a) There should be no duplication of major departments. Wherever a department, division or program may be located for purposes of administration, it is a university-wide department with responsibilities for education at all levels — undergraduate, graduate, professional, post-graduate and continuing.

b) Attention should be directed to the elaboration of as many specific mechanisms as possible which facilitate the integration of the Health Sciences Center faculty into the activities of the university.

c) Administrative structures should be designed to provide clarity and unity of responsibility.

Lines of authority represent channels for both budgetary and academic matters.

d) The organization of departments suggested below is considered to be a good present working arrangement. It is not intended to be fixed for all time. As new members of the faculty are added and as strength is built up in certain disciplines, it may be necessary to create new divisions or departments in both Biological Sciences and Health Sciences. Under these circumstances, a joint committee representing both Biology and the Health Sciences councils should be appointed to study the feasibility of the new department and to make recommendations to the Vice-President for the Health Sciences, the Academic Vice-President and the President.

e) Wherever suitable, joint appointments should be encouraged under conditions already described.

The following arrangement is proposed for the organization of the Department of Biological Sciences and the Health Sciences Center.

The specific assignment of a division or department to either the Biological Sciences or the Health Sciences Center was determined after consideration of a number of factors:

a) The degree of involvement with undergraduate teaching in biology.

b) The direction of its research and service interests.

c) The need for both medicine and biology to have certain disciplines with a deep commitment to their own academic programs and curricular development.

d) The proposed curriculum for the Medical College which emphasizes integrated teaching of pathophysiology and human biology throughout the medical course.

e) If the Medical College is to be truly a part of the university it should have some departments with a commitment to undergraduate education.

Using these criteria cell biology, genetics, developmental biology, marine biology, ethology and ecology are best placed in biological sciences. Pharmacology, pathology, anatomical sciences, physiology and microbiology are most suitably placed in the Medical College. Biochemistry poses a somewhat more complex problem. It has strong traditional ties to medicine on the one hand, and on the other, is increasingly essential to undergraduate and graduate teaching in biology. The need for a strong commitment of biochemistry to undergraduate teaching and its relevance for all the divisions of the biological sciences determined its assignment to the biological sciences.

The Department of Biological Sciences will consist of a number of divisions. Each division will be headed by a chairman who will report directly to a Provost for the Biological Sciences. This Provost will have full responsibility for the academic, budgetary, space, research and service programs of all the divisions of the Department of Biological Sciences. He will report academically to a proposed Vice-President for Arts and Sciences.

The divisions of the Department of Biological Sciences have the responsibility for undergraduate as well as graduate and professional education. In addition, they have the responsibility for participation in the programs of the component colleges of the Health Sciences Center. This includes provision of a portion of the basic sciences instruction for the Colleges of Medicine, Dentistry, Nursing,

Allied Health Professions, School of Social Welfare and such other health related professions as may be established in the future.

The Health Sciences Center will be under the overall administration of a Vice-President for the Health Sciences. Reporting to him will be the following: Deans of the Colleges of Medicine, Dentistry, Nursing, Allied Health Professions, Social Welfare, the Director of the University Hospital and the Director of the University Health Services. The Director of the Biomedical Library will have major responsibility to the Vice-President for the Health Sciences and also to the Provost for the Biological Sciences. In addition, he will be responsible to the Director of the University Libraries as Associate or Assistant Director.

The sciences basic to the health sciences will be organized under the administrative direction of the Health Sciences Center for purposes of budget, academic programs, appointments, research and service functions. These departments are as follows: Anatomical Sciences, Physiology, Microbiology, Pharmacology and Pathology. These departments are considered university departments in the fullest sense of the word and will have responsibility for undergraduate as well as graduate, professional and continuing education.

Assisting the Dean of the College of Medicine will be two Associate Deans — one for the Basic Sciences and one for the Clinical Sciences. The Associate Dean for the Basic Sciences will have responsibility for the development of the curriculum in the basic sciences pertinent to medical education. In this capacity, he will be expected to coordinate and integrate the contributions of the faculty of the Departments in the Biological Sciences and/or the Medical College to elaborate a basic science curriculum.

It is essential that the Dean of the College of Dentistry and, to a certain extent, also the Dean of Nursing and Allied Health Professions have a voice in

the selection of individuals for the basic science departments assigned to the Medical College and those assigned to the Biological Sciences. These individuals will have an important role to play in their programs. In addition, in the case of the College of Dentistry, the chairmen of the departments assigned to the College of Medicine and the Department of Biology will have joint appointments in the College of Dentistry and participate in the committees and in the curricular planning for that college.

In the special case of Dentistry, it is highly desirable that a number of basic scientists be especially committed to the programs of Dentistry. Therefore, a Department of Oral Biology is contemplated for the College of Dentistry. This department will consist of individuals acceptable for joint appointment in the Departments of the Biological Sciences or the Medical College. Their major base of operation will be in the College of Dentistry.

Under the proposed arrangement, decisions on curriculum in each of the units in the Health Sciences Center will rest with the faculty of that unit and its Dean. Review and approval by the Health Sciences Center council, the Vice-President for the Health Sciences, and the Academic Vice-President will be required.

The academic programs in divisions of the Department of Biological Sciences will rest with the faculty of that department and the Provost, after approval by the Academic Vice-President.

Graduate programs will, of course, be a major and integral part of the work of the divisions of the biological sciences and the departments of all the Colleges in the Health Sciences Center. The participation in such programs will be under the general surveillance of the Dean of the Graduate School following the same policies which apply to other departments in the university.

Interdisciplinary programs involving departments and divisions of the Health Sciences Center and Biological Sciences Department will be encouraged and will depend upon the interests of faculty members. They will not be restricted in any way by the proposed organization.

The Provost of the Biological Sciences and the Vice-President for the Health Sciences will have many opportunities for cooperative endeavors. An especially important one is the recruitment of departmental chairmen within their respective units. It is essential that there be communication between them on such appointments. They will also confer with each other on the degree to which their respective departments are fulfilling responsibilities in each other's programs. Mutual representation on Selection Committees is essential for such cooperation to have meaning.

It is important that the all-university responsibility of the basic science departments be reviewed whether or not they are organized under the College of Medicine or in the Department of Biological Sciences. This is especially pertinent with regard to undergraduate teaching. To ensure that this responsibility is carried out, the following mechanisms are suggested:

a) Each department chairman will be informed explicitly at the time of his recruitment that he has responsibilities at all levels of education and that he is expected to fulfill these responsibilities whether they lie within the university proper or in the Health Sciences Center.

b) The degree of cooperation in meeting these responsibilities will be reviewed by the Provost of the Biological Sciences, the Vice-President of the Health Sciences Center and the Academic Vice-President. They will assess a department or a professor's performance and this will condition such decisions as — continuing in the chairmanship, promotion of individual departmental members,

determination of merit and ordinary salary increases. In this way, the academic administrative officers can exert some leverage to see that the total responsibilities of the university are fulfilled by best use of all the resources available in the university, regardless of where located, for administrative purposes.

The following are mechanisms for integration of the Health Sciences Center and the Biological Sciences Department. These should help to remove some of the barriers to communication and cooperation which plague health centers and their component universities.

a) Physical placement of the Health Sciences Center on the university campus is a clear advantage. Sharing the use of the Biomedical Library can bring basic scientists, biologists and clinicians in contact with each other.

b) The Provost for the Biological Sciences and/or his designee will be invited to sit as a member of the Health Sciences Council; the Vice-President for the Health Sciences Center and/or his designee should participate likewise in the Biological Sciences Council.

c) Cross-representation on the Curriculum Committees of the two units are effective mechanisms for integration.

d) Interdisciplinary, cross-departmental and inter-college cooperation is fostered by the development of graduate programs, institutes for research and conjoint courses.

e) A system of joint appointments under the conditions described earlier will do much to enhance cooperation.

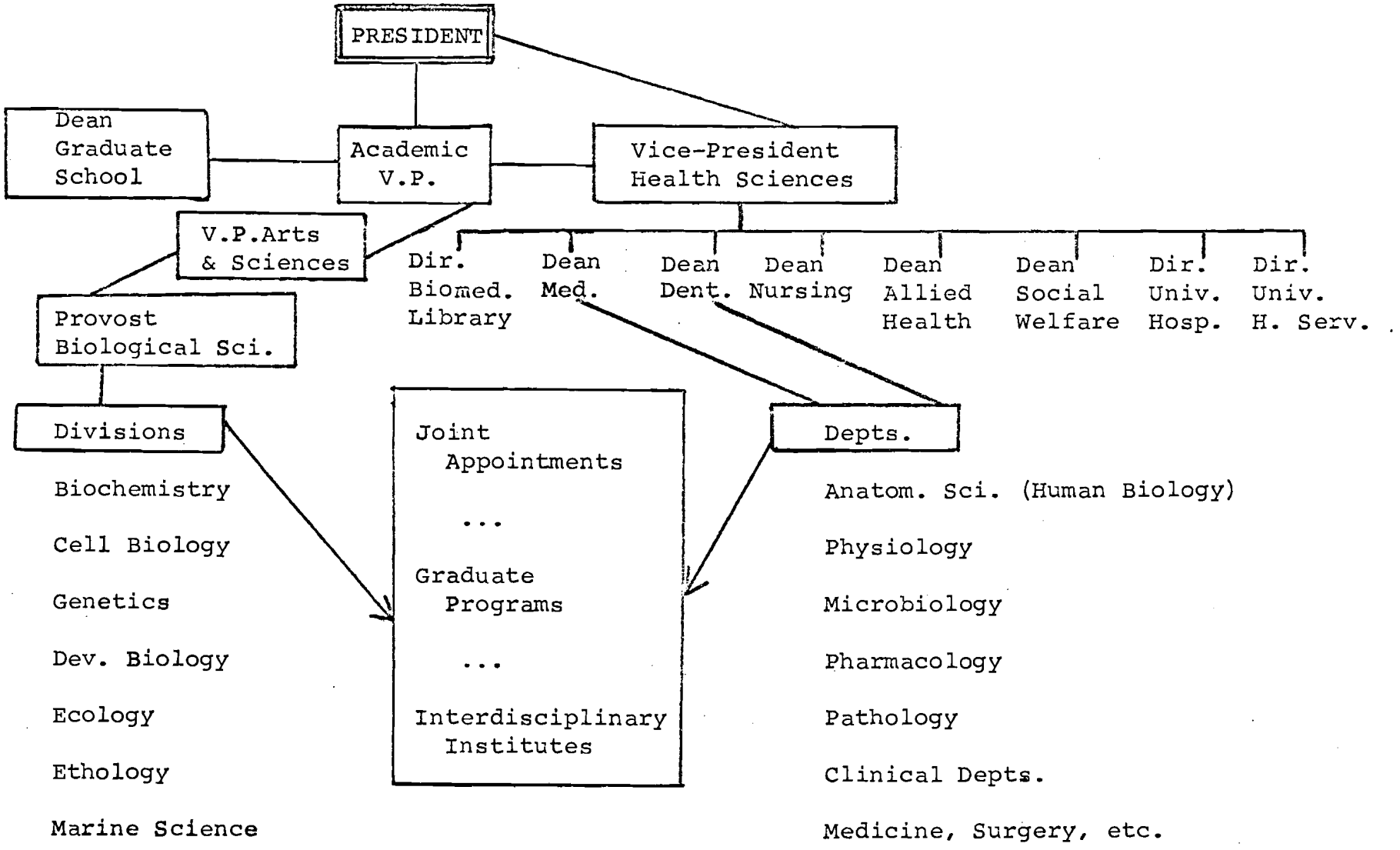
f) The Associate Dean for Basic Sciences in the

Medical College will have a specific responsibility to see that there is, indeed, cooperation between the basic science departments in biology and in the College of Medicine. If he is properly selected, this individual can do much to bring about the integration of programs and functions which we all deem desirable.

g) The multi-track system being considered in the curriculum of the College of Medicine will permit medical students to spend substantial parts of their undergraduate careers in many of the divisions in the Department of Biological Sciences. Also, the provision of liberal elective time should further encourage participation by medical students in biological sciences courses.

h) The divisions of the Department of Biological Sciences which contribute materially to the programs of education in the Health Sciences will be listed in the Medical College catalog as well as in the general University catalog.

PROPOSED RELATIONSHIP — BIOLOGICAL AND HEALTH SCIENCES



III. COMPONENT UNITS OF THE HEALTH SCIENCES CENTER

A.) COLLEGE OF MEDICINE

The largest unit in the Health Sciences Center will be the College of Medicine scheduled to enroll its first students in 1971. While physicians will increasingly become dependent upon the cooperation and assistance of members of the other health professions, medicine for the next decade will remain the central discipline in the delivery of health care to the American public. Indeed, many of the problems it now faces will prefigure those to be encountered soon by the other professions.

Medicine and medical education are at the most critical point in their long histories. In 1910, the Flexner report pointed up the great problems we faced in our country in achieving quality in medical education commensurate with the improved state of scientific knowledge. The last 50 years have been devoted to making medicine a university discipline, ridding it of proprietary and inadequate schools and firmly basing it in the physical and biologic sciences. As a consequence, we are today enjoying the most fruitful period ever in medical care. Medicine now has the capability to alter man's life and environment in unprecedented ways.

The present crisis is of a very different sort than that of 50 years ago. In the midst of a wealth of new discoveries, we face essentially problems of human organization. How can we best deliver the scientific medicine to all the population efficiently, and in each community? Can we devise a system of medical care which will reach every citizen, and be at the same time humane and as considerate of the individual as it is scientific?

The task of medical educators is admittedly complex. We must continue to secure and advance the scientific bases of medicine and educate physicians to function as technicians and scientisits. Simultaneously, we must anticipate future patterns of medical care which will be vastly different from our own. We need urgently to discern the changes in the physician's role which will occur in the next quarter-century

and the numbers and kinds of physicians needed. Based on our answers to these questions, we must prepare students to fill new, changing and still undefined roles. Their intellectual equipment must help them adapt to a world transformed by computers, increasing technology and ever more complex social organization.

To approach even workable approximations on how best to satisfy future needs, the Medical College at Stony Brook must epitomize the commitments already outlined for the Center as a whole and take forceful leadership in their attainment.

The instrument the faculty and students will use to prepare themselves to meet the urgent problems of today and tomorrow is the curriculum. While admittedly tentative, certain general and specific remarks can be made about the contemplated curricular configuration we can expect at Stony Brook.

The medical curriculum is an instrument for ordering the intellectual attitudes and the behavior of students in such a way as to make them serviceable to society as physicians. So considered, it is in large measure defined by its "terminus ad quem"— the conception we entertain of what the physician is, will be or should be. The curriculum, as a consequence, is really an epitomization of a faculty's conception of the social uses of medicine — a veritable physiognomy of their collective beliefs, prejudices, hopes and fears.

Today's revolution in the medical curriculum has been incubating since the close of WW II. It is now far more than a recurrent exercise in academic prestidigitation or a saving diversion from the exacting labors of laboratory and bedside. The conviction is well nigh universal among medical faculties that, a linear extrapolation of current methods, present success notwithstanding, cannot be anything but inadequate in a world governed by exponential changes. A fundamental reworking of all our educational instruments is the only way to meet the changing character and motivations of today's student, the processes by which he learns and the altered roles he will play in the 21st century.

A striking feature of the current curricular inquiry is

the emergence of a common lattice of ideas about which future curricula will inevitably crystallize.

Definition of the objectives of a medical curriculum is dependent upon what we think the physician's role will be, the types of students who will seek to prepare for those roles and the learning processes they will follow. We shall look briefly at each of these factors which are responsible for stimulating much of the present unrest with existing curricula.

1) FUTURE MEDICINE - The matrix and the physician

The end to which a medical education is directed is the severest constraint and the final test of any curriculum. It is just at this vital point that our hopes for a rational attack on curricular design falter badly. We simply do not know precisely what society's needs will be or what will be expected of the physician. There is no alternative to a series of semi-intuitive estimates. These are the serious business of medical educators who in the years hence will be distinguished by the accuracy of their estimates.

The medicine of the future seems certain to be a highly systematized operation extending over the entire nation in such a way that the civic right of each individual to optimal medical care can be actualized. This means regionalization of facilities, techniques and personnel and a further extension of specialization to encompass and organize the vast mass of information the laboratories will continue to bring forth. The system of medical care will resemble a vast and complex organism integrated by a nervous system of computerized communication and information processing. In such a system, many of the physician's manipulative functions will be assumed by others to protect his time for the more demanding judgmental tasks. The physician will have to keep the system effective, handle the unexpected

events outside the pre-set program and coordinate the entire process. He will function increasingly as a member and coordinator of a group of experts and almost never as an isolated individual.

Such a system requires more, not fewer specialists of all kinds and also the conscious development of a generalist who is essentially a specialist in social engineering — capable of assessing a patient's needs, designing a plan for meeting them with the host of people and facilities available, and coordinating all in a sensible and understandable way. The physician as a helper of humans may well find this his most important contribution in the years ahead. A system so far-reaching and so complexly organized will, by its nature, be dehumanizing. Every attention must be given to minimizing this effect, while retaining the utility of a systematized approach.

The demands of such a system of care will be for an ever wider spectrum of specialists as medicine extends its concerns from the molecular to the social, the international and ecological levels. The decision for specialization will have to be made sooner if the physician is not to be obsolescent by the time he graduates. At least half of what a physician learns will become outdated every decade so that any attempt to turn out a finished product is scarcely imaginable.

Present curricula with their emphasis on a rigidified program for all students, and their insistence on exposure to all specialties in the vain hope of providing a liberal education in medicine can hardly cope with such transformations as have already occurred in medical practice patterns to say nothing of unforeseen changes certain to occur. To meet the demands of the system we describe, a curriculum must allow for the development of a wide variety of socially relevant roles as soon as possible. Emphasis is best placed on the use of knowledge and its sources rather than on its mere acquisition. Continuing education becomes a mandatory requirement. Sufficient educational flexibility must be

allowed to permit later entry into specialties as they are born in increasing numbers and unforeseen variety.

2) THE STUDENT PROFILE

Certainly, much of the stimulus for curricular changes derives from the metamorphosis in the ways in which a medical education will be useful to society. Equally profound stimuli arise from the changes in the preparation, interest and motivations of the students seeking entry into Medical College even in the years immediately before us. Today's medical students are intellectually better than their predecessors and more likely to have taken advanced courses in the physical and biological sciences. More of them are coming from advanced placement, honors or innovative programs. They are still too homogeneous in their socio-economic profiles and in their bias toward the practical and the scientific. However, greater inhomogeneity is certain to result as soon as financial aid for medical students becomes a reality, as it must. Also, the wider scope of medicine, as an applied social and behavioral science as well as its community and institutional functions will demand a larger intake of students with interests in the social sciences and the humanities. Indeed, we shall have to plan deliberately to admit such students if the broader responsibilities of medicine to society are to be adequately fulfilled.

Perhaps more significant than the changing intellectual qualities and interests of medical students is the discontinuity between their goals and those of medical faculties. This discontinuity is already an established fact in other branches of the university. Today's student is interested in the relevance of his educational experiences and its immediacy for the life of mankind. He looks upon education, even professional education, as a means of knowing and finding himself — as the more extreme put it — finding his "thing". Students with these goals find the postponement of acceptance and involvement characteristic of medical curricula as irrelevant. The abstract notion that a solid

foundation in theoretical knowledge must precede action is simply not acceptable to him.

To make effective contact with today's and tomorrow's student any new curriculum must be broad enough to meet their varied interests. It must emphasize practical experiences early and must permit more flexible arrangements of time, fewer formal courses and more chances for self-exploration and development, rather than being deleterious. These tendencies open up medicine to a whole group of students who might ordinarily not consider it. These are the students most likely to develop interests and later careers in the socially relevant areas of better delivery of health care, newer patterns of usage of health personnel and better community medicine. If medicine is to respond to public pressures for active involvement in the real problems of health care in the community, Medical Schools will need more students interested in relevance. From this group will come the future practitioners and faculty teachers so badly needed in social and community medicine.

3) THE LEARNING PROCESS

The third great stimulus to curricular revision insistently demanding our attention is the parallel revolution in the process of learning. There is no doubt that visual, audio, television, and other types of non-linear learning will be familiar to coming generations of students. Nor, can we deny the potential utility of computer-assisted methods for teaching at least the core of a subject which formerly was taught by drill methods. The use of mechanized methods of instruction must increase in medical education — basic as well as clinical. A curriculum which does not deal with these modalities is unrealistic and missing a major point of engagement with today's students.

4) SOME FEATURES AND OBJECTIVES OF A NEW MEDICAL CURRICULUM

This brief delineation of the major stimuli to revolution in the medical curriculum provides a base for

a more specific consideration of the objectives of the Stony Brook curriculum in Medicine.

It might be well to point out what a curriculum cannot be. An adequate curriculum today cannot hope to transform a student into a competent physician ready to practice medicine; it cannot hope to inculcate all the knowledge of the basic sciences or even a smattering of all the clinical fields; it cannot pretend to introduce the student to all the branches of medicine; it cannot provide for the same student an education that has meaning simultaneously in medical sciences, clinical medicine, social and preventive medicine, medical history, behavioral science. Nor is it possible to achieve that much talked of objective of the post-war years — the undifferentiated physician. The serious decision to choose a more limited and more socially useful role should be made as expeditiously as possible. To delay is hardly justifiable in the face of the obvious needs for more physicians of more varied types.

What are some of the definable features of a medical curriculum which tries to adapt itself to the stimuli for change which I have outlined above ?

Patently, a medical education must provide the intellectual tools and attitudes essential to the later pursuit in depth of a large number of specialties which will be entered upon much sooner than is now the case. We must realize that each of the basic sciences and the clinical specialties has a varying utility for any student dependent upon his later role in medicine.

Manifestly, two essential tools are fundamental for any field of medical specialization. These are the language of the basic sciences and the language of the clinical sciences. But, they must be taught as just that, languages to comprehend a given field in medicine. The sciences basic to medicine are now taught too globally. Instead, what seems indicated is emphasis on understanding in depth of a few widely applicable concepts

rather than a total coverage of each of them as is now the case. These concepts are best taught in integrated, interdisciplinary fashion. Full use of programmed and computer-assisted methods to permit self testing will enable the student to assess his comprehension as often as necessary whenever a major concept reappears.

Such a framework of ideas in molecular biology, structure, function at the cellular and systems level becomes the framework for later specific applications at the bedside. It can be modified when some essential advance is made. Laboratory exercises can be reduced in number and designed to explicate these common concepts. The teaching objectives should be on ways of knowing, on the rules of evidence, and the critical assessment of data.

The first two years in such a system can be considered as a unit, extending from cellular concepts to tissue and system levels of organization and proceeding from normal to abnormal and thence to clinical manifestations. They would merge into the introduction to the clinical language — how to collect data from the patient by interview, physical examination and laboratory, how to analyze such data, order it into probabilities by the diagnostic process and arrive at prudent decisions as to action by value judgments. These latter skills and attitudes could also be learned in a single general clerkship rather than by the usual round-robin of the clinical specialties each competing for a clerkship, some as short as ten days.

This introduction to the two essential languages need not consume more than two to two and one-half years at best. The student can then make a selection of one of a number of alternate pathways to the M.D. degree. With the help of a Faculty Advisory Committee he can select a "major" field adapted to his interests, abilities and personality. The design of the remaining years then would be highly individualized. Few students would have the same curricular program. Some definable pathways could be that of the clinical specialties, the medical scientist, the generalist,

community medicine, a university discipline like sociology, anthropology or any other related to human health and disease. Or, after the introductory language the student might decide that he preferred to pursue a Ph.D. in a basic science and not take further clinical education.

After the two language introduction, the student going to a clinical specialty could devote the next four years, under university aegis, and emerge as a clinical specialist taking six years to accomplish what now takes an average of eight years. If this could be preceded, as I think it can, by two instead of four years of premedical work the total span of education could be 9 years instead of 12 years.

After a student chooses one of these specific pathways, he will return to a fuller and more detailed contact with the basic sciences but only those relevant to his clinical concerns. In the case of the surgeon, for example, his initial introduction to anatomy would take place with the other students as a general introduction to structure and language of anatomy with little dissection and much use of prosected material. If he majors in surgery, however, he would undertake a much more detailed dissection. Likewise, the other clinical specialties can reintroduce the basic sciences most pertinent to their disciplines. The most effective stimulus to learning the basic sciences for a clinician is the usually belated realization of their significance for his functioning as a specialist.

Certainly, one of the constant features of new curricula is the need for earlier introduction to the patient, not only in the first year, but perhaps even in the later premedical years. Students have for years sampled some of the dimensions of clinical medicine by summer jobs, etc. Today, many students want to see the "relevance" of the field they choose. Opportunities must be allowed for medical students to drop out to engage in community, hospital, or welfare work during the medical course.

Lastly, an experience in the social, ecological and epidemiological dimensions of health and illness has become essential for anyone in medical school who thinks seriously about the social responsibilities of the physician.

Another necessary feature of a new curriculum is to allow for the entry of students with more varied backgrounds than is now the case. This can be accomplished by a system which permits entry at several points in the curriculum, admits to advanced standing and allows for make-up of science background for those who wish to enter with majors in social sciences or humanities. I envision, for example, a make-up year in which those with non-science backgrounds might acquire the necessary chemistry, physics and mathematics. Students would, therefore, proceed at differing rates and take differing times to finish the medical curriculum. If we can abandon the notion of a "class" going through each of its courses all at the same time, the mechanical problem of a free entry system should not be unmanageable.

There are some clear implications for premedical education in these curricular trends. First, there is a tendency to shorten the premedical portion to three or even two years. Secondly, the curricula we expect in medical schools would allow for advanced placement and such courses as biochemistry, molecular biology, biophysics, genetics would be useful for those students who are willing to spend longer periods in college.

Thirdly, there will be more opportunities for non-science majors to enter medicine and such students should receive help and encouragement. They are now often dissuaded from a career in medicine by premedical advisors, who are being "realistic" in terms of today's medical curricula but not tomorrow's. Fourthly, shorter periods of premedical education will probably be far more acceptable than they are today. While entry to advanced standing will be possible for those who have delayed their decision to enter medicine. Lastly, it is very clear if such features as flexibility and advanced standing are to become realities, that a much closer integration of undergraduate and graduate curricula and medical school curricula is mandatory.

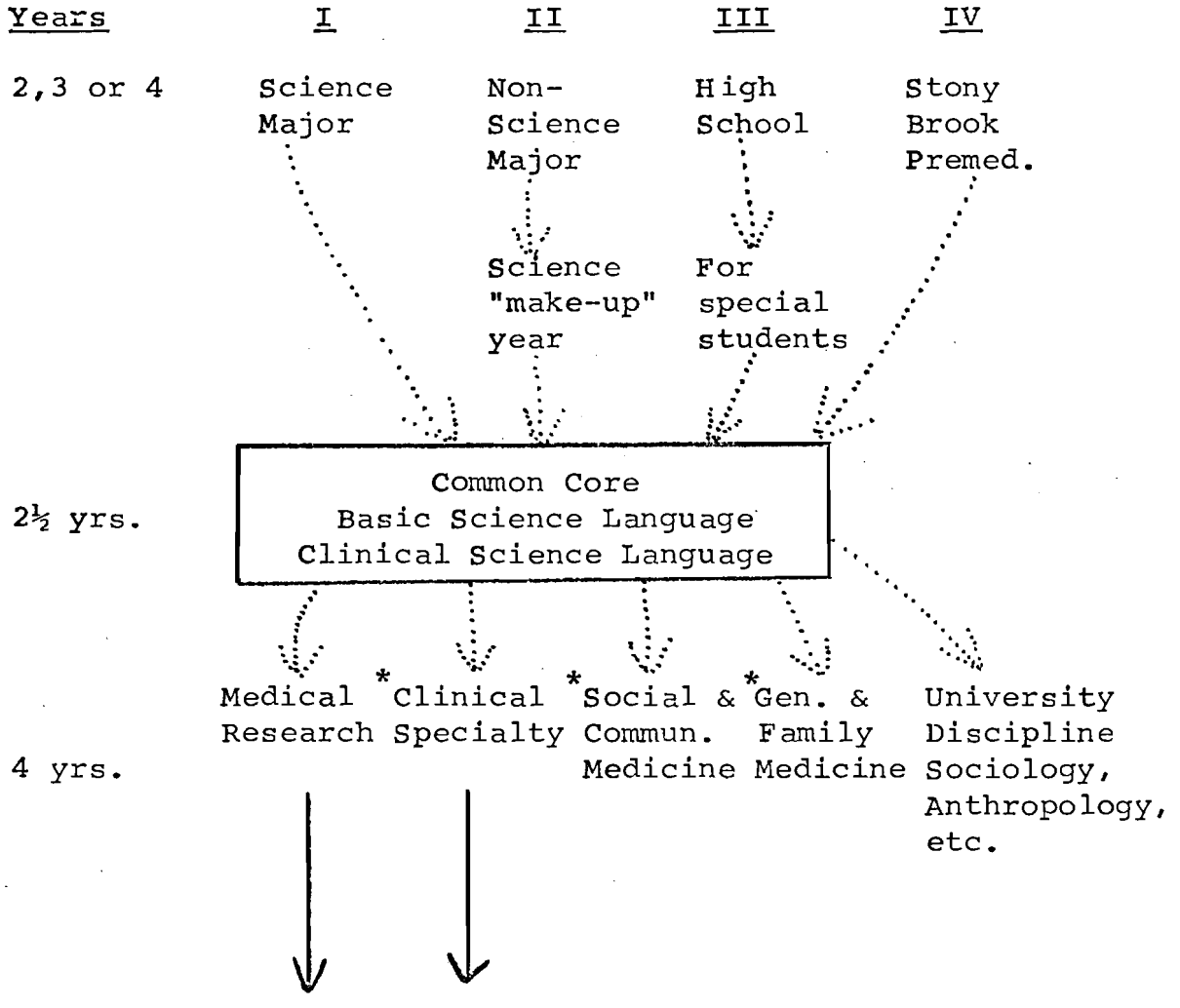
The College of Medicine at Stony Brook has an unusual opportunity to develop a true continuum extending from high school through premedical, medical and postgraduate education. Discussions have already begun with the Department of Biology and will later include chemistry and physics. New courses are needed which will recognize the new trends in medical education and which will prepare students to enter professional education earlier and at different points.

For example, those with science majors could be admitted to advanced standing in the Medical College; those with non-science majors could enter after a specially designed "make-up" year to familiarize them with the language of the sciences. Transfers from other medical schools could enter at the beginning of the clinical years and go directly into a specially selected pathway.

The clinical block of 4 years will carry the student through his clinical education to the point at which he will be able to function as a specialist in a selected field. This innovation enables the university to retain supervision over postgraduate as well as undergraduate education — a trend not yet fully developed in this country.

The following outline diagrams some of the pathways of entry and progress through the medical educational scheme now under development.

TENTATIVE OUTLINE OF ALTERNATE ROUTES
IN MEDICAL EDUCATION



8 - 12 yrs. * Significant participation of clinical campus.

* A "clinical campus" is defined as a community hospital of a sufficient size to provide wide variety of patients, and a large number of clinical specialties. It serves as a base for the clinical portion of the medical student's program. It would carry him through his residency in one of the special fields. Such a "clinical campus" would have a coordinator designated as an Associate Dean at the Medical College. All the chiefs and most members of the major clinical services would be full-time physicians and members of the faculty of the Medical College. All patients in these institutions would be teaching patients in the fullest sense of the word. Close correlation in research and teaching programs between these hospitals and the Medical College would be essential. Rotation of staff members between the university and the clinical campus and participation in the teaching at the university by"clinical campus"faculty would be mandatory.

B.) COLLEGE OF NURSING

The nursing needs of the nation are a subject of the greatest concern to all who are planning for the health needs of the nation now and in the future. The Division of Nursing Bureau of Manpower estimates a current deficit of 135,000 nurses. By 1970, 850,000 will be needed to provide safe patient care and by 1975, 1 million. The estimated supply in 1975 is between 800 and 900,000 so that present trends indicate a continuing deficit of major proportions in all types of nurses — practical, associate degree and licensed practical nurses. The increase in baccalaureate program graduates has been somewhat less. Yet, it is the baccalaureate programs which will provide faculty members to staff the burgeoning associate degree programs. Their students will also enter the graduate programs in nursing specialties. Diploma programs — the major contributors to the nursing pool, will decrease in number as nursing becomes more closely associated with universities and colleges in every community.

There is little question of the need for additional baccalaureate and advanced programs in nursing in Long Island and in the State of New York. The College of Nursing at Stony Brook is being planned to prepare nurses with the bachelor's and master's degree. Doctoral education for nurses is contemplated in the university disciplines basic to nursing. At present, a professional doctorate in nursing is not planned.

The College of Nursing will not engage in associate degree programs. These are presently conducted at the community colleges in the State University system - e.g. Nassau and Suffolk Community Colleges and Farmingdale are closest. Other programs are available in the private and public colleges in the metropolitan area.

There is a very great need to develop a progressive "ladder" in nursing to permit those who enter associate degree programs to continue their education to the bachelor's or master's level if they have the desire and the ability. This implies the acceptance of credits and transfer students from

community colleges into university programs. A serious obligation of the College of Nursing at Stony Brook is to develop integrated and interdigitated programs with community colleges to permit the further education of those equipped to do so.

Another problem of great significance which confronts every College of Nursing is that of continuing and advanced education for nurses in practice and for those who plan to return to active practice when family obligations become less demanding. Here too, imaginative approaches are needed. Many nurses who are graduates of diploma programs desire to obtain the bachelor's degree. To do so, often requires an inordinate amount of time and repetition of college and nursing courses.

What is required is a better system of evaluating the practicing nurses ability to use the knowledge she has acquired and then to design a program to fit her needs. More sensible evaluation is needed of credits and more recognition that the requirements one applies to a young college student are neither adequatenor just for the mature woman who wishes to advance her education. The College of Nursing must address itself to this pressing problem at Stony Brook if it is to carry out the intention of the Health Sciences Center to undertake innovation in continuing education.

It would be imprudent to design a curriculum in the absence of the Dean of Nursing and her faculty. Nonetheless, the following discussion of some of the academic questions which face nursing as a university discipline are pertinent to the academic program of the College of Nursing.

The future of nursing as a profession and its ultimate effectiveness as a social instrument are contingent upon the degree to which it enables contact with many university disciplines now requisite to its growth. Academically, nursing is increasingly open to the same growth which benefited medicine in its first contacts with the university in the late Middle Ages and in the Renaissance. Admittedly, the acculturation of medicine in the university is far from complete even now. But, its dependence upon the university is now so patent that few seriously question its right to be there.

Nursing is younger as a formal profession and much less sure of its academic ties than medicine. Still, it is fast awakening to its dependence on the university if it is to resolve the painful questions of identity which now beset it. Only in the university can nursing develop a body of specific knowledge, engage in relevant research and establish a more intellectual base for its practice. In this context, nursing prefigures the oncoming problem of many of the other health professions which, under the aegis of the Health Sciences Center are, in fact, if not in substance, parts of the modern university.

The major component in the maturation of a profession is, somewhat paradoxically, not an intensification of what is special to it, but a more substantial base in general education. To be truly a leader in the health professions, co-equal in status with medicine and dentistry, nursing must first deepen its general educational base. Nursing must cultivate contacts with the humanities and social sciences as much as the physical and biological sciences.

The future nurse must be familiar with the languages of the university disciplines, in a cultural way for most of them and in a practical way for the few she uses in her daily work. A professional is soon sadly out of date with his own profession if somehow he does not command enough of the language of those who discover new knowledge. Without this understanding, discoveries important to professional advancement may remain unused for years or generations.

If nursing is itself to contribute to the fund of useful knowledge and remain in living contact with the well springs of its own advancement, a serious development of graduate education is absolutely essential. For those who see nursing only in terms of its technical and traditional functions, this is difficult to comprehend. Yet, without a commitment to graduate study, nursing cannot hope to define the body of knowledge specific to it or to extend its capabilities through research. The fault of diploma programs and even baccalaureate programs is not that they do not prepare students for needed functions, but that they crystallize these functions and offer little stimulus for improvement and extension.

The first step in graduate education should be the cultivation of master's degree programs in the clinical specialties, not nursing education or administration. These are professional degrees emphasizing advanced clinical experience in a university setting. It is from this group that faculty members for the proliferating associate and baccalaureate degree programs must emerge. The number of qualified teachers must be expanded immediately to meet the manpower needs of even the immediate future.

The clinical nurse specialists, too, are needed to take their places along their counterparts in medicine as specialist members of the health care team. They are indispensable also in healing the schism too long endured between nursing education and practice, a schism detrimental to the development of both.

In addition, at the master's level more nurses are needed who will familiarize themselves with the language and techniques of the biologist, physical scientist, social scientist, statistician or engineer. Nurses familiar with one — not all of these languages — have need of communication with university colleagues possessing knowledge of potential use to nursing. In this way, too, preliminary experience with research techniques can be derived. Obviously, such a group cannot become major independent investigators, but they can be expected to take more inquisitive approaches to all aspects of clinical nursing. As collaborators with physicians and others in clinical investigation, they can maximize the contribution of nursing to these studies.

For the fullest development of any discipline, and the development of a body of relevant knowledge requisite to its growth, full-time academic specialists are essential. This means <u>education at the doctoral level</u>, in research and scholarly pursuits. Any tendency to develop a professional doctorate in nursing is ill-advised until a real body of knowledge has been defined and sustained by research.

Doctoral education for the nurse should be in the sciences basic to nursing — biochemistry, physiology, pathology and especially sociology, anthropology and the behavioral sciences. The combination of an education in nursing and in the basic disciplines is needed to generate research in nursing which is

more than trivial, as well as provide the stimulus to more sophisticated curricula. Only after this is done, can the professional doctorate in nursing as such be considered. Until that time, such a degree would have little exchange value in the academic world.

All of these activities are best cultivated in the setting of the Health Sciences Center. While nursing needs communication with the basic university disciplines, it is equally in need of close contact with all the other health professions, especially medicine. This interface is absolutely essential in evolving roles collaboratively and in designing optimal organizational patterns for the delivery of health and medical care.

The university in its turn needs nursing to complete itself and to achieve its mission to "create the future" of man in all his dimensions. The university cannot escape its responsibility to involve itself in the health professions as a social responsibility consistent with its increasing participation in the world around it.

It has become clear in recent decades that universities enjoy a considerable feedback in ideas from the professions and technologies to the basic disciplines. Ideas which have led to advances in physics, for example, have often derived from some problem posed in engineering or from a question posed by an applied scientist. The engineer increasingly finds stimulus in the problems posed by clinical medicine; the biologist seeks a closer contact with clinical colleagues who in their turns are becoming better biologist. The university must take a fresh view of the study of man as its central concern. This implies coordination of the knowledge of clinicians with that of sociologists, philosophers and many others. Medical centers are living laboratories of social, economic and behavioral experience which the university disciplines have yet fully to exploit.

In this matrix of interdisciplinary conversations, nursing has some special things to offer. It is deeply concerned with the socialization of the patient, his education, adaptation and response to illness, as well as his behavior as individual

and family member. The intimate relationship of nurse and patient when it is recaptured by the clinical nurse specialist, will make her pre-eminently a practitioner and applied specialist in many of the social sciences. This is a sphere not well developed by the physician, which nursing can cultivate to its own and the patient's benefit. In so doing, nursing can provide significant questions and observations for the social and behavioral scientists who are needed even now in the clinical milieu.

What are some of the implications inherent in the incorporation of nursing into a Health Sciences Center?

In the matter of academic organization, the faculties of nursing must be organized under their own Dean, separate from the Dean of Medicine and preferably in the framework of a Health Sciences Center. The nursing Dean must report to a Vice-President or Provost for the Health Sciences and not to someone representing medicine primarily. The intellectual development of nursing is nonetheless firmly tied to the other health sciences. The unfortunate tendency in some institutions to separate organizationally from the health sciences is ill-advised even if it creates a temporary feeling of independence.

The demands for earlier specialization will be felt in nursing as they have been in medicine. New knowledge is assimilable only in circumscribed bits and research by its nature must focus on specific questions. This will reflect itself in curricula even at the undergraduate level. The same trends now transforming medical school curricula will also affect nursing. We can look to curricula of greater flexibility, greater depth in a few things rather than superficially in many and the very real likelihood of multiple pathways to the nursing degree. Thus, students may well differentiate as undergraduates and concentrate on a clinical specialty, community nursing or nursing research.

Opportunities for nursing as part of the Health Sciences Center include shared educational experiences with students in medicine and other health professions, greater chance for course work in the basic university departments and larger involvement in the cultural life of the university community.

The fullest exploitation of the university setting is an unmet challenge for nurse educators as it is for university faculties.

The move to specialization is an inevitable and salutary effect of university education. It will, however, underscore the need for a new and imaginative development of the role of the nurse generalist. This can no longer be a nurse general practitioner superficially acquainted with bits and pieces of the specialties. Instead, as must also occur in medicine, the generalist will focus on assessment of total nursing needs, coordination of the nursing plan, leadership of the nursing team, socialization and education of patient and integration of the efforts of nurses with other health professions. Preparation for this generalist function will probably require a special educational pathway at both the undergraduate and graduate levels. We do not, at present, explicitly train for this function because we have not yet defined it sufficiently clearly. To do so, requires the setting of the university and a greater experience with experimental patterns of patient care in the University Hospital.

The philosophical commitments of the Health Sciences Center at Stony Brook and the development of a collaborative effort with all the health professions should provide the Dean of Nursing and her faculty with unique opportunities for creative solution of some of the major issues explored here. The details of a new nursing curriculum will be generated by the nursing faculty in response to potent social and technological forces. Hopefully, this can lead the way to distinctive and effective ways to improve nursing care at every level.

C.) SCHOOL OF SOCIAL WELFARE

For several years there has been an increasing concern about the seriousness of the gap between the need for social welfare manpower in programs of health, education and welfare, and the availability of such manpower. The urgency of meeting this need has been considered sufficiently important for special committees to be established at local, state and national levels to find ways to meet this problem.

On January 17, 1963, the United States Department of Health, Education and Welfare established a Department Task Force to consider the nature and origins of the problem, to estimate future manpower needs, and to identify types of action needed to close the gap. The Task Force has as its scope all the social work personnel needed for the full spectrum of social services in health, education and welfare, at local, state and national levels, and under both public and voluntary auspices. In its findings, the Task Force reported that indeed there was a severe shortage of social workers in all kinds of agencies nationwide, both for positions requiring training and those for untrained workers. One of their recommendations was that additional Schools of Social Welfare be established. (1)

On December 4, 1961, acting upon the recommendation of the Committee on Higher Education in New York State, Governor Rockefeller appointed a special New York State Committee on Medical Education. The Committee was charged with the task of looking ahead to 1980 to give advice on what programs and plans would be needed in education of the full spectrum of health professions to provide optimal health care for all New York citizens.

In its report issued in June 1963, the Committee pointed out that "...dramatic scientific advances and enforced specialization in an age of bursting population, social revolution, and sprawling urbanization make more urgent than ever the adoption of comprehensive medical care as the ultimate goal of modern education in the health professions. The aim should be to combine the concentrated knowledge and skills of the specialists with the broad understanding, wisdom, and continuing care of the generalist to the end that

the patient receives as little or as much care as he requires."[2]

They stated, further, that the goal of such comprehensive care is that the services of the health professions "... be available to the extent that they are needed, and that their efforts be coordinated so that none works in isolation, but all as a team in the full knowledge of the patient's total health picture and what the other is doing to improve it..."[3]

The Report continues with the fact that the services of social workers within the health professions are highly valued and the shortage of their supply deplored. It is the social worker who is commonly depended upon to inform the health team of the social, economic and environmental factors bearing on a patient's illness, and to contribute to treatment and recovery by alleviating nonclinical problems. It is the social worker who promotes the morale of patient and family, helping each to adjust to the problems that illness imposes on all, and, when necessary, marshalling community resources to meet their needs. Social workers participate in preventive medicine by anticipating health problems before they become acute and in rehabilitative medicine by guiding the convalescent and those who must care for him. Their work need not be limited to low income groups. It can be invaluable to the affluent, as well, in such ways as providing counsel for the proper care of the chronically ill or disabled, helping the family to acquire insights into social and emotional problems that tend to disrupt normal family life, and providing psychological support through difficult periods of illness.

Social workers may work in a hospital or similar institution; a public health service, or a voluntary agency; they may be specially trained in either medical or psychiatric social work, as well as community organization work. The differences are only in emphasis. One role of all of them is that of interpreter and intermediary, bridging the gaps between institutions and individuals, therapists and patients, patients and their families, clinical and social environments, the sick and the well. Focusing always upon the patient as a person with a family and a place in society, rather than as a diseased

entity, they forge an increasingly vital link between the physical and biological and the social and behavioral sciences. Unfortunately, that link is too often missing. (4)

On the basis of its study of needs in the community and in the health professions, the Committee recommended that a Health Sciences Center be developed on the campus of the State University at Stony Brook, and that a School of Social Welfare be part of this. They saw such a Center as providing an unexcelled opportunity for fresh approaches to patient care.(5) The School of Social Welfare within this setting would both help fill the gap in the need for social workers and also provide a unique opportunity to develop social welfare education in a new University Medical Center.(6) Further, this would "set an example toward the goal of comprehensive medical care by practicing it in State University Medical Colleges and Centers; so that it may be taught by practical demonstration, as well as theoretical discussion." (7)

On March 15, 1967, the Special Senate Committee on Manpower, appointed by Senate Majority Leader Earl W. Brydges, and under the Chairmanship of Senator D. Clinton Dominick III, submitted to the Legislature of the State of New York, their report entitled The Manpower Crisis.

In this report the Committee pointed out that "the manpower needs of the Empire State in the 1970's pose an urgent challenge to today's planners, administrators and law-makers. The challenge is one of defining the nature and causes of manpower gaps, projecting the dimensions of the employment problem, and devising long range imaginative solutions now, to effectively meet a future problem before it achieves crisis proportions." (8)

In anticipating manpower needs in New York State for the period 1965 to 1975, the Committee cited gross estimates of rates of change of selected occupations, as projected by the Department of Labor. The rate for social and welfare workers is given as a 35% to 50% increase. (9)

They referred, too, to the survey by State Government Administration, appearing in November 1966, which listed social welfare work as ranking third among the professional groups that are most in demand in states sampled, and one where acute shortages exist.(10)

The Report states fully and clearly the needs of New York State for social work manpower. "Simply stated, the social work manpower problem is the fact that there are not nearly enough trained and able people available to carry out the actual work of social welfare. The need lies in the recruiting, training, and proper utilization of the State's human resources to accomplish the goals of social welfare which we have devised; the development of a truly just society." (11)

Throughout the State, there is a great demand for trained social workers. In March, 1967, there were approximately 4,700 known vacancies in the State's public agencies alone. Private agencies had vacancies for 10% to 15% of their social work positions. But in 1966, there were only 1,617 full time students enrolled in the nine graduate Schools of Social Work in the State. (12)

The need for expanded facilities is exemplified by the fact that current facilities are inadequate to accept all those who apply for admission to graduate Schools of Social Work. In 1965, there were 3,698 applicants for admission to Schools of Social Work in New York State. Only 24.18% were accepted, while 75.82% were rejected. (13) While it is true that many applicants are rejected for reasons other than the school's capacity (e.g., student grades, general attitude), nevertheless a number of capable students are rejected. It is evident that present facilities are inadequate to train qualified applicants to meet the social work manpower problem.

The foregoing confirms the picture presented in the earlier report, Closing the Gap in Social Work Manpower, namely,"Applicants for admission to Schools of Social Work for the fall term in 1964, numbered 12,127 of whom 6,266 were accepted for admission. Only a small proportion of applicants for admission to Schools of Social Work, who are placed on waiting lists, are reached for admission as students." (14)

Thus, the Dominick Report, pointing to the need for providing an adequate supply of trained and dedicated social work manpower, lends support to related reports that preceded it both from Albany and Washington. One of its recommendations was the construction of an additional Graduate School of Social Welfare at the State University at Stony Brook, since

this would provide services for an area of the State where no present facilities exist.

This same recommendation for meeting the shortages in social work was also among those made by the Deans of the nine Graduate Schools of Social Welfare in New York State, in their capacity as the Committee of New York State Graduate Schools of Social Welfare. (15)

THE SCHOOL OF SOCIAL WELFARE AT STONY BROOK

It was on the basis of the foregoing recommendations that the Director of the Health Sciences Center at State University of New York at Stony Brook, and his staff, proceeded to explore the feasibility and advisability of establishing a School of Social Welfare on the campus and as an integral part of the Health Sciences Center.

A major commitment of the Health Sciences Center is involvement in community health and medicine. This implies a broad definition of health which includes emotional and social health as well as freedom from physical disease. Indeed, the long range objective of the Center is the use of preventive and curative medicine as tools in the promotion of human well-being and the development of the individual. The Center will become the focus for a network of community health facilities and agencies in Suffolk and Nassau Counties. It can thus provide an excellent opportunity for development of all phases of social work, community development, social policy and welfare as well as medical and clinical social work. Indeed, individuals who contact such a Health Service Center will exhibit the full range of human social problems. The health problem can be seen as the point of contact but not the full expression of the needs the Center hopes to meet.

This broad view will extend to the educational programs in the Colleges of Medicine, Nursing, Dentistry, and Allied Health Professions. Social work faculty would be presented with the opportunity for collaboration with all of these professions as well as with sociologists, economists, psychologists and others in urban planning and political science.

As for the School of Social Welfare, the main questions which have been explored are:

1) Is there a need for a School of Social Welfare in the area of the Stony Brook campus?

2) What is the receptivity of social work agencies in the counties of Nassau and Suffolk and of social work educators toward the establishment of a new School of Social Welfare at Stony Brook?

3) What is the attitude of department heads at Stony Brook and of social work educators nationwide toward having a School of Social Welfare as part of a Health Sciences Center?

In order to find the answers to these questions, relevant reports were studied. Also, there were a number of consultations with key people in the Nassau-Suffolk area, with the Council on Social Welfare Education (the accrediting body for graduate schools of social welfare), and with Deans and Directors of Research in schools of social welfare in New York City and throughout the United States.

It was found that representative leaders of social work and community planning in Nassau and Suffolk Counties see a School of Social Welfare on the Stony Brook campus as being in a key position, as a tax-supported institution, to pioneer in the establishment of social work services that are now inadequate, both because of community attitudes and lack of social welfare personnel.

The culminating planning meeting, held on the campus at Stony Brook on November 8-9, 1967, had as its participants members of the faculty and administration of State University of New York at Stony Brook, key Deans and Directors of Research of graduate schools of social work across the country, and the former and present Project Consultant on Development of New Schools of the Council on Social Work Education.

The consensus was that Schools of Social Welfare are needed, and that the one at Stony Brook should meet both local and national needs. Adelphi University School of Social Work, which is privately supported, and located in Nassau County, reported that it has six acceptable applicants for each vacancy. A large percentage of its students are from Suffolk County. By its geographic location and its nearness to resources on its own campus and to those in the Greater New York area, a School of Social Welfare at Stony Brook would be in a position to train students for local, state and national social welfare positions in teaching, research and direct service. It was pointed out that on the national scene, the major thrust for the development of new Schools of Social Welfare is coming from State Universities. A School of Social Welfare at Stony Brook could serve as a prototype in developing schools in other geographic areas.

A SCHOOL OF SOCIAL WELFARE IN A HEALTH SCIENCES CENTER

All our consultants agreed that if the School of Social Welfare would have the same autonomy as other graduate schools, then much could be gained by its placement within the Health Sciences Center, since the Center's philosophy is to pick up via the touchstone of health the full range of problems faced by individuals and communities.

Within the Health Sciences Center, a School of Social Welfare could provide a needed influence in going beyond the traditional clinical model of health care to set up an effective voice in the policy and community action needed to change the way health care is delivered. It would be more likely to influence the way other professions deliver service if it is within the Health Sciences Center than outside it.

Conferees pointed out that the innovative possibilities are impressive. Social welfare practice is in as much need of changing as is medical practice. Much experimentation is needed, including new ways of the professions working with each other. A Health Sciences Center which includes a School

of Social Welfare could provide unusual opportunities for creative development of interdisciplinary services that truly collaborate for the benefit of the total needs of the patient and his family.

1) PROPOSED PLAN OF ORGANIZATION

The School of Social Welfare would be organized as one of the component Colleges of the Health Sciences Center at Stony Brook. The Dean of the College and his faculty would be responsible for the development of curriculum, making recommendations for appointments, promotions and tenure of faculty members, administration of the budget of the School and the establishment of its academic standards. In this proposal, the Dean of the School of Social Welfare would have the same prerogatives as the Deans of the other Colleges in the Health Sciences Center.

The Dean of the School would report directly to the Vice-President for the Health Sciences. The Dean of Social Welfare will be a member of the Health Sciences Center Council and will participate in all policy decisions. The development of the Health Sciences Center concept at State University at Stony Brook, will provide the Dean of Social Welfare with unusual opportunities to make his influence felt in the education of medical students and all other health personnel. In addition, he can have the closest supervision of the social work services provided in the University Hospital and the other patient care facilities of the Health Sciences Center.

The Dean and his faculty would be expected to work out cooperative arrangements with appropriate University departments in sociology and psychology, political science and urban planning, to help meet his needs in the teaching and research programs.

2) PURPOSE OF THE SCHOOL OF SOCIAL WELFARE

The broad purpose of the school is to train

social workers at the master's and doctoral levels to help meet the manpower needs that have been fully documented by studies at local, state and national levels.

In its relationship to the Health Sciences Center, the School would provide its students with the unique opportunity to work with all related professions, via the touchstone of health to find ways to meet the full range of social and health problems faced by individuals and communities in rural, suburban and urban areas.

3) STUDENTS

To master's degree students, the School will offer an integrated program of academic study and field instruction. The community medicine program of the Health Sciences Center will be a major field experience where social work as well as other medical-related students will have a full spectrum of joint experiences in meeting social and health problems in rural, suburban and urban areas. The faculty of the School of Social Welfare will have the responsibility for setting up and supervising the Social Service Department of the University Hospital. This will serve as a special field experience for the social work students.

The program for the master's degree in social welfare requires four terms (two academic years of full-time study. It prepares student for professional practice of social work. Professional social workers require substantial knowledge and specialized skills that assure performance that will achieve social work goals. The curriculum is organized by content and sequence to accomplish these objectives. Through classroom and field courses and the preparation of a research project the student acquires an understanding of the principles and values pertaining to social work, and he develops competence in at least one of the methods of social work practice.

The curriculum has four major groupings: History

of social services and current problems in a changing society; behavioral theory; scientific method and research; methods of social work practice with opportunity, through courses and field work, to get specialized training in one or two areas of practice selected from case work, group work and community organization, with major focus on the broad spectrum of community health services.

Each student will take a common core of courses and also a sequence of courses in methodology and field practice related to his selected area of specialization.

The following is an approximation of the curriculum: 18-24 points in field instruction; 26-32 points in classroom instruction; 6-10 points in research courses and research projects.

....COURSES....	Points
Human personality growth, development and deviation I and II	4
Social Welfare and Policy I and II	4
Social Context of Illness	2
Social Welfare Research	4
Research Projects	4
Two courses in subject matter of Social Science	4
Four courses in one area of Social Welfare Method	8
One course in an area of Social Welfare Method other than the student's specialization	2
Electives (may be taken in other graduate schools of the university, with faculty approval)	2 - 4
	34 -36

4) DOCTORAL PROGRAM

The purpose of the doctoral program is to enable outstanding students who hold a master's degree in Social Welfare and have had practical work experience, to prepare for leadership posts in which there are serious shortages in the field in social planning, social research and teaching. The student's program

will be arranged individually to include advanced courses within the School of Social Welfare and in other graduate divisions of the university, seminars, independent research, and where indicated, specialized field experience.

5) FACULTY

"Faculty" encompasses three goals: quality teaching staff, adequate teaching staff, and adequate subject coverage. Faculty-student ratio should be 1:5 to meet standards set by ranking Schools of Social Welfare. Therefore, for an initial student body of one hundred, a faculty of 20 to 25 members is recommended. A faculty increase to approximately forty would be required with a doubling of student body.

Administrative officers would include a Dean, Director of Admissions, and three Department Chairmen, (case work, community organization and research). The Director of Social Service of the University Hospital would be a member of the case work faculty and responsible to the Chairman of the case work.

Further salaries for professional personnel are required for field work supervisors. A rule of thumb here is one supervisor per eight first-year students and one for six second-year students; for State University at Stony Brook, this would represent fourteen altogether.

6) FACILITIES

A facilities program is being written which calls for approximately 20,000 n.s.f. of administrative, instructional, and research space. In addition, field work facilities will be developed in various placement social agencies.

7) SCHEDULE

A first class of twenty-five students could be admitted as early as 1970, with a second class of fifty students in 1971, depending on availability of facilities. Recruiting for a Dean would begin immediately, and key faculty members would be present in 1969.

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(7) Ibid, pg. 77.

(8) The Manpower Crisis, Report of the Special Senate Committee on Manpower, appointed by Senate Majority Leader Earl W. Brydges, Senator D. Clinton Dominick III, Chairman, pg. 6.

(9) Ibid, Table following pg. 14.

(10) Ibid, pg. 22.

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D.) COLLEGE OF DENTISTRY

Dental education faces all the same dilemmas we have outlined for medicine and the same stimuli are operative in changes in dental curricula.

For many years the emphasis in dental education has been on technical preparation. The dentist was expected upon graduation to be capable of performing a certain number of specific procedures. Unlike the physician, he does not regularly take an internship or residency. Moreover, he is expected to function largely as a solo practitioner. He has little or no contact with the hospital and really does not function as a member of a health care team.

Current patterns of health care have sharpened the need to revise dental education to meet such questions as how best to meet the needs of the community, how to use auxiliary helpers, how to work in the greater complexity of hospital and clinical practice and how to meet the growing needs for graduate specialization in clinical dentistry. Fundamentally, a clear discrimination must be made between what must be done by the professional and what can be handled by technically trained non-professional dental hygienists, assistants, technicians and others.

Even more important than the question of making dentistry a team and a community effort are the intellectual problems facing dentistry as a university discipline. Should dentistry be more closely allied to medicine? Some suggest the arrangement in some European universities wherein the dental faculty is constituted as a specialty of medicine —— Odontology.

To what extent can dental and medical students share the same courses in the basic sciences? In some new schools —— Connecticut, for example, —— dental and medical students will take the same basic science courses together. This is an attractive idea from several points of view. It should improve communication between the professions, be more economical of faculty and facilities and improve basic science teaching for the dentist.

Yet, past experiences have indicated that significant problems are still to be overcome to make such a plan work successfully. The difference between medical and dental students in science background, motivations, and scholastic attainment are yet to be successfully overcome. There are indications, however, that in the future dental and medical students will come with more similar educational background than is now the case.

Should national planning for dental care be based on the use of a large number of dental auxiliaries to perform manipulative functions and a relatively small number of dentists more highly trained than now? Dental educators are already talking of "four handed" dentistry as they prepare their students to work with auxiliaries in every phase of practice. In such a conception, the dentist will be required to have less technical and manipulative skill and a deeper theoretical and synthesizing ability. His functions will approximate those we have outlined above, for the generalist in medicine and nursing — assessing the total dental needs of the patient, devising a comprehensive plan to satisfy those needs deciding which require the attention of a professional dentist and which can be done by auxiliaries, coordinating the efforts of all who participate in the management of the patient and working with the physician and others as a member of the health care team so that oral and general health can be made a continuum.

It is obvious that functions of this kind require that the dentist be a more integral member of the health team than is now the case. He is not currently educated for this newer role. To adapt to these newer patterns of dental care the student must acquire a new set of skills and an ability to look at dental care comprehensively. Likewise, a model in which newer patterns of dental care are practiced must be provided under university aegis as a setting in which to teach comprehensive oral health care.

It is likely that the fields of dental medicine and surgery will become more polarized than they now are. The dental and oral surgeon will require a deeper education in surgical principles and techniques often overlapping with

those of the maxillo-facial and head and neck surgeons. Indeed, there is small likelihood of resolution of the jurisdictional disputes among these specialists until they fuse into one branch of surgery. The dentist is gravitating toward the hospital to obtain the benefits of optimal anesthesia, laboratory studies and emergency care for his patients. The oral surgical services of hospitals are certain to be expanded and achieve greater degrees of autonomy than they now enjoy.

The dental medical person will gravitate more closely to the physician in medicine and pediatrics. He will become a specialist in oral diagnosis and therapeutics. He, too, will find hospital practice an essential requisite.

In all branches of dentistry, residency training, postdoctoral clinical traineeships and fellowships will become as common as they are in medicine.

As in medicine, the community aspects of dentistry are assuming increasing importance in dental education and practice. The ecological, sociological, economic and epidemiological aspects of dental health are in need of urgent exploration. Students of dentistry in some schools (Kentucky) are already routinely provided opportunities to learn more about their social and community responsibilities. Dentists of the future will be prepared to take more effective part in regional medical programs, comprehensive health planning and other aspects of community dentistry.

These trends and others will stimulate changes in the dental curriculum very like those described already for medicine —— greater flexibility and individuation, earlier choice of specialty, multiple pathways to the dental degree and increasing university responsibility for postdoctoral clinical education as well as continuing education.

The Dean of the dental faculty at Stony Brook will obviously have very great opportunities for innovation as he confronts some of these new issues. As part of the Health Sciences Center, the dental faculty can work fruitfully with all other health professions in finding more effective ways to

meet the public needs for oral health — still one of the greatest unmet needs in our nation.

The Dental curriculum will be developed in detail by the Dean of Dentistry and his faculty and it cannot be explicated before they are recruited. It is our intention to seek a Dean responsive to the question outlined above, so that Dental Education will have the same commitment as Medical Education.

E.) COLLEGE OF ALLIED HEALTH PROFESSIONS

The Allied Health Professions comprise a rapidly growing group of professions essential to the provision of medical care today. Some examples are — physical therapy, occupational therapy, medical technology, speech therapy, dental hygienist, inhalational therapy, medical record technician, optometry, medical record librarian, dental assistant and others.

The number of these professions promises to grow as medical care becomes more diverse and specialized. Physicians will depend increasingly upon such professionals if they are to bring to each patient the fullest benefit of new techniques and skills. The physician himself does not possess these skills, nor has he the time to learn them.

The national need for this group of professions is most difficult to assess. It is of such concern that a special report by a subcommittee of the National Health Council has been devoted to it.

Education for the allied health professions is at present in an extremely fluid state. Up to this time, most programs have been conducted in small colleges, hospitals, community colleges or vocational schools. Most recently, education for the allied health professions has begun to move into the university. Some 13 universities now have integrated programs in a wide variety of allied health professions and many others are following suit. In keeping with the movement of all the other health professions to the university, we can safely predict even greater involvement of medical centers in the years ahead.

The advantages of location in the university and especially the medical center are many — better general educational preparation, more uniform standards between programs and better exchangeability of credits, the opportunity for close contact with the other health professions and availability of the University Hospital, and the opportunity for advanced degrees in related fields.

Moreover, universities and medical centers are better equipped to conduct multiple programs rather than isolated ones in a single discipline. There is a real need for each of the allied health professions to learn to work with each other and with medicine and dentistry.

In keeping with these trends and its own commitment to the concept of a comprehensive Health Sciences Center, Stony Brook plans to establish a College of Allied Health Professions as one of its component units. As in nursing, the baccalaureate and master's degrees will be offered. Professional doctoral degrees are not planned. The Ph.D. in speech therapy will be given. Stony Brook, with its comprehensive university programs should be in an excellent position to educate future leaders and faculty members in these health professions.

In these programs, as in nursing, attention will be directed to cooperative arrangements with other institutions in our region. Universities must be prepared to admit students from technical and two-year programs in the health professions as transfer students. The progressive "ladder" concept is of special significance here. Many of the underprivileged may make their first entry into the educational system in technical and associate degree programs. Out of these groups, there will be many who can proceed further. They must be provided the opportunity to do so.

The determination of specific curricula and the decision on which programs shall be grouped at Stony Brook will be determined by the Dean of the College and his faculty. Diversified programs will characterize the school's curriculum, but a general statement that covers all fields is possible. Initially, four programs are projected: Physical therapy, medical technology, speech pathology and therapy, dental hygiene and therapy. Other programs will be added later in such fields as occupational therapy, dietetics, medical records librarianship, and rehabilitation therapy.

During the first two years the student will take general university courses in natural sciences, social sciences, humanities and fine arts. For the last two years the curriculum will be approximately as follows:

	Hours per week	
	3rd year	4th year
Medical science - lectures	4	-
- laboratory	6	-
Behavioral science	2	2
Professional subject lectures (physical therapy, medical technology, speech pathology and therapy, dental hygiene)	3	3
Community medicine	-	2
Professional seminars	3	3
Professional techniques	9	6
Professional practicum	-	12
TOTAL	27	28

It is safe to anticipate the largest growth potential in this college as medical advances create the need for new helping professions. As the physician concentrates increasingly on highly scientific and demanding technical activities, he will have even less time than is now available to meet the totality of his patients' needs. Indeed, many of the things we regard as medicine today — suturing lacerations, minor surgery, taking of history, performing a physical examination, delivering a baby, patient education, well-baby care and others will be done by non-physicians working under the doctor's supervision, but in highly responsible roles.

The College of Allied Health Professions has the exciting and exacting responsibility of defining these new professions and educating for them. Their potential contribution to the national health needs is great. Without their vigorous development, it is dubious that we can deliver optimal care to every citizen — the final goal of all educational efforts in the health professions.

At Stony Brook, the College of Allied Health Professions might extend its coverage to include such things as Pharmacy,

Optometry and Podiatry. These have generally existed as separate schools. In Allied Health Professions, they can become intimately associated with the other health professions, share educational programs and become familiar with their role relationships.

The same commitments in educational goals as described for medicine and dentistry will be exemplified in the programs in the allied health professions — flexible curricula, multiple pathways, early choice of specialization and assumption of a major responsibility for postgraduate and continuing education.

1.) PHARMACY

Planning at Stony Brook to date has not included a program in Pharmacy. Nonetheless, such a program should be considered for inclusion in the Health Sciences Center. It is difficult to conceive of a comprehensive Center which emphasizes the cooperative interrelationships between health professions and does not include pharmacy. Drugs after all are, and will continue to be, major modalities in the physician's management of the patient. Many transformations in medical care derive from the institution of rational therapeutics based upon the design of specific pharmacological agents to reverse pathophysiological and even structural processes in disease.

Admittedly, the pharmacist is in, perhaps, the most severe identity crisis among the health professions today. His dispensing functions have been largely displaced by prepackaging and he rarely does any compounding. Too often, the community pharmacist is an entrepreneur and businessman dealing in drugs rather than a member of the health team.

But, as the dispensing and compounding functions of a pharmacist have become nonexistent, new roles are opening in which his special knowledge of all aspects of drug therapy will be increasingly needed. Thus, the neighborhood pharmacy is being replaced by the hospital pharmacy. When he enters the hospital setting the pharmacist becomes a member of the health care team. His contribution will grow as the drug field becomes more complicated and as the physician becomes busier and less able to keep his knowledge of drugs refurbished.

There is no doubt that the future will require someone to work with the physician as an expert in all aspects of drug therapy. The pharmacist can assume this role in a variety of new ways: in the drug information services in a hospital, as a member of the pharmacy and therapeutics committee in every hospital, as consultant on the hospital floor to nurse and physician

in such matters as dosage-forms, incompatabilities, as the recorder and collator of drug side effects and assessor of the local hospital experience with drugs.

Many new opportunities are possible with a pharmaceutical education — as public educator and community advisor on drug problems, for example. There are plans in some institutions to use the pharmacist's education as a means of increasing the numbers of anesthetists and as a preparation for a new role of therapeutic assistant to the physician in the clinic. In the latter role, the pharmacist can advise the patient on the use of medications, follow up whether the patient has, indeed, taken the drug properly and whether he is getting the desired effect or a toxic or side effect.

These and other roles in health care are needed now and in the future. They emphasize new professional possibilities for the pharmacist, possibilities for which his education does not prepare him. Colleges of Pharmacy are earnestly re-examining their curricula in the light of these new roles and have already begun to devise new curricula.

The Health Sciences Center at Stony Brook is well designed for the inclusion of pharmacy among the other health professions. The Center is dedicated to curricular innovation and to the cooperative endeavor of all the health professions. Its basic facilities and faculty can be adapted to the inclusion of the important profession of pharmacy.

Location of the pharmacy program is open to several possibilities. It is usually conceived of as a separate college. In this case, it could have its own Dean and faculty and report to the Vice-President for the Health Sciences. Another possibility which must be given serious examination is its inclusion in the College of the Allied Health Professions.

In any event, Pharmacy defined in the new terms we have stated above, is certain to be an essential

profession in any system of medical care. We would be remiss in our academic planning at Stony Brook if we did not advert to this question and make provisions for its inclusion at an appropriate point in our development.

2.) OPTOMETRY

This is one of the allied health professions which is often organized as a separate college. If such a program is developed at Stony Brook, it should be included in the College of Allied Health Professions.

Optometric services — non-physician services involving refraction as well as diagnosis and treatment of the simpler eye disorders — are needed on a large scale in the United States. Ophthalmologists are too busy and too highly trained to devote large segments of their time to these simpler tasks. Nor, is physician involvement with the technical tasks a wise use of physician manpower. With the shortages of physicians looming even greater than they are now, the ophthalmologist is very gravely in need of non-physician help to carry out the diagnosis and treatment of the less complex eye disorders under supervision.

If such a program is initiated at Stony Brook, it will best be organized in the College of Allied Health Professions rather than as a separate college. A baccalaureate program is envisioned and education will be closely interdigitated with the education of the ophthalmologist. The optometric associate of the physician will be part of the health care team. The treatment of the more common, acute eye emergencies will become part of his responsibility especially if a system can be elaborated which provides for adequate supervision.

In this field, as in others in the health professions, the new Health Sciences Center at Stony Brook has the opportunity to develop new programs and define new functions — all within the context of a comprehensive approach to health and medical care. This is consistent with the philosophy of patient care which will characterize each unit of the Health Sciences Center.

3.) PODIATRY

Like Optometry, this is a professional school not ordinarily included in a Health Sciences Center. Schools devoted to this specialty are few in number. Yet, the field of foot care is often neglected by the busy physician. The orthopedist in whose domain many foot problems may reside is overtrained for concentration on such a limited area.

In the modern health team, the Podiatrist is assuming a more important role and he is now included on the staffs of many hospitals and clinics. His contributions to the care of the feet in the diabetic and the patient with peripheral vascular disease are invaluable in preserving limbs and preventing serious disability. The future for this field certainly lies with the Health Sciences where education and patient care of foot disorders can be made an integral part of comprehensive health care.

At Stony Brook, we favor the inclusion of this profession within the College of Allied Health Professions. The bachelor's and master's degrees would be academically most appropriate. This group of specialists would then be trained to work with physicians, nurses and others on the medical care team.

F.) UNIVERSITY HOSPITAL AND PATIENT CARE SERVICES

(Planned for operation 1973 - 1974)

A 600-bed general hospital is planned as the central teaching facility for all the programs in the Health Sciences. It will be supplemented by a 750-bed Veterans' Administration Hospital. The latter will be limited in its utility because of the restricted nature of its patient population and the need to function within established regulations which govern care of the veteran patient.

The University Hospital is envisioned as a major resource for service to the Nassau - Suffolk community as well as a facility for clinical instruction and investigation. A special objective at Stony Brook will be to develop new patterns in the delivery of patient care, to provide a model of optimal care within which the student may learn by direct experience and develop the concept of the health care team. These aims make it essential that every bed be available for teaching and that every aspect of the quality and quantity of services provided be the responsibility of the faculty and administration of the Health Sciences Center.

A major emphasis of A. Flexner's monumental Report on Medical Schools in 1910 was the importance of the University Hospital under control of the academic institution. Only with its hospital under university ownership and control could a medical school achieve optimal clinical education.

In the 50 years since Flexner's time, the university operated hospital has become an essential feature of every major medical center. Even those with extensive clinical facilities in their vicinity have gradually added additional beds under direct university aegis. Every new medical center now under construction has planned or includes in its future planning, a University Hospital.

The reasons which underlie these decisions are to be found in the character and needs of education in the clinical sciences as it exists in the United States which remains the prototype for the world in the excellence of its student clinical education.

1) To teach optimal clinical medicine and patient care, the clinical faculty must have a certain number of beds under its immediate control. It must be able to establish the standards of care in these beds and change them when teaching or research requirements change. The aims of a full-time medical faculty cannot be attained when it is dependent upon another institution for the quality of care to which it imposes its students and housestaff.

2) A major responsibility of medical schools today is to experiment with patterns of delivery of medical care. This responsibility can only be fulfilled if the university has control of beds and ambulant care facilities in which it can modify existing patterns of medical care and explore new roles for health personnel of various types.

3) A clinical faculty needs to maintain its own skills and hence must have nearby — and these days this means in contiguity with its laboratories and classrooms — a hospital in which it can care for patients. Moreover, the support of such a clinical faculty can in significant part be financed from the care of patients. This is a valuable asset to the university which would otherwise have to support clinical faculty salaries out of its usual sources of income.

4) Clinical investigation is an essential function of today's clinical faculty, and without readily accessible clinical facilities under university control, first-rate faculty cannot be recruited.

5) A modern clinical faculty is a valuable community resource. It is composed of highly trained specialists, usually in fields not provided for in even the more sophisticated communities. These physicians should be available to the community and are made so by the presence of a University Hospital where they can hospitalize referred patients and establish the equipment and standards essential to modern scientific medical care.

6) In the move toward regionalization generally and the Regional Medical Program legislation specifically, the University is an essential ingredient as the central point of any region providing resources of equipment, personnel and technique which cannot be duplicated in even the larger community hospitals.

CLINICAL FACILITIES IN NASSAU AND SUFFOLK COUNTIES

There are 42 hospitals in Nassau and Suffolk Counties. 18 of these are voluntary non-profit hospitals, 18 are proprietary and 6 are governmental.

...

BED CAPACITY	0-100	100-200	200-400	400-600	2-3000	Greater than 7000
General	8	10	9	1	0	0
General and Chronic	2	1	0	0	0	0
General and Psychiatric	0	0	2	1	0	0
Psychiatric only	1	0	1	0	1	3
Psychiatric & Nursing Home	0	0	0	1	0	0
Tuberculosis	0	0	1	0	0	0

...

In planning for the University Hospital and also for possible teaching affiliations with community hospitals in our area, the Director of the Health Sciences Center at Stony Brook has personally visited 24 hospitals. These visits consisted of a review of physical plant, meeting with the professional staff and with the Board of Trustees to ascertain their attitudes on possible university affiliation. Each hospital was assessed from the point of potentiality as an auxiliary teaching facility. Certain general conclusions have been drawn on the basis of these visits.

1) The hospitals closest to the university are not suitable as primary teaching hospitals. They are limited in size, facilities, staff, equipment and spectrum of patients served. Moreover, they are private, voluntary non-profit hospitals with their own Board of Trustees and could not be expected to accept university control. Indeed, they will serve best if they continue as community hospitals which can be used for parts of the teaching program. The smaller hospitals can be especially helpful in providing clerkships in community medicine.

2) One hospital has the potential for wide use in clinical teaching. This is Meadowbrook Hospital which is large enough, has a core of full-time staff and is broad enough in patient population. However, this hospital is 30 miles from Stony Brook and takes a minimum of 40 minutes to reach by highway. Such a time loss for students would be entirely impractical. For a faculty stationed at Stony Brook this would present an insurmountable barrier to teaching and research. Indeed, we would not be able to recruit clinical faculty to Stony Brook if they had to travel such a distance to teach and care for patients. Clinical research would be impossible. On the other hand, if we were to depend upon the full-time staff at Meadowbrook for clinical teaching we would in effect have a two-year medical school; and not a Health Sciences Center at Stony Brook.

3) Two other hospitals have suitable staff and clinical populations. They are, however, even further than Meadowbrook. Moreover, as private hospitals they would certainly not wish to come under the kind of university control that would be needed for a first-rate teaching program as conducted today.

4) Community Hospitals will be needed as auxiliary teaching hospitals since the combined bed capacity of the University Hospital at Stony Brook and the Veterans' Hospital will not be sufficient for the number of medical students, clinical fellows, residents, students of nursing, social welfare, dentistry, and allied health professions we hope to educate here.

5) A word about the large state psychiatric hospitals. There are some 30,000 chronic psychiatric beds within 20 miles or so of Stony Brook. These beds are only useful in teaching in a limited way. The case material is of the chronic variety, the very idea of such enormous mental hospitals is outmoded and it would be of little value to expose students to this type of care.

For these reasons, the State University of New York at Stony Brook is planning its own University Hospital to serve as the primary facility for its clinical teaching and research efforts. In addition, as one surveys the medical facilities in Suffolk County and to a certain extent Nassau County as well, it becomes apparent that the University Hospital is needed as a community resource. It will provide a much needed, highly specialized, highly technical resource in personnel, equipment and facilities which cannot reasonably be expected in even the best community hospitals. With the expected development of a Regional Medical Program for Heart Disease, Cancer and Stroke, the University Hospital too, will become the focus of a region and a point of referral for patients in need of specialized diagnosis and treatment in these categories of disease.

The optimal size for the University Hospital will be dependent upon the degree to which it can be used to achieve the objectives of the University Health Sciences Center as a teaching and research facility and as a community resource of a highly specialized type. The number of beds required simply for the education of the number of students we contemplate in the classes of medicine, dentistry, nursing, and allied health professions is detailed below. A conservative estimate of the number of beds required for medical students alone is between four and five per student in the clinical years. Since we will have 200 medical students in the clinical years in our first phase, this would mean between 800 and 1000 beds available under university control. When we expand to full operation with 150 medical students per class, 1200-1500 beds will be needed.

The number of these beds and the type of facilities available must then be adjusted to meet the additional needs for specialized graduate medical education. There has been an enormous increase in residency and fellowship training in the past two decades. Since medicine will continue to become more complex and specialization will continue to flourish, there will be increasing need to educate physicians well beyond the M.D. degree. There is a manpower deficit in most of the specialized areas of medicine. This will be aggravated as the population increases and as medical care is made more widely available for more people.

An extensive graduate program in the clinical sciences from the internship and residency to clinical and postdoctoral fellowships will require additional clinical resources over and above the four to five beds required for medical students alone.

The 400 beds for the first phase of the University Hospital estimated for these reasons at Stony Brook is conservative. We will have to depend upon the Veterans' Administration Hospital even with a 400-bed University Hospital. If we depended upon the University Hospital alone, we would be well below the number of beds required for adequate training of our medical students.

The Veterans' Administration Hospital will have 750 beds. However, the distribution of these beds is such that they will not be maximally useful to us in our undergraduate and graduate training in the clinical sciences. Approximately 250, for example, will be psychiatric long-term beds with a low percentage turnover. Such beds have a limited usefulness in training the clinical specialties and have a limited utility even for psychiatric training. Moreover, the percentage turnover contemplated in the beds in the Veterans' Hospital is well below that of the standard University Hospital and this will materially reduce the effectiveness of these beds for clinical teaching.

There is little question even with 400 beds in the University Hospital and a Veterans' Hospital that we will need additional facilities in the community. We hope to enlarge our potential for clinical teaching by means of affiliation with selected hospitals in Nassau and Suffolk Counties.

The size of the University Hospital should be determined in relation to the requirements of teaching and the availability of patients. With respect to the teaching requirements a minimum of 4, and preferably 5, teaching beds should be available for each student in the 3rd and 4th years of Medical College. Dr. George Harrell, former Dean at the University of Florida and now Dean at Pennsylvania State, has stated (J. Medical Education, 37: 1, 1962) that 4 beds should be allocated, although he has revised this to 5 beds since then (private communication). A survey of nine leading medical schools reveals that all except one have more than 5 beds per student (Table I). The teaching beds in general are distributed between one primary hospital and one or more ancillary units, an exception being the University of Chicago. The primary hospital units, with one exception, provide at least 2 teaching beds per student. The utility of ancillary hospitals is so variable that a strict comparison is not possible; for example, the Veterans' Hospital available to UCLA has a very much larger number of psychiatric beds that can be utilized effectively by medical students. A comparison with the proposed teaching arrangement for the State University of New York at Stony Brook reveals that a 400-bed University Hospital would provide 2.0 beds per student and a 750-bed ancillary Veterans' Hospital would add 3.8 per student for a total of 5.8 per student.

This approach to the planning of a University Hospital in connection with a new Medical College without existing facilities is consistent with the plans set forth by other new medical schools. Data on nine other new schools in this situation reveals the following (Smythe, C.M., J. Med. Educ., 42: 998, 1967) :

School	STUDENTS Class	2 Classes	HOSPITAL BEDS Total	per 3rd, 4th yr. students
1	64	128	400	3.1
2	64	128	300	2.3
3	64	128	350	2.7
4	64	128	300	2.3
5	96	192	350	1.8*
6	100	200	516	2.6
7	100	200	400	2.0
8	100	200	400	2.0
9	120	256	350	1.4**

* $27 million is allocated for major construction at affiliated hospitals.

** Heavy reliance is placed on a nearby 650 bed general hospital.

TABLE I

A comparison of some leading schools with proposed school at SUSB re teaching beds

School	3rd & 4th year Students (1964-5)	Primary Hospital			Ancillary Hospital			Total	
		Names	Beds	Beds per Stud.	Names	Beds	Beds per Stud.	Beds	Beds per Stud.
Harvard	280	MGH	931	3.3	Several	1509	5.4	2440	8.7
Yale	155	Grace	652	4.2	VA	773	5.0	1425	9.2
Columbia	223	Presby.	1837	8.3	Several	1000	4.5	2800	10
Cornell	166	NYH	1104	6.7	Memorial	513	3.1	1617	9.8
Hopkins	167	Hopkins	987	5.9	Balt.City	1497	9.0	2000	10
Chicago	134	U. Chi.	693	5.2	-	-	-	693	5.2
Illinois	362	U. Ill.	625	1.7	Pres.St.L.	852	2.4	1477	4.1
UCSF	205	U.C.	474	2.3	SFGH	1006	4.9	1480	7.2
UCLA	143	U.C.	322	2.3	VA	3601	10	2000	10
SUSB	200	SBUH	400	2.0	VA	750	3.8	1150	5.8

The University Hospital is conceived as the center of a network of hospitals and patient care institutions related to each other for educational purposes and to improve the quality of care delivered to the patients of the region. Plans are currently being developed under Regional Medical Planning legislation to effect cooperative arrangements between the University Hospital and other institutions and health professionals in Nassau and Suffolk.

It is hoped that every hospital can in some way be a part of the university family. It would be impossible to rotate house staff and students to every hospital desiring them. But, there are other ways in which hospitals may participate in the functions of the University Hospital. Some of the alternatives to be offered are as follows:

1) Affiliation as a clinical campus — This will be limited to a few hospitals (see below) of sufficient size, and having a wide enough variety of patients available for work-up by clinical clerks and house-staff. A full-time staff of clinical teachers, in the major clinical fields and their subspecialties is essential. Investigative and educational programs will be needed. Educational programs in the health professions, in addition to medicine, are desirable. In these hospitals all full-time staff must be acceptable for faculty appointment in the Health Sciences Center. They will be appointed only after approval by the Director of the appropriate clinical departments at Stony Brook. Interchange of clinicians between the clinical campus and the university center is also desirable in the integration teaching and research programs.

In the curriculum being planned in medicine, medical students and house officers will spend large segments of time at hospitals which qualify for this category of affiliation. Indeed, because of the limited number of beds available at the university campus, such hospitals will be essential to meet all needs of medical students, students in other health professional schools, residents, interns, clinical fellows and postgraduate students.

2) Another type of affiliation is a limited affiliation for special purposes. Here, if a hospital has developed strongly in a particular clinical field, it will be included in student or house staff rotation on a regular or elective basis. It seems certain, for example, that the University Hospital obstetrical service will not be large enough to provide our students with sufficient deliveries. Community hospitals rotations will be essential for students in obstetrics. Similar situations may exist for the surgical subspecialties like otolaryngology, ophthalmology, orthopedics, etc.

3) A third type of affiliation will be needed for clerkships in community medicine. Here, preference will be given to smaller hospitals serving smaller or rural communities. The student can thus become acquainted with general medicine as well as the social and other definable elements which determine health in the community. He can also observe family and general practice more closely and hopefully, appreciate the need and the challenges in this type of practice.

4) A fourth type of affiliation will be for educational purposes. The university hopes to stimulate every hospital to become a teaching institution, i.e. to provide for educational opportunities for its own physicians, nurses, social workers and others in the most effective setting, namely, their own hospitals. Such hospitals will be tied-in with the Health Sciences Center and the University Hospital via closed circuit television and radio networks. In addition, eventual hook-up with the university computer facilities will permit use of computer-assisted educational programs. The faculty, library and other educational facilities of the university will be made available to hospitals to enable them to generate significant postgraduate and continuing education programs built upon their own specific interests and problems.

5) A fifth type of affiliation will be for use of facilities not possessed by a community hospital. Expensive items like deep x-ray equipment, automated

clinical laboratories, chronic renal dialysis, homo-transplantation units, etc. can be made available to patients and hospitals through integrated programs.

Lastly, affiliation can be arranged for specific research purposes or for the collation of clinical data through use of synchronized computer systems. The range of possibilities here is very great. As the university's programs in community medicine, social welfare and medical social sciences grows, many projects will evolve requiring the collection of data in community facilities. Possible centralization of clinical data in the university computer on a regional basis could involve every hospital.

Criteria for each of these types of affiliation will be developed. It is clear that every hospital will be able to qualify for at least one form of affiliation. Community hospitals will select that form of affiliation which fits most closely their own goals and resources.

"HOPTEL" FACILITIES

Medical care of today and the future will include greater concern for the long-term and chronic illness. The needs of such patients in these categories are different from those patients who enter the University Hospital for acute care. Students in all the health professions should have clinical experiences which will prepare them to care expertly for such patients.

Another special need is exemplified by the patient who is ambulant, but who needs intensive diagnostic work-up or treatments which do not require the use of a hospital bed. Much medical care will be delivered in this fashion in the future and experiences must be provided in facilities which can meet the needs of this type of patient.

At Stony Brook we are planning to group the facilities for long-term and ambulant care with motel facilities for the families of patients in one group. These facilities will enable the Center to cover the full range of patient needs and to provide all its students to participate in meeting those needs in units designed to explore the optimal patterns.

The University Hospital presents one of the major academic challenges before us. We shall have to provide a program of patient care of the highest quality which will in reality be the practical expression of the philosophy of care we hope to teach our students. Individualized clinical education of a high order is really the distinguishing feature of American medical education and we must be able to provide new ideas in bedside pedagogy. Small group and one-to-one teaching will continue to be the heart of clinical education. Their value can be greatly enhanced by the introduction in bedside teaching of such aids as closed circuit TV, video tapes, computer-assisted education as well as computer diagnosis and management of many patient care activities. We hope to educate our students in a hospital which will exemplify the optimal integration of automated techniques and personalized patient care. It is essential that students learn to use mechanized techniques to the fullest and therein also define more clearly their own contributions as part of the computer-human brain dialogue.

G.) BIOMEDICAL LIBRARY

A library comprising approximately 250,000 volumes is planned to serve the teaching and research needs of the component colleges in the Health Sciences Center, as well as the Department of Biological Sciences.

There are clear advantages in uniting the needs of the biological and health sciences in one library. The overlap in serials, monographs and books in the life sciences is substantial. The proximity of the new biological sciences building to the Health Sciences complex makes duplication of facilities unnecessary. Further, the use of a common library can serve as a potent means of improving communication between biologists and health professionals at all levels.

This is a time of very profound transformation of libraries from book repositories to centers of information, storage and retrieval. The design of a library which can meet the needs and technical advances now changing so rapidly is highly complicated. Certain things seem assured — technical services of acquisitions, cataloguing and circulation are already being effectively automated. The library will store and distribute increasing amounts of non-book materials, films, tapes, microcards, microfilm and teaching programs. The use of the library for computer-assisted education requires the incorporation of automated carrels. Archival functions will be lessened as computer-assisted and telephonic hook-ups permit regional pooling of library resources and materials. Transmission of xerox copies should make duplication of long runs of obscure or foreign serials unnecessary.

The greatest single question is whether or not, and how soon, automated search and retrieval of literature can be accomplished. This matter is a long way from practical resolution.

At present, it would be imprudent to design a library for automated handling of information. The software is not available. The hardware is not developed. Both are a decade in the future.

Present indications are that the rational approach to library planning demands a flexible plan which will permit installation of automated methods as they become practical. In the interim, the book must still be relied upon as the major library resource. Automation of library technical service is already here and the Stony Brook Biomedical Library is being accommodated to these modalities.

The library will also function as a regional resource for the entire Nassau-Suffolk community. It should be able to serve physicians, other health professionals and hospital libraries with materials, consultation and eventually computer hook-up.

The challenges before the Biomedical librarian are as profound and significant as any in the Health Sciences Center. To meet the very great and burgeoning Health Sciences complex will require a deep commitment to innovation and to change as a long time planning and operating ingredient.

H.) MEDICAL COMMUNICATIONS CENTER AND COMPUTER CENTER

Two programs in the Health Sciences Center are integral parts of the information, storage, retrieval and use system which will serve all students and faculties. They are the Medical Communications Center and the Computer Center. These will be built in close approximation to the Biomedical Library. Indeed, the materials produced in the Medical Communications Center will be stored in the library. One may anticipate that in the future the Medical Communications Center will be part of the library.

The Medical Communications Center will handle all film making, audio-tape production and graphic materials used in teaching programs. It will also develop software for computer-assisted education. Its staff will work with each of the faculties to prepare suitable teaching materials. A major commitment will be to innovation in this field with particular emphasis on exploration of ways in which technique aids can increase the number of students and enable us to use our faculty more effectively. Much planning has already gone into preparations for computer-assisted education and consultants are being used freely. This planning is being done with the Instructional Resources Center in the University.

A major Computer facility is being planned to handle the daily business affairs of the University Hospital including such things as arranging clinic appointments, medication orders, storage of laboratory and clinical data and a host of new applications to facilitate many aspects of patient care.

In addition, the usual research needs for computers will be provided. Computer hook-up with community hospitals and other community health agencies is contemplated. Also, the use of the computer as an aid to patient management and continuing education in the community hospital is a distinct probability. Hook-up with the Medical Center Computer Center will make such uses possible. Some of the most useful and exciting new prospects for modification of patient care education reside in the optimal use of our Computer Center and this will be a central concern for the Center and its staff.

I.) UNIVERSITY HEALTH SERVICES

The University Health Service at Stony Brook will provide care for all students on the general campus as well as those in the Colleges in the Health Sciences Center. It will be organized within the Health Sciences Center. Physical planning includes the provision of space for outpatient services and an infirmary in the building complex of the Center. In addition, students needing hospitalization for more complicated disorders will be admitted to the University Hospital.

There are many advantages to the inclusion of University Health Services in the Health Sciences Center. A major benefit is the higher quality of medical staff which canbe recruited . It is planned that each of the physicians in the University Health Services will be a faculty member in the appropriate department in the Health Sciences Center. All appointments will be approved by the academic department head and recommended for appointment by the Director of the Health Service through the Vice-President for the Health Sciences. Members of the Health Service staff will be given opportunities for clinical teaching and research.

The Director of the Health Services will be responsible to the Vice-President for the Health Sciences for all the professional aspects of his work. He will remain responsible to the Dean of Students for matters relating to his patients as students of the university.

Organized in the above fashion, the University Health Services can afford a high quality of medical care and a comprehensive program of preventive as well as emergency health care.

In addition, there are many research and teaching contributions a well-organized University Health Service can make to a Health Sciences Center. Thus, the Health Service becomes a center for teaching and research in the medical problems of the adolescent and young adult. These are certain to be of the greatest social significance in the world of the future in which the number of our citizens under twenty five may well be a majority.

Moreover, the University Health Service provides experience for house staff members in the ordinary and less-complicated ills of mankind which are nonetheless important because of their frequency. Research in the epidemiology and ecology of the common respiratory infections, of sports injuries and of the acute and more reversible emotional problems has been neglected in favor of the more dramatic and overwhelming but less frequent illnesses.

Depending upon university policy, the University Health Service could also undertake the care of faculty members and staff members and their families. A prepaid comprehensive medical and dental program on a voluntary basis or as a fringe benefit can be envisioned. Such plans are in operation already in a few Medical Centers and should be given serious consideration.

The University Health Service is also a potent instrument in the health and self-education of students — an important part of the educational process. Each visit can be made an opportunity to learn more about the student, his needs and his problems since medical symptoms are frequently unconsciously employed by students to provide an acceptable way of talking about their problems.

A strong program of preventive psychiatry, psychologic counseling and community mental health is essential to any University Health Service hoping to meet the major needs of its students. An extensive program of this type is planned for Stony Brook and this is consistent with its aim of comprehensive preventive and curative medical care.

IV. ADDITIONAL ACADEMIC PROGRAMS

In the establishment of a new Health Sciences Center, no matter how comprehensive, there are certain programs which have a high probability of being developed early but which for practical reasons may not be developed immediately. These programs will be generated as faculty members with the necessary competence appear. The following examples are enumerated briefly. They are programs we consider likely to be developed well before the next decade is completed.

1) Biomedical Engineering
2) Environmental Health and Medicine
3) Occupational Medicine
4) International Health
5) Hospital and Clinical Patient Care Administration
6) Applied Human Genetics
7) Center for Humanities in Medicine
8) Law-Medicine Institute

These programs will probably be organized as interdisciplinary institutes with special teaching and research programs open to students in all the Colleges of the Health Sciences Center. They will be based in the human laboratory of the University Hospital and its affiliated institutions, as well as in the community under study by the Health Sciences Center. For this reason, they will be organized under the aegis of the Health Sciences.

The background for some of these developments will be discussed briefly in Part B of this academic plan, though it is likely many will come into existence before 1975. Indeed, the needs are already manifest. They are not now included in physical planning simply to keep some limit on the number of programs which can be realistically initiated at the outset.

V. RESPONSE TO QUESTIONS PROPOSED IN THE GUIDELINES FOR PREPARATION OF ACADEMIC PLAN

The preceding portion of the Academic Plan for the Health Sciences Center at Stony Brook has been developed with an emphasis on the philosophical goals and commitments set for the Health Sciences Center as a whole and for each of its component colleges. Because of the very early stages of our development, detailed information cannot be provided on many points which would be of interest in an Academic Plan for a full staffed and operating Health Sciences Center.

The following is an attempt to answer, as specifically as possible, a few of the questions raised on pages 12 to 23 in the memorandum from the Chancellor's office, dated August 31st. Most of the questions are not appropriate because the Health Sciences Center is not an operating unit, but an attempt is made to answer whenever we feel certain of the direction we might take or whenever information is available.

SECTION I - CURRICULA

The questions outlined here have been covered in the preceding discussions of the Health Sciences Center and its component colleges. Attention was given to the programs to be initiated, their objectives and the relationships between them.

It is difficult to respond to Question I-A2 on page 13, with regard to identification of these programs which are unique and different. There are many aspects of the programs which would be classified as unique even in today's rapidly changing world of medical education. To single out any particular future would be difficult at this time and somewhat presumptuous since we are so long from actually operating any of the programs.

Question I-C, page 13 inquires about the relationship between various levels of the program. There are distinct and indispensible relationships between the bachelor's and

master's degree programs planned in the College of Nursing and the College of Allied Health Professions. The same is true of the master's and doctoral programs in the School of Social Welfare. In each of these situations, there will be close interdigitation of curricula offerings so that the educational program really represents a continuum which carries the student from high school through the bachelor's to the master's or doctoral degree.

In the case of the M.D. and D.D.S. degrees, we plan a close interlocking of the premedical and predental curricula and the professional curricula. Our particular interest in multiple paths of entry into the medical programs is particularly important here. Some students will be admitted perhaps directly from high school. Others with a strong science background can be admitted after 2 years. Provision will be made for the admission of students with non-science background after a make-up year devoted to learning the languages of the physical sciences and of biology.

The levels of program which we anticipate from the years 1967 to 1975 have been outlined in the previous section — the doctoral degrees in Medicine, Dentistry, Social Welfare, bachelor's and master's degrees in Nursing and Allied Health Professions and master's and doctoral degrees in Social Welfare.

The remaining questions with regard to the curriculum are generally inapplicable since the Center will not begin operation for several years.

SECTION II - FACULTY

Only a few questions can be answered here.

The strengths of our faculty recruitment efforts at present appear to be as follows:

1) The opportunity to participate in the development of a new Health Sciences Center which is developing concommitantly with a new university center.

2) The location in the metropolitan area which offers prospective faculty the many cultural advantages and proximity to colleagues in related disciplines.

3) Attractive living accommodations.

Weaknesses in the present faculty recruitment endeavors are the following:

1) Inability to compete with clinical salary levels in medical schools in the metropolitan area.

2) Long delays in negotiation required for clearance of faculty positions and salary by the Bureau of the Budget in Albany.

3) Non-competitive fringe benefits — particularly absence of education allowances for children of faculty members, disability and group life insurance benefits.

The development of new policies and practices will depend upon the acceptance by the State University and the Bureau of the Budget of the unique budgeting and recruiting problems in a developing Health Sciences Center. Ordinarily, the level of clinical faculty salaries can be supported by a combination of budgeted State University funds and income from practice. In a developing Health Sciences Center without clinical facilities, there will be no opportunities for income through practice. The University Hospital at Stony Brook will not be available until 1973 or 1974. We certainly do not want faculty members to supplement their salaries by practice of medicine or dentistry in the community. Hence, provisions must be made to cover the complete salary of academic faculty members at a level competitive with that in surrounding institutions until clinical facilities are built on campus.

The major problems of recruitment of new faculty can, therefore, be summarized as :

1) An inadequate salary structure in the clinical departments, excessive delays in clearance of positions, lack of flexibility in salary negotiations, and inadequate fringe benefits.

2) Faculty involvement: There is deep involvement in planning by the small number of faculty members now present in the Health Sciences Center. Faculty members from biological sciences, sociology and psychology have been intimately concerned with the various aspects of planning for the programs of the Health Sciences Center. In addition, an Advisory Committee, made up of representatives of all of the major university disciplines, has been working with the Health Sciences Center staff on the major policy decisions relative to the Health Sciences Center. The remaining questions in the section on faculty are not applicable at this time.

SECTION III - STUDENTS

There are no students in the Health Sciences Center at present and admission criteria have not been developed for each of the colleges. Admission criteria will be developed by the Deans and their faculties as soon as they are recruited.

Certain general principles will apply, however. A more flexible and unusual admission policy is contemplated involving entry of students with a much wider educational background than is usually the case. Admission to advanced standing based upon equivalence and performance tests is envisioned.

Characteristics of the student body cannot be described at the present time. The other matters relating to students do not apply.

SECTION IV - PUBLIC SERVICE

The philosophy underlying plans for continuing education in the Health Sciences Center has been described in the preceding sections. This is an area of major commitment for all units of the Health Sciences Center.

As a matter of fact, activity in continuing education has already been initiated by the existing staff. A program is conducted once a month at community hospitals by the Director of the Health Sciences Center, who is an internist. This has been confined for the present to general practitioners and consists of a full day of bedside teaching sessions. Correlation of clinical observations and basic science material is emphasized. In addition, the Director of the Health Sciences Center and his associate have presented scientific programs in many of the community hospitals.

As the staff of the Center is expanded, one of the first areas to be activated will be that of continuing education. Each new faculty member will be expected to develop programs in areas of his special interest. We hope this can be accomplished in all of the colleges of the Health Sciences Center.

SECTION V - COMMUNITY SERVICE

Community service is one of the most important dimensions in the educational and research philosophy in the Health Sciences Center at Stony Brook. Particular emphasis will be given to community medicine. The specific ways in which this can be accomplished have been described in the sections relating to the University Hospital as well as in the sections devoted to continuing education, Regional Medical Programs, etc.

SECTION VI - RESEARCH

At present, there are two faculty members on the planning staff, each of whom is involved in laboratory research. The Director of the Health Sciences Center is conducting research on the chemistry and biology of calcified tissues, calcium homeostasis and metabolic bone disease. The other member of the Health Sciences staff is a pediatrician and geneticist whose major interest is the study of human leukemia and the oncogenic viruses.

Research into all aspects of the health sciences will constitute a major activity of the Health Sciences Center. No attempt can be made at present to anticipate what research areas will be explored by the members of the faculty

not yet recruited. Much of the research activities will be health-related, although some will also be directed to the issues not directly related to the Health Sciences.

A special area of research activity consistent with the overall aims of the Center is in patient care. This type of research which is concerned with the critical assessment of the delivery of patient care and its effectiveness is not well developed at present. It requires the same energetic application which is now common to the laboratory sciences. This kind of research requires rather specific institutional support and encouragement. In addition, laboratories of patient care — a model in the University Hospital and in the community — will be required to provide the setting for manipulation of patterns of patient care and measurement of the results in terms of utility to the patient and society.

SECTION VII - INTERNATIONAL HEALTH

In recognition of the effective shrinking of the world by modern transportation and communication, the Center will provide clerkships and research opportunities in the field of International Health in association with its programs in Community Medicine. Arrangements will be made for student and faculty experience in health departments and universities in developing countries. In addition, exchange of faculties and students with foreign medical schools are appropriate means of fulfilling responsibilities and research needs in the important fields of global medicine, epidemiology and ecology.

SECTION VIII - ACADEMIC SERVICES

The general orientation of the Library, instructional resources and computer policy services have been discussed briefly under the section on Biomedical Library.

GENERAL REFERENCES

1) Education for the Health Professions, A Report to the Governor and the Board of Regents from the New York State Committee on Medical Education, Malcolm Muir, Chairman, June 1963.

2) U.S. Department of Health, Education and Welfare, Public Health Service Bureau of Health Manpower, Health Manpower Perspective 1967.

3) Allied Health Professions Education Subcommittee of the National Advisory Health Council, Education for the Allied Health Professions and Services, Public Health Service, Pub. No. 1600, 1967.

PART B. SPECULATIONS ON ACADEMIC PROGRAM BEYOND 1975

PART B. SPECULATIONS ON ACADEMIC PROGRAM BEYOND 1975

Despite its inherent dangers, prophecy is an unavoidable and even a necessary ingredient of a viable academic plan. Its necessity is immediately apparent if we appreciate that the first graduates in the Health Sciences at Stony Brook will reach the apex of their careers as the 21st Century begins. Assessment of the future then, is essential if the education we provide is to have utility for the world in which our students will live and practice.

The health professions are phenomena of society and instruments of social purpose. The transformations they undergo are inextricably bound in the matrix of technologic, scientific, political and economic forces which are constantly changing the configuration of contemporary society. A brief review of the emergent physiognomy of society in the next quarter century should reveal some of the newer health needs which will demand confrontation.

We can surely anticipate a densely populated world in which humans are concentrated into complex highly organized social organisms. Agglomerations of humans will coalesce into super-cities like bacterial colonies on an aging agar plate. New problems of survival will be created by affluence, technology and the proximity of human to human, and culture to culture. Our magalopolitan cities will extrude vast quantities of toxic effluvia of all sorts despoiling land, sea and air. Needs for food, water and power will be insatiable. A shortened work week, the extended life of individuals and greater leisure will produce a more educated populace increasing the demands for lifelong education for larger numbers of people. Each individual will be united in a nexus of information - transmission and communication devices.

What will medicine be like in a densely populated world with humans concentrated in super-cities, living in a tightly organized and deeply dependent world society in which basic needs are supplied by automated processes and in which leisure and group living may be the major adjustment problems?

L) THE ORGANIZATION OF MEDICINE

Medicine will itself follow the societal trend toward complex organization and institutionalization. A system of medical care will emerge which reaches into every community to make the full spectrum of technical knowledge available to every citizen. We can anticipate a fully developed regionalized system of medical institutions of three kinds.

A) Neighborhood or district centers which will be the point of first contact for the majority of patients who have a health problem. These will be the centers for preventive medicine and they will provide the immediate care for the majority of simple ills of mankind. By means of computers, TV and microwave hook-ups they will be in instantaneous contact with the two other types of regional institutions (see below) so that consultation and referral can be made for the difficult problems requiring specialized techniques or equipment. These first-contact centers will be manned largely by non-physicians each specialized in surgical care, medical treatment, obstetrical or pediatric problems. The non-physicians will function in a pre-programmed pattern under supervision of generalist physicians who will do little of what the present physician does. Rather, these generalists will be needed to coordinate care, make value decisions not encompassed by the computerized diagnostic systems in routine use and deal with emotional problems.

B) A number of these first-contact institutions will be satellites of regional community health centers. Here, patients will be treated for the difficult problems and especially for disorders requiring surgery, specialized equipment such as X-ray treatments, chemotherapy for malignancies, renal dialysis, etc. These centers will provide expanded specialist services and be staffed by full-time physicians largely specialists. Associated

with them will be a large number of other health professionals who constitute a health care team — social workers, pharmacists who function in new ways outlined earlier (Part A), physical therapists, etc.

C) These regional institutions will in turn be associated with University Centers to which they can refer the extraordinary case, the new clinical entity and the patients requiring the most expensive and complicated equipment and technical specialists. The University Centers would be teaching and research centers, emphasizing clinical investigation and experimental procedures. By means of radio, TV and computer networks, the University Centers and their faculties will be available for consultation and teaching for the community and neighborhood health centers.

II) CHANGES IN THE NATURE OF ILLNESS AND HEALTH

Current advances in scientific medicine, technology and social organization have interacted to induce profound transformations in the nature and ecology of human illness. The conquest of infectious disorders will continue and extend to the viruses and fungi. New problems will result from the disturbances of bacterial or viral ecology induced by mass immunizations and antibiotics usage.

The bulk of acute medical disorders will arise from trauma, burns, and exposure to man-made environmental hazards like radiation, ingestion of toxic chemicals, as well as air and water pollution. Acute exacerbations of chronic illnesses will remain but they will be anticipated more readily than is now the case.

The major effort in medical care will be directed to the chronic diseases and to emotional disorders. Chronic disease will not be eliminated for a long time though better understanding of its pathophysiology should lead to more effective primary preventive measures.

A knowledge of chronic care, rehabilitation and the adjustment process required for those with long-term disease will be essential for physicians and their helpers.

Emotional problems will, in the future, continue to be major contributors to disability and loss of effective living. However, they will take a new character as a consequence of social changes already in progress. Alienation from, or rejection by, the group may be the major problem in human adjustment. Prominent sources of stress will result from overcrowding and the unrelieved proximity to others and seeking identification as a person in a group-oriented society. The family as a source of stability and moral values seems certain to continue to lose its status. Ontological anxiety will underlie the emotional and psychological development of children and adults.

III) CHANGES IN THE INTELLECTUAL DIMENSIONS OF MEDICINE

A) Medicine as applied biology. Society will turn increasingly to medicine as the instrument for implementing many of the possibilities inherent in modern biology — manipulation of genetic material to determine the nature of future generations, the control and manipulation of human behavior toward preferred social ends, the preservation and transplantation of organs, the cultivation of the human ovum outside of the body. These are a few examples. Further possibilities for transforming man's character and his environment will impel physicians to extend their concerns from the individual and the present to social future concerns.

B) Newer dimensions of medical ethics. In the fulfillment of its role as applied biology, medicine must face responsibly the philosophical and ethical issues raised by medical progress. We are already deeply immersed in ethical questions raised by homotransplantation of organs.

Even more significant issues lie ahead in such matters as control of the genetic constitution of future generations, modification of the behavior of human beings and the selection of socially useful, versus individually beneficial, goals. The traditional religious and philosophical systems do not deal specifically with such new issues. New definitions of the individual and social responsibilities of the physician are needed. But, increasingly, medicine will need to enter into a fruitful dialogue with society on the selection of goals, the definition of values and the determination of the ends to which its greatly increased powers can and should be directed. If it does not do so, the same discontinuity of social and scientific ends will occur in medicine as has occurred in physics with terrible consequences.

C) Medicine as the "science of man". All the changes outlined above — in the organization of medicine, the role of the physician, the nature of illness, the application of biology bear upon a central point of academic and intellectual importance. Medicine — or some discipline by another name — must become the focal point for information from all sources and apply that information in the resolution of the ills of individuals and of society. To be truly "comprehensive", it will need to bridge the gap between the physical and biological sciences, on the one hand, and the social sciences and the humanities on the other. Medicine can do this as an applied science of man, but in so doing, it can also contribute further to the understanding of man's nature. Increasing interchanges and cooperative studies with the social sciences and the humanities are essential. They will, indeed, be dictated by social and scientific trends and public interest. Medicine as a university discipline will thus cultivate its interfaces with the social sciences and the humanities as intensively and as productively as it has with the physical and the biological sciences. In so

doing, it may be transformed into a new, more comprehensive "anthropology" with applications from the molecular to the social level. All these experiential dimensions of man will concern it in fulfilling its future social responsibilities.

IV) CHANGES IN THE ROLE OF THE PHYSICIAN

Within this altered social, technical and intellectual matrix of the last years of the twentieth century, the role of the physician will manifestly be transformed. If we could tell precisely what that transformation will look like, the educational job of the next decades would be far more rational than actually will be the case. Only a semi-intuitive guess can be made.

It is apparent that humans living in the highly organized social order of the future will find it natural to turn to institutions for medical care and less to individual physicians. Thus, most physicians will be working full-time in some type of institution or group regardless of private or governmental sponsorship.

Equally clear is the fact that many, if not all, of the physician's present manipulative tasks will be assumed by non-physician technical helpers or machines. It may be some time off yet, but there is every likelihood that the history and physical examination as well as the laboratory investigation of the patient will be automated. Diagnostic probabilities and even value judgments on the selection of the most prudent action in a given case will be handled by computer for such things as routine examinations and for the more common ills. Minor surgery, pre and post partum care, normal deliveries, well-baby care are all within the capabilities of well-trained clinical non-physicians.

Physicians will be of <u>two types</u>, the <u>technical subspecialists</u> in highly limited medical and surgical fields and the <u>general physician</u>.

The first will have a very deep knowledge of very limited fields and will function largely in the community health centers and the university centers. Surgical and medical specialists will be in this category and will continue to be differentiated on the basis of organ system or region in which they operate. But, here too, there will be an increasing tendency to involve non-physician technical helpers of various types.

The second group of physicians is the most difficult to define but the most sorely needed and the most difficult to train. This "physician" will do least of what is now called medicine, yet, it is he who will be truly the "physician" of the future. He will be responsible for supervision of the process of medical care, able to comprehend its final goals for the individual and for society. He must know what the technical experts can contribute, be aware of how to evaluate the result prepared by the computer, prepare new programs, pose the conditions of a solution and at each level of care detect the unexpected and unprogrammed event. To him, too, will fall the very important role of humanizing a system which by its very nature must be technically oriented and dehumanizing to a certain extent, if the maximum of scientific medicine is to be made available efficiently and for all citizens.

This new generalist will bear little resemblance to today's general practitioner. Indeed, he is most likely to emerge from a fusion of the general practitioner, internist and pediatrician of today who will not be able to function in tomorrow's highly specialized milieu. He may be seen in a number of different lights as a manager of the health care team, a social engineer, a medical philosopher or applied social scientist. The precise lineaments of his functions are most difficult to ascertain. Certain it is that some variation of these functions will be necessary and demanded by the concurrent tendencies of specialization that will characterize future medicine.

V) EDUCATIONAL AND ACADEMIC IMPLICATIONS

Even if the changes we have forecast come only to partial realization, they will alter the effectiveness of the educational innovations outlined in Part A of this Academic Plan. Thus, Part A must be regarded as only an interim solution to be developed intensively while we prepare consciously for more drastic changes. What are some of these more drastic changes?

First, it is obvious that the polarization of physicians into technical specialists and the new generalists will demand two quite different kinds of education. Thus, the specialist paradoxically can be educated more quickly than is now the case. He will concentrate early on a limited subject matter or technique learned in depth. He will work closely with computers, electronic equipment or perform highly specialized diagnostic or surgical procedures. It is highly likely that in due course he will not even be a physician in today's sense at all.

The general physician will take longer to educate. Clearly, his usefulness is not based upon knowing sketchily and inexpertly what the specialists know. Rather, his education must be on the broader aspects of the process of medical care, the assessment of needs of society and individuals, the elaboration of new programs for computers, the organization of personnel and institutions, the constant adaptation to change, the diagnosis of new situations and new needs, counselling patients on the process of medical care, handling emotional disturbances, acting as advisor to society, etc. Thus, within this context, a variety of new functions will be born depending upon the way medicine will be organized, the changing nature of disease and the needs of society.

Clearly, too, the right organization of medical practice will demand greater use of several levels of technical aid. What is now sacrosanct medical territory — the history, physical, diagnosis and drug treatment and even surgery will be parcelled out, albeit under supervision. Education of the physician to the fact that his role is in no sense fixed, but always changing will be a major objective of medical education.

To deal with the philosophical and moral problems created by medical progress, physicians must be better prepared in the formal knowledge of the fields of sociology, ethics, philosophy, religion — in short, a better general education but one built on specific medical problems is essential.

The real development of computer-assisted education in the next decade will materially alter such things as faculty - student ratios, the design of medical schools and of medical libraries, hospitals and clinics. The physician's practice will often be based in a physician-computer team combination. Students must be prepared for these transformations in information processing.

It is too soon to assess the specific educational implications of these trends. We can only hope to prepare for them. Continuing re-examination and refurbishment of the curriculum are central features of our academic planning.

The full realization of even the trends we outlined in the earlier section on medical education will take at least a decade to accomplish. While this is occurring, we must make a studied effort to evaluate the effectiveness of the curricular changes we introduce in order to base further changes on some quantifiable criteria, rather than upon supposition and free assertion, as is now the case.

The future is an exciting one in all the health sciences. The changes we prefigure for medicine are equally significant for the other health professions.

One of the factors which should modify future trends constructively is the cooperative development of educational programs which the Health Sciences Center provides.

To speculate further than we have would be to extrapolate so far beyond the limits of present probability as to become meaningless. The challenges posed by an exponentially changing world can be met only by flexibility, readiness for change and a perceptiveness to the currents of evolution of social and scientific forces which shape medicine as forcefully as it in turn affects them.

CAMPUS DEVELOPMENT PLAN

CAMPUS DEVELOPMENT PLAN

I. GROWTH FACTORS

A.) EXTERNAL

1. At present, the commuting area population is adequate in size and characteristics as a source of personnel to serve as the basic cadre of non-professional employees. However, in our very early stage of development, these needs are quite limited. Despite continued population growth, meeting the drastically increased needs of the future may be extremely difficult. In planning, recognition must be given to the availability of low-priced housing, public transportation facilities and adequate salary levels. Also, it should be kept in mind that a reasonable commuting time for certain Health Center employees might have to be somewhat less than 30 - 45 minutes.

2. The public utilities and services serving the campus and its commuting area are also adequate now, but this may not be true by 1980. However, active planning for improvement is being carried on by the Nassau-Suffolk Regional Planning Board and other appropriate governmental units.

3. The housing situation in the commuting area is adequate for current faculty needs. Though there is good potential for continued development, future needs for medium and low-cost housing within a reasonable distance of the campus will be very great.

4. The campus is presently restricted to 175 acres for the development of the basic academic core (classrooms, laboratories, hospital, library, faculty offices, animal facilities, etc.). It will be necessary to acquire additional acreage before 1980 to accommodate plans for the development of interdisciplinary research institutes, special hospitals, clinical research center, nursing home, long-term care facilities and experimental communities to evaluate delivery of health care.

5. The commuting area is served by a number of major intrastate highways, with the campus about 7 miles from the nearest such artery. At the present time, a major highway is being extended and will serve the area. Significant engineering of new approaches to the Health Sciences campus will be required to handle the large volume of traffic generated by the 12,000 students, patients, employees and faculty who will be working daily in the Center.

6. Public transportation facilities now serving the campus are grossly inadequate. Announced plans for future development are quite vague and do not seem adequate to meet the needs of the patients and staff contemplated.

7. In the commuting area, there are research organizations, social agencies, and hospitals which will affect campus personnel (e.g. by use of faculty as consultants, employment of graduates, and student field work). There are definite plans for a Veterans' Administration Hospital which will be planned in cooperation with the University Hospital. The further development of other agencies and institutions with relationships to the campus are envisioned — industrial and applied research parks, special hospitals, etc.

8. There are many other institutions of higher education located in the New York metropolitan region (New York City, Westchester, Rockland, Nassau and Suffolk). Suffolk Community College, Adelphi Suffolk College, Nassau Community College and the new State College in Westbury are in the immediate commuting area. However, they will have some direct influence on our enrollment growth since we will plan cooperative educational relationships with them. Thus, we see the opportunity to integrate some of the programs in these institutions with our own. Our programs will be at the baccalaureate, master's or doctoral levels. The community colleges are engaged in associate degree programs and a few baccalaureate programs in the health professions. We plan to allow for the transfer of students from associate and baccalaureate

programs to our Health Sciences Center. There is growing need to permit students to advance their professional capabilities. Hence, we must be prepared to take upper division transfer students into Nursing, Allied Health Professions and Social Welfare. This factor will add considerable growth pressures to our programs.

There are no plans for the establishment of other higher education institutions in the area, other than the possible development of new medical schools in Queens and Westchester.

B.) INTERNAL

Between 1967 and 1975, the organization of the academic program affecting the first phase of planned enrollment growth(to 1,493 students) will be developed. Thereafter, a second phase of growth will result in a total enrollment of 3,040. No changes in the traditional grouping of students (i.e. residential colleges) would take place or affect growth potential.

	(thru 1975) 1st Phase	2nd Phase	Total
College of Medicine	350	250	600
College of Dentistry	148	252	400
College of Nursing*	182	218	400
School of Social Welfare	108	92	200
College of Allied Health Professions*	285	115	400
Graduate (Ph.D.)	170	180	350
Postdoctoral, all Colleges	250	440	690

* Includes students in first 2 years of 4 year B.S. program.

C. SOURCE OF STUDENTS

Our only undergraduates will be working for the B.S. degree at SUSB in the Health Sciences Center's Colleges of Nursing and Allied Health Professions. Graduate students will come to these colleges, as well as the Colleges of Medicine and Dentistry and the School of Social Welfare, and from private and public institutions (including the State University of New York and the City University of New York), in every region of New York State as well as from the entire nation.

II. DEVELOPMENT OF CO-CURRICULAR PROGRAMS

It is anticipated that our major organized Public Service Activities will be carried on through the University Hospital and Clinics. We are beginning to plan for: The development of Health Sciences Center Computer Services and Data Processing facilities; new Instructional Resources, Library Development emphasizing strong collections and patterns of operation and organization; the organization and capabilities of the Continuing Education program; and International Programs involving overseas operations and foreign student services. We anticipate the development of international areas of specialization involving foreign exchange of personnel within our programs of Community Medicine and Continuing Education. The efficient organization and proper functioning of Student Personnel Services will be fully developed with special emphasis on University student health services. (See Academic Plan)

STATE UNIVERSITY OF NEW YORK
ENROLLMENT GROWTH PLAN: 1968 MASTER PLAN

Campus Health Sciences Center - SUSB Number of Students

Fall 1968

	Fresh.	Soph.	Junior	Senior	Other	Total Undergr.	Beginn. Grad.	Advan. Grad.	Total Grad.	TOTAL
DEGREE CREDIT STUDENTS										
Full Time										
New, 1st Time							15		15	15
Continuing and Returning										
Tot., Full Time							15		15	15
Part Time										
New, 1st Time										
Continuing and Returning										
Tot., Part Time										
TOTAL, DEGREE CREDIT							15		15	15
NOT DEGREE CREDIT (Part-time)										
TOTAL, Degree and Not-Degree Credit:									15	15

Form DP 1

STATE UNIVERSITY OF NEW YORK
ENROLLMENT GROWTH PLAN: 1968 MASTER PLAN

Campus Health Sciences Center - SUSB Number of Students

Fall 1969

	Fresh.	Soph.	Junior	Senior	Other	Total Undergr.	Beginn. Grad.	Advan. Grad.	Total Grad.	TOTAL
DEGREE CREDIT STUDENTS										
Full Time										
New, 1st Time							20		20	20
Continuing and Returning								15	15	15
Tot., Full Time							20	15	35	35
Part Time										
New, 1st Time										
Continuing and Returning										
Tot., Part Time										
TOTAL, DEGREE CREDIT							20	15	35	35
NOT DEGREE CREDIT (Part-time)										
TOTAL, Degree and Not-Degree Credit:									35	35

Form DP

STATE UNIVERSITY OF NEW YORK
ENROLLMENT GROWTH PLAN: 1968 MASTER PLAN

Campus Health Sciences Center - SUSB Number of Students

Fall 1970

	Fresh.	Soph.	Junior	Senior	Other	Total Undergr.	Beginn. Grad.	Advan. Grad.	Total Grad.	TOTAL
DEGREE CREDIT STUDENTS										
Full Time										
New, 1st Time							50		50	50
Continuing and Returning								35	35	35
Tot., Full Time							50	35	85	85
Part Time										
New, 1st Time										
Continuing and Returning										
Tot., Part Time										
TOTAL, DEGREE CREDIT							50	35	85	85
NOT DEGREE CREDIT (Part-time)										
TOTAL, Degree and Not-Degree Credit									85	85

Form DP I

STATE UNIVERSITY OF NEW YORK
ENROLLMENT GROWTH PLAN: 1968 MASTER PLAN

Campus Health Sciences Center - SUSB Number of Students

Fall 1971

	Fresh.	Soph.	Junior	Senior	Other	Total Undergr.	Beginn. Grad.	Advan. Grad.	Total Grad.	TOTAL
DEGREE CREDIT STUDENTS										
Full Time										
New, 1st Time	40					40	112		112	152
Continuing and Returning								85	85	85
Tot., Full Time	40					40	112	85	197	237
Part Time										
New, 1st Time										
Continuing and Returning										
Total., Part Time										
TOTAL, DEGREE CREDIT	40					40	112	85	197	237
NOT DEGREE CREDIT (Part-time)										
TOTAL, Degree and Not-Degree Credit						40			197	237

Form DP I

STATE UNIVERSITY OF NEW YORK
ENROLLMENT GROWTH PLAN: 1968 MASTER PLAN

Campus Health Sciences Center - SUSB Number of Students

Fall 1975

	Fresh.	Soph.	Junior	Senior	Other	Total Undergr.	Beginn. Grad.	Advan. Grad.	Total Grad.	TOTAL
DEGREE CREDIT STUDENTS										
Full Time										
New, 1st Time	125					125	275		275	400
Continuing and Returning		125	125	75		325		518	518	843
Tot., Full Time	125	125	125	75		450	275	518	793	1243
Part Time										
New, 1st Time										
Continuing and Returning										
Total., Part Time										
TOTAL, DEGREE CREDIT	125	125	125	75		450	275	518	793	1243
NOT DEGREE CREDIT (Part-time)										
TOTAL, Degree and Not-Degree Credit						450			793	1243

Form DP I

STATE UNIVERSITY OF NEW YORK

Numbers of Students (Head Count) Enrolled in Health Science Center Programs: Fall 1968

Health Sciences Center - SUSB
(NAME OF CENTER)

	Full Time	Part Time	TOTAL
I. PROFESSIONAL PROGRAMS			
A. Undergraduate Students:			
By Curriculum			
Nursing			
Pharmacy			
_____			
_____			
_____			
_____			
_____			
_____			
Sub-total, Undergrads.-Prof.	( )	( )	( )
B. Graduate Students:			
Dentistry			
Medicine			
Nursing			
Pharmacy			
Health Related Professions: (List Specific Curricula)			
_____			
_____			
_____			
_____			
_____			
_____			
Sub-total, Grad.-Prof.	( )	( )	( )
C. Interns and Residents:			
D. Post-Doctoral Trainees/Fellows, Clinical Fields:			
E. TOTAL STUDENTS IN PROFESSIONAL PROGRAMS:			

Page 2: Numbers of Students Enrolled in Health Science Center Programs

(Academic Programs, Undergraduate Students, Biological Sciences - Continued)

	Full Time	Part Time	TOTAL
II. ACADEMIC PROGRAMS			
A. Undergraduate Students:			
By Curriculum			
Sub-total, Undergrad.-Acad.	( )	( )	( )
B. Graduate Students:			
By Curriculum			
Basic Health Sciences (PHD Program)	15		15
Sub-total, Grad.-Acad.	(15)	( )	(15)
C. Post-Doctoral Fellows/Trainees: (List Specific Fields)			
Sub-total, Post-Doct., Acad.	( )	( )	( )
D. TOTAL STUDENTS IN ACADEMIC PROGRAMS:	15		15
III. TOTAL STUDENTS, HEALTH SCIENCE CENTER:	15		15

STATE UNIVERSITY OF NEW YORK

Numbers of Students (Head Count) Enrolled in Health Science Center Programs: Fall 1969

Health Sciences Center - SUSB
(NAME OF CENTER)

	Full Time	Part Time	TOTAL
I. PROFESSIONAL PROGRAMS			
A. Undergraduate Students:			
By Curriculum			
Nursing			
Pharmacy			
Sub-total, Undergrads.-Prof.	( )	( )	( )
B. Graduate Students:			
Dentistry			
Medicine			
Nursing			
Pharmacy			
Health Related Professions: (List Specific Curricula)			
Sub-total, Grad.-Prof.	( )	( )	( )
C. Interns and Residents:			
D. Post-Doctoral Trainees/Fellows, Clinical Fields:	3		3
E. TOTAL STUDENTS IN PROFESSIONAL PROGRAMS:	3		3

Page 2: Numbers of Students Enrolled in Health Science Center Programs

(Academic Programs, Undergraduate Students, Biological Sciences - Continued)

	Full Time	Part Time	TOTAL
II. ACADEMIC PROGRAMS			
A. Undergraduate Students:			
By Curriculum			
Sub-total, Undergrad.-Acad.	( )	( )	( )
B. Graduate Students:			
By Curriculum			
Basic Health Sciences (PHD Program)	35		35
Sub-total, Grad.-Acad.	(35)	( )	(35)
C. Post-Doctoral Fellows/Trainees: (List Specific Fields)			
Basic Health Sciences	2		2
Sub-total, Post-Doct., Acad.	(2)	( )	(2)
D. TOTAL STUDENTS IN ACADEMIC PROGRAMS:	37		37
III. TOTAL STUDENTS, HEALTH SCIENCE CENTER:	40		40

STATE UNIVERSITY OF NEW YORK

Numbers of Students (Head Count) Enrolled in Health Science Center Programs: Fall 1970

Health Sciences Center - SUSB
(NAME OF CENTER)

	Full Time	Part Time	TOTAL
I. PROFESSIONAL PROGRAMS			
A. Undergraduate Students:			
By Curriculum			
Nursing			
Pharmacy			
Sub-total, Undergrads.-Prof.	( )	( )	( )
B. Graduate Students:			
Dentistry			
Medicine			
Nursing			
Pharmacy			
Health Related Professions: (List Specific Curricula)			
Social Work (MSW Program)	25		25
Sub-total, Grad.-Prof.	(25)	( )	(25)
C. Interns and Residents:			
D. Post-Doctoral Trainees/Fellows, Clinical Fields:	10		10
E. TOTAL STUDENTS IN PROFESSIONAL PROGRAMS:	35		35

Page 2: Numbers of Students Enrolled in Health Science Center Programs

(Academic Programs, Undergraduate Students, Biological Sciences - Continued)

	Full Time	Part Time	TOTAL
II. ACADEMIC PROGRAMS			
A. Undergraduate Students:			
By Curriculum			
Sub-total, Undergrad.-Acad.	( )	( )	( )
B. Graduate Students:			
By Curriculum			
Basic Health Sciences (PHD Program	60		60
Sub-total, Grad.-Acad.	(60)	( )	(60)
C. Post-Doctoral Fellows/Trainees: (List Specific Fields)			
Basic Health Sciences	5		5
Sub-total, Post-Doct., Acad.	(5)	( )	(5)
D. TOTAL STUDENTS IN ACADEMIC PROGRAMS:	65		65
III. TOTAL STUDENTS, HEALTH SCIENCE CENTER:	100		100

STATE UNIVERSITY OF NEW YORK

Numbers of Students (Head Count) Enrolled in Health Science Center Programs: Fall 1971

alth Sciences Center - SUSB
(NAME OF CENTER)

	Full Time	Part Time	TOTAL
I. PROFESSIONAL PROGRAMS			
A. Undergraduate Students:			
By Curriculum			
Nursing	15		15
~~xxxxxxxx~~			
Health Related Professions			
Physical Therapy	6		6
Medical Technology	6		6
Speech Pathology & Therapy	6		6
Dental Hygiene	7		7
Sub-total, Undergrads.-Prof.	(40)	( )	(40)
B. Graduate Students:			
Dentistry			
Medicine	32		32
Nursing			
Pharmacy			
Health Related Professions: (List Specific Curricula)			
Social Work (MSW Program)	75		75
Sub-total, Grad.-Prof.	(107)	( )	(107)
C. Interns and Residents:			
D. Post-Doctoral Trainees/Fellows, Clinical Fields:	20		20
E. TOTAL STUDENTS IN PROFESSIONAL PROGRAMS:	167		167

Page 2: Numbers of Students Enrolled in Health Science Center Programs

(Academic Programs, Undergraduate Students, Biological Sciences - Continued)

	Full Time	Part Time	TOTAL
II. ACADEMIC PROGRAMS			
A. Undergraduate Students:			
By Curriculum			
Sub-total, Undergrad.-Acad.	( )	( )	( )
B. Graduate Students:			
By Curriculum			
Basic Health Sciences (PHD Program)	90		90
Sub-total, Grad.-Acad.	(90)	( )	(90)
C. Post-Doctoral Fellows/Trainees: (List Specific Fields)			
Basic Health Sciences	10		10
Sub-total, Post-Doct., Acad.	(10)	( )	(10)
D. TOTAL STUDENTS IN ACADEMIC PROGRAMS:	100		100
III. TOTAL STUDENTS, HEALTH SCIENCE CENTER:	267		267

STATE UNIVERSITY OF NEW YORK

Numbers of Students (Head Count) Enrolled in Health Science Center Programs: Fall 1975

Health Sciences Center - SUSB
(NAME OF CENTER)

	Full Time	Part Time	TOTAL
I. PROFESSIONAL PROGRAMS			
A. Undergraduate Students:			
By Curriculum			
Nursing	175		175
Pharmacy			
Health Related Professions			
Physical Therapy	70		70
Medical Technology	70		70
Speech Pathology & Therapy	65		65
Dental Hygiene	70		70
Sub-total, Undergrads.-Prof.	(450)	( )	(450)
B. Graduate Students:			
Dentistry	148		148
Medicine	350		350
Nursing	7		7
Pharmacy			
Health Related Professions: (List Specific Curricula)			
Physical Therapy	5		5
Dental Hygiene	5		5
Social Work (MSW)	100		100
Social Work (PHD)	8		8
Sub-total, Grad.-Prof.	(623)	( )	(623)
C. Interns and Residents:	100		100
D. Post-Doctoral Trainees/Fellows, Clinical Fields:	180		180
E. TOTAL STUDENTS IN PROFESSIONAL PROGRAMS:	1353		1353

Page 2: Numbers of Students Enrolled in Health Science Center Programs

(Academic Programs, Undergraduate Students, Biological Sciences - Continued)

	Full Time	Part Time	TOTAL
II. ACADEMIC PROGRAMS			
A. Undergraduate Students:			
By Curriculum			
Sub-total, Undergrad.-Acad.	( )	( )	( )
B. Graduate Students:			
By Curriculum			
Basic Health Sciences (PHD Program)	170		170
Sub-total, Grad.-Acad.	(170)	( )	(170)
C. Post-Doctoral Fellows/Trainees: (List Specific Fields)			
Basic Health Sciences	70		70
Sub-total, Post-Doct., Acad.	(70)	( )	(70)
D. TOTAL STUDENTS IN ACADEMIC PROGRAMS:	240		240
III. TOTAL STUDENTS, HEALTH SCIENCE CENTER:	1593		1593

STATE UNIVERSITY OF NEW YORK
ENROLLMENTS GROWTH PLAN: 1968 MASTER PLAN

Distribution of Students by Subject Field

Campus Health Sciences Center - SUSB Fall 1970

	UNDERGRADUATES		GRADUATES		TOTALS	
Major Subject Fields*	Full Time	Part Time	Full Time	Part Time	Full Time	Part Time
Agriculture and Forestry						
Applied Arts						
Architecture and Related Professions						
Arts						
Biological Sciences						
Business						
Education						
Engineering, Applied Sciences & Technologies						
Health Sciences, Professions & Technologies			85		85	
Home Economics						
Humanities						
Law						
Liberal Arts & General Studies						
Library Services & Professions						
Mathematics						
Physical Sciences						
Public Services & Professions						
Social and Behavioral Sciences						
Veterinary & Animal Sciences						
Major Not Specified						

* Majors should be identified by the Degree Programs listed under each catagory in the 1967 Development Plan Vol II

Form DP II

STATE UNIVERSITY OF NEW YORK
ENROLLMENTS GROWTH PLAN: 1968 MASTER PLAN

Distribution of Students by Subject Field

Campus Health Sciences Center - SUSB Fall 1975

Major Subject Fields*	UNDERGRADUATES		GRADUATES		TOTALS	
	Full Time	Part Time	Full Time	Part Time	Full Time	Part Time
Agriculture and Forestry						
Applied Arts						
Architecture and Related Professions						
Arts						
Biological Sciences						
Business						
Education						
Engineering, Applied Sciences & Technologies						
Health Sciences, Professions & Technologies	450		793		1243	
Home Economics						
Humanities						
Law						
Liberal Arts & General Studies						
Library Services & Professions						
Mathematics						
Physical Sciences						
Public Services & Professions						
Social and Behavioral Sciences						
Veterinary & Animal Sciences						
Major Not Specified						

* Majors should be identified by the Degree Programs listed under each catagory in the 1967 Development Plan Vol II

Form DP II

STATE UNIVERSITY OF NEW YORK
ENROLLMENT GROWTH PLAN: 1968 MASTER PLAN

Percentage Distribution of Full Time Equivalent (FTE) Workload

Campus Health Sciences Center - SUSB

		Lower Division	Upper Division	Beginning Graduate	Advanced Graduate	TOTAL
1967:	Sciences*	%	%	%	%	%
	Non-sciences	%	%	%	%	%
	Total	100%	100%	100%	100%	100%
1968:	Sciences*	%	%	100%	%	100%
	Non-sciences	%	%	%	%	%
	Total	100%	100%	100%	100%	100%
1969:	Sciences*	%	%	100%	%	100%
	Non-sciences	%	%	%	%	%
	Total	100%	100%	100%	100%	100%
1970:	Sciences*	%	%	80%	100%	90%
	Non-sciences	%	%	20%	%	10%
	Total	100%	100%	100%	100%	100%
1971:	Sciences*	50%	%	85%	95%	85%
	Non-sciences	50%	%	15%	5%	15%
	Total	100%	100%	100%	100%	100%
1975:	Sciences*	50%	75%	90%	95%	80%
	Non-sciences	50%	25%	10%	5%	20%
	Total	100%	100%	100%	100%	100%

*The Agricultural, Biological, Health, Physical, and Engineering Technologies and Sciences; include Psychology as a "science" if the subject is taught as, and requires space similar to, the preceeding fields.

Form DP-III

	CAMPUS	SUBJECT	DEGREE	OPERATIONAL YR
		HEALTH SCI PROFESSIONS & TECHNOL		
Void	~~STONY BK H SCI~~	~~DENTISTRY-BASIC SCIENCE~~	~~PHD~~	~~68~~
	STONY BK H SCI	DENTISTRY	DDS	72 XX
	STONY BK H SCI	MXXXXXXX-BASIC SCIENCE	PHD	68
	STONY BK H SCI	MEDICINE	MD	71 XX
	STONY BK H SCI	NURSING	BS XX	71
OK	STONY BK H SCI	NURSING	MS	71
	STONY BK H SCI	NURSING	PHD	73 XX

DP IV

LIST OF ADDITIONAL DEGREE AND NON-DEGREE PROGRAMS

TO BE ADDED TO MACHINE LISTING

Health Sciences Center - SUSB

SUBJECT FIELD	DEGREE	PROPOSED OPERATIONAL YEAR
Allied Health Professions		
Physical Therapy	BS	71
Medical Technology	BS	71
Speech Pathology & Therapy	BS	71
Dental Hygiene	BS	71
Physical Therapy	MS	73
Medical Technology	MS	73
Speech Pathology & Therapy	MS	73
Dental Hygiene	MS	73
Social Work	MS or MSW	70
Social Work	PHD or DSW	73

*Note: List each degree with a separate complete entry.

DEVELOPMENT OF MAJOR ORGANIZED RESEARCH ACTIVITIES

(Present and anticipated (1967-75) major research activity of a continuing nature, having or requiring regular operating budget support or operating budget and capital facility support)

NAME OR TITLE OF RESEARCH UNIT Health Sciences Center - SUSB	EXIST	PROPOSED YEAR	FIELD OF RESEARCH (Short description of scope and purposes and relationship among Academic fields)	ACADEMIC FIELDS INVOLVED
Basic Health Sciences		1969	These facilities provide research labortories and office space for the basic health science faculty who teach professional students in Medicine, Dentistry, Nursing and the Allied Health Professions. Basic science faculty will be organized into the following divisions Anatomical Science, Biochemistry, Medical Physiology, Microbiology, Pathology, Pharmacology. In addition, faculty members in Biomathematics and Medical Social Sciences will be accommodated in these facilities. This space will be used by the faculty and graduate and postdoctoral students in all their work except for lectures and teaching in the multidiscipline laboratories. Laboratories and offices for postdoctoral fellows may also be used by visiting faculty. These facilities should have a close relationship to basic health science teaching areas to facilitate the tutorial relationship between students and faculty. The occupants are major users of animal facilities and the Live Sciences Library. There will be a strong	

DEVELOPMENT OF MAJOR ORGANIZED RESEARCH ACTIVITIES

(Present and anticipated (1967-75) major research activity of a continuing nature, having or requiring regular operating budget support or operating budget and capital facility support)

NAME OR TITLE OF RESEARCH UNIT Health Sciences Center - SUSB	EXIST	PROPOSED YEAR	FIELD OF RESEARCH (Short description of scope and purposes and relationship among Academic fields)	ACADEMIC FIELDS INVOLVED
Basic Health Science		1969	continued interrelationship between the basic scientist and the clinical faculty, particularly in planning and conducting the Introduction to Medicine (Biology of Disease) course for second year medical students. Basic science departments are also likely to have an increasingly close relationship with patient care activities in the hospital and clinics. Support facilities which should be included in the same building with these laboratories are shops, equipment storage, shipping and receiving, staff lounges. Animal facilities and audiovisual aids must be easily accessible These support facilities will be shared with the divisions of Biological Sciences.	

DEVELOPMENT OF MAJOR ORGANIZED RESEARCH ACTIVITIES

(Present and anticipated (1967-75) major research activity of a continuing nature, having or requiring regular operating budget support or operating budget and capital facility support)

NAME OR TITLE OF RESEARCH UNIT Health Sciences Center - SUSB	EXIST	PROPOSED YEAR	FIELD OF RESEARCH (Short description of scope and purposes and relationship among Academic fields)	ACADEMIC FIELDS INVOLVED
Medical Clinical		1969	This entity provides research laboratory, office and supporting staff space for the medical clinical departments as distinct from areas required for patient care in the hospital and clinics. The departments included are Anesthesiology, Community Medicine Medicine, Obstetrics and Gynecology, Pediatrics Psychiatry, Radiology and Surgery. Clinical specialties included in the above, and which may have departmental status, include family medicine (General Practice), Neurology, Neurological Surgery, Ophtalmology, Orthopedic Surgery, Otolaryngology, Physical Medicine and Rehabilitation, Plastic Surgery, and Urology. Since members of these departments carry patient care responsibilities, the primary relationship of this entity is to the Hospital and Clinics. Other important relationships are to the Library and to Basic Science Teaching facilities (see Basic Health Science Departments-Relationships). Easy access to animal facilities should be provided.	