DOCUMENT RESUME

ED 117 369 CE 006 001

TITLE A New School of Health Professions. Volume 1. Final Report.

INSTITUTION University of the Pacific, Stockton, Calif. School of Medical Sciences.

SPONS AGENCY Health Resources Administration (DHEW/PHS), Bethesda, Md.

PUB DATE Jan 75

NOTE 261p.; For Volume 2, see CE 006 002

EDRS PRICE MF-$0.83 HC-$14.05 Plus Postage

DESCRIPTORS Coordinators; Curriculum Development; Dentists; Educational Innovation; Educational Programs; *Health Occupations Education; *Interdisciplinary Approach; *Medical Education; Pharmacists; Physicians; Professional Education; Program Administration; Program Content; *Program Descriptions; *Program Development; Program Planning; Social Workers

IDENTIFIERS Nurse Practitioners; School of Health Professions; SHP

ABSTRACT

The report describes and evaluates the concept and implementation of an interdisciplinary School of Health Professions (SHP) as well as its key educational features and financial requirements. SHP focuses on primary health care, interprofessional education and care-delivery, and self-paced curricula. Six types of health professions comprise the initial student body: primary-care physicians, primary-care dentists, nurse practitioners, clinical pharmacists, graduate social workers, and health care coordinators. The University of the Pacific's program prepares students to deliver the specific kinds of primary-care services required in professional practice. The following aspects of the SHP are discussed: (1) roles and responsibilities, selection, and orientation of faculty; (2) criteria and procedures for student selection; (3) SHP organization and governance; (4) systematic procedures for evaluating students, curriculum, faculty, administrators, and the organizational structure; (5) a communications system for the flow of information among the people involved in SHP; (6) steps for developing a full curriculum; (7) the support and participation of health professionals during the feasibility study; (8) requirements for accreditation and licensure in California; (9) the stages in the implementation of SHP; (10) financial projections; and (11) remaining tasks. A list of sites visited and a bibliography are included. (Author/EC)

FINAL REPORT ON A NEW SCHOOL OF HEALTH PROFESSIONS

VOLUME I

Submitted by:
The University of the Pacific
School of Medical Sciences
San Francisco, California

January, 1975

in fulfillment of
Contract NO1-PE-24238
Department of Health, Education, and Welfare
Health Resources Administration

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PREFACE

This report is the product of a two-and-one-half-year feasibility study and initial planning project, carried out under a contract between the U. S. Department of Health, Education, and Welfare (Bureau of Health Resources Development) and the University of the Pacific (UOP) at Pacific Medical Center (PMC) in San Francisco. Initial support was given by PMC and supplemental support was extended by UOP. The intention of this study was to develop and examine the concept of a new kind of interdisciplinary school of health professions.

This report describes the School of Health Professions (SHP) and specifies the requirements for its implementation. The views expressed in this document are those of the project staff, and do not necessarily represent the official position of the Department of Health, Education, and Welfare.

VOLUME I

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INTRODUCTION

A new School of Health Professions, the subject of this report, represents an evolutionary innovation in health professions education. It has been designed to address commonly recognized deficiencies in the education of health professionals and in the contemporary delivery of health care. The School focuses on primary health care, inter-professional education and care-delivery, and self-paced curricula. It is the express aim of the School to establish an environment in which learning and teaching are stimulating, creative, and humanizing experiences.

The major features of the new School of Health Professions include:

- A variety of kinds of health professionals educated together in one school by one faculty;
- A curriculum focused on primary care, with most clinical training to occur in ambulatory-care settings, including one or more model clinical units to be developed by the School;
- A faculty trained to have teaching as well as health-care delivery and research skills;
- Faculty employment based upon continuing excellence in performance of educational, patient care, and research responsibilities that are outlined in contracts between each faculty member and the School;
- A team-learning setting that provides students in the various professions with opportunities to develop inter-personal and interprofessional relationships and to practice communication skills in the context of pertinent patient problems;
- A modular curriculum organized around specific patient problems and professional tasks;
- A curriculum that recognizes individual differences among students and provides increased student responsibility for learning through permitting students

flexibility in the sequencing and pacing of their learning activities;

- A comprehensive evaluation system that includes self-evaluation and is designed to provide rapid feedback as part of the educational process;
- Student progress evaluated on the basis of competence in problem-solving in the context of specific kinds of patient-care situations.

The School's response to some of the major problems in contemporary health-care delivery and health professions education follows:

I. HEALTH CARE PROBLEMS

INDIVIDUALS' NEEDS FOR PRIMARY, COMPREHENSIVE, PATIENT-CENTERED HEALTH-CARE SERVICES HAVE BEEN NEGLECTED WITH THE INCREASED SPECIALIZATION AMONG HEALTH-CARE PROVIDERS.

The School of Health Professions will educate students to deliver primary health care - that is, to provide the kinds of health services that are necessary to prevent and resolve frequent, everyday health-care problems. Primary-care professionals have the first contact with a patient as he enters the health-care delivery system, and assume responsibility for that patient's continuous, on-going care (including referrals to other professionals and specialists, as needed). Primary-care providers focus on the total patient as a human being rather than on isolated organs or disabilities.

The rapid proliferation of new categories of health-care providers, in combination with outmoded methods of organizing health-care delivery has frequently prevented various professionals from understanding one another's responsibilities and capabilities and from recognizing the ways in which they can advantageously work together as a team to improve patient care.

The concepts and practice of interprofessional communication, cooperation, and team work can be effectively fostered by their being introduced at the student level. The School of Health Professions curriculum is constructed around interprofessional educational and patient-care experiences. SHP's instructional modules, based largely

on primary-care patient problems, will incorporate the appropriate professional roles for each of the categories of health professionals educated within the School; when the skills of various health professionals are needed to prevent or resolve a primary health-care problem, their respective roles and interactions will be reflected in the shared learning experiences incorporated into each instructional module.

Interpersonal and interprofessional communication skills are essential to the humanistic delivery of health care, and they will be an integral part of the SHP curriculum. Students will have to demonstrate competence in communication skills in order to graduate.

The School's emphasis on team health-care delivery is reflected in several ways:

- By creating one School with one faculty composed of multiple kinds of health professionals;
- By having the clinical faculty practice in teams;
- By providing multiple team (i.e., interprofessional) skill-development experiences, and by requiring students to demonstrate related competencies; and
- By distributing educational decision-making responsibility among faculty representatives of all of the health professions educated in the School.

II. PROBLEMS IN HEALTH PROFESSIONS EDUCATION

THE CURRICULAR CONTENT OF HEALTH PROFESSIONS SCHOOLS IS FREQUENTLY ONLY INDIRECTLY RELATED TO THE KINDS OF HEALTH-CARE PROBLEMS THAT STUDENTS WILL FACE UPON GRADUATION.

The SHP curriculum will be constructed using data concerning primary health-care problems and the professional tasks and knowledge needed to resolve these problems. Thus, it will reflect the primary-care problems with which students will be confronted as practitioners.

Basic science information, frequently taught without explicit regard for its application and with an emphasis on recall alone, will be presented as the building blocks required to prevent or resolve patient problems. Students will be required to demonstrate competence in the application of basic science information. The emphasis

on its application makes basic science information relevant to the practice of health care.

The focus on patient problems also widens the scope of what may be considered as basic science information - to include not just biomedical sciences, but the social and behavioral sciences and the humanities as well. These latter disciplines are viewed as basic to competent health-care delivery.

HEALTH PROFESSIONS CURRICULA ARE FREQUENTLY NOT ADAPTABLE AND RESPONSIVE ENOUGH TO CHANGES IN HEALTH-CARE NEEDS.

SHP will institute a continuing audit of practitioners' records to determine shifts in society's primary health-care problems, and the curriculum will be periodically updated to reflect the findings of this audit. The modular organization of the SHP curriculum will facilitate the updating and revision in an incremental and non-disruptive manner.

EXISTING PROGRAMS OF HEALTH PROFESSIONS EDUCATION OFTEN UNDER-EMPHASIZE SEVERAL IMPORTANT LEARNING PRINCIPLES.

The curricular structure of the School of Health Professions will adhere to the following progressive principles of learning:

- Students learn best when they are internally motivated. Students will be permitted and encouraged to sequence their curriculum to the extent possible and advisable. They will be able to participate in decisions involving the organization and processes of their education. Students will have frequent opportunities to monitor their own progress through self-evaluating techniques incorporated into each instructional module.
- Students learn at varying rates. The SHP curriculum is time-variable; students will be able, within a broad range of acceptable time periods, to adjust the pace of their progress to their individual learning styles and needs.
- Students learn best when they understand the objectives of their education. Each instructional module (i.e., each

health-care problem studied) will include specific performance objectives. Throughout and at the end of each module, students will be evaluated on their demonstrated competencies in performing these objectives.

A STUDENT'S PROGRESSION THROUGH A HEALTH PROFESSIONS CURRICULUM IS OFTEN BASED LARGELY UPON THE AMOUNT OF TIME HE SPENDS IN AN EDUCATIONAL ACTIVITY RATHER THAN UPON HIS DEMONSTRATION OF COMPETENCY IN THE APPLICATION OF SPECIFIC KNOWLEDGE AND SKILLS.

The curriculum for each of the professionals educated by the School of Health Professions will be based upon a predetermined definition of the basic competencies required to function in the roles that each will later assume as a professional care-provider. A student's progress in the curriculum will be evaluated on the basis of his demonstration of competency and application of knowledge rather than solely on the basis of time spent. Frequent self-monitoring by students, and feedback and advising by faculty, will facilitate the evaluation of each student's progress and the early recognition and remediation of any learning difficulties encountered.

FACULTY SELECTION AND PROMOTION IN HEALTH PROFESSIONS SCHOOLS OFTEN GIVES INADEQUATE EMPHASIS TO INDIVIDUALS' DEMONSTRATED INTEREST AND COMPETENCE IN TEACHING AND PATIENT-CARE.

The faculty of the School of Health Professions will be required to demonstrate competence in the various roles of teacher, adviser, and primary-care provider. Faculty will receive training in educational processes during an extensive orientation program and on a continuing basis during their employment. SHP's policies regarding faculty selection and promotion will stress excellence in education, while also recognizing patient-care and research competence.

Faculty role models appropriate to the goals of the School's educational program are of paramount importance during health students' undergraduate educational program. Therefore, the SHP faculty will be composed chiefly of primary-care practitioners from the several professions educated by the School; in the School's clinical settings,

they will practice in interprofessional teams.

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The body of this report will elaborate on the concepts presented in this introduction and specify and evaluate the means for their implementation. More detailed information is supplied in the Appendices in Volume II.

CHAPTER 1

HEALTH PROFESSIONALS TO BE TRAINED

CHAPTER SUMMARY

The School of Health Professions is designed to educate potentially any kind of health-care provider. Six have been chosen to comprise the initial student body: primary-care physician, primary-care dentist, nurse practitioner, clinical pharmacist, graduate social worker, and a new type of professional herein named the health care coordinator (HCC). Of the six, the social worker and the clinical pharmacist will receive only part of their education within the School. Although in part arbitrary, the selection of these initial six types was based on the recognition that each possessed skills essential for primary care and could, together, compose a logical care-delivery team. Programs for additional categories of providers can be added as necessary and desirable.

CHAPTER 1

HEALTH PROFESSIONALS TO BE TRAINED

I. THE SELECTION OF PROFESSIONS

To facilitate the planning of a multi-disciplinary school that incorporates many educational innovations, a limited number of professions had to be selected around which initial planning and implementation could be focused.

Six professions - all of which were determined to be appropriate to the School's focus on primary ambulatory care and on the team delivery of care - were selected:

To receive all of their professional education within SHP -

- Primary-Care Physician
- Primary-Care Dentist
- Nurse Practitioner
- Health Care Coordinator
  (a new health professional category, defined below)

To receive only part of their professional education at SHP -

- Social Worker
- Clinical Pharmacist

Initially, many other professions were considered. The selection of the above six was made after consideration of the following factors; (1) current and projected health care needs; (2) health manpower needs*; (3) political issues; (4) financial requirements; (5) professional licensure and accreditation; (6) employability of graduates; and (7) various factors pertinent to possible implementation of the School at UOP/PMC.

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*The planning staff's analysis of the health manpower situation in California was included in the interim report prepared for BHRD in November, 1973, entitled "Report on a Feasibility Study for a School of Health Professions."

II. DESCRIPTION OF THE SIX PROFESSIONALS

It is important to note that all graduates of SHP will be competent to participate, as is appropriate to their respective professions, in the prevention and resolution of patients' frequent, "everyday" health-care problems. Primary-care providers who graduate from SHP will be able to assume responsibilities in the provision of ongoing and coordinated care. The SHP's emphases on the team delivery of care and on communication skills will ensure that graduates' focus will be on the total patient.

A. Primary-Care Physician

The physician graduating from the SHP will be competent to assume responsibility for the prevention and management of a wide range of primary ambulatory-care medical problems as well as associated in-patient care. For unusually complex problems, the primary-care physician will consult with, or refer a patient to, a specialist, but he will retain the responsibility for the continuous medical care of the patient.

It appears quite likely that future M.D. graduates will be required to spend at least three years in post-graduate training programs. Increasing numbers of post-graduate programs are being developed specifically in primary-care areas (e.g., family practice, general pediatrics, general internal medicine). However, whatever may be the future, SHP will prepare its M.D. students to be capable, upon graduation from SHP, of carrying out the basics of primary care. Additional supervised training will further refine the skills of the SHP M.D. graduate and satisfy licensure or other requirements.

Students for the M.D. program will be selected from applicants who have met the licensure requirements of the state in which the School is established.

B. Primary-Care Dentist

The dentist graduating from SHP will be one who provides primary dental care, rather than specializing in any one area of dentistry.

The characteristics of present dental graduates appear to be consistent with a career in primary care in that the general dentist is the first contact that the patient makes when seeking professional dental care, is responsible for providing continuous care, and is trained to provide preventive care. The use of expanded duty dental auxiliaries has enabled the primary-care dentist to become increasingly more involved with the total health care of the patient and to have a greater responsibility for the care of the head and throat areas.

By virtue of the SHP curriculum, which is organized around patient health problems and emphasizes a team approach to health care, the SHP dental graduate will be able to identify a greater number of health-care problems and to manage them or, when necessary, to refer them to the appropriate practitioner.

Students for the D.D.S. program will be selected from applicants who have met the licensure requirements of the state in which the School is established.*

C. Nurse Practitioner

The role of the nurse practitioner is one that combines some of the functions performed by physicians with some of those characteristic of ambulatory nursing. Upon graduation, the nurse practitioner student will be competent in the advanced clinical skills needed to perform such functions as: triage; providing patient-education; performing complete, systematic health assessments; providing pre-natal, post-partum, and well-baby care; managing minor acute and simple chronic illnesses according to predetermined protocols; and managing routine well-patient preventive medicine.

Students admitted to the nurse practitioner curriculum will be registered nurses, though not necessarily graduates of a baccalaureate program. Most will have had nursing experience in primary-care settings.

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*The precise relationship that would exist with the University of the Pacific School of Dentistry if SHP were implemented at UOP/PMC remains to be determined; however, assuming that the SHP dental program's accreditation and acceptability for licensure would derive from the UOP School of Dentistry, students admitted to the SHP dental program will need to be mutually acceptable to the two Schools. (Further discussion of accreditation and licensure is found in Chapter 10.)

D. Health Care Coordinator: A New Health Professional

The SHP proposes to define and educate a new kind of health professional that has been named a "health care coordinator" (HCC). The need for this profession arises from the growing complexities of the health care system, and the accompanying need for strengthening the continuity of individuals' health-care services.

Simply stated, the HCC will introduce a patient to the health-care system and make certain that the patient receives the full range of health services he requires. This role will include those functions related to accessibility not performed systematically by any one health professional.

The HCC will have a case load of patients, and, depending upon the specific health-care setting (e.g., HMO-type setting, group practice), the duties of the HCC at the time of his initial contact with a patient, could encompass: registering the patient, informing him of available services, determining whether financial guidance is necessary, and, in general, becoming a contact in the health-care system that will remain constant and available to the patient.

Once the patient has been introduced into the system, the HCC's duties could include the following: securing medical records from other sources (e.g., hospitals), checking on completeness of the medical record and arranging for the appropriate additions, and, in general, responding to patients' needs with reinforcement of therapies and information about relevant resources for the patient (e.g., financial counseling, social and psychological services, etc.). In essence, the job of the HCC will be to attend to the administrative needs of the patient, acting as a constant contact in the system and as a pivotal point to facilitate a wide usage of available resources.

The planning staff is concerned about the creation of new health professional categories, and particularly about the potential employability of the health care coordinator. With the increase in group practices and health maintenance organizations, and with the advent of nationalized health insurance, the availability of employment opportunities for individuals with the specific skills of the HCC should be quite high. Furthermore, it is likely that persons seeking HCC training will have been practicing medical assistants, dental

assistants, medical receptionists, orderlies, etc., prior to their enrollment in the School's HCC program; this previous experience, in addition to their SHP training, should secure their employability.

It will be essential to further investigate the role of this new health professional prior to training the HCC in the School. A pilot project has been designed to determine which functions should be included in the role of the HCC and whether these functions can be competently performed by one health professional. This study or a comparable one must be completed before the curriculum for the HCC can be determined.

E. Social Worker

The social worker will be trained in psycho-social skills and will provide the needed linkage between the patient and various community resources and medical facilities. The decision was made to educate graduate rather than undergraduate social work students because masters-degree social workers are able to deal as independent professionals with health-related problems, especially psycho-social and non-organic ones.

Social work students will receive only part of their education at the School of Health Professions. Arrangements will be made with local graduate schools of social work to allow some students to receive their clinical field work at SHP, utilizing the School's clinical facilities, while receiving their degree from the graduate school to which they were admitted. Graduate social work programs include instruction in communication skills and recognize and emphasize the need for social workers to interact effectively with other health professionals. Therefore, their students should have little difficulty in adapting to the SHP program even though they do not receive their complete professional education in it.

F. Clinical Pharmacist

The clinical pharmacist, having considerable professional expertise in drug therapy and pathophysiology and ready access to the patient's health record, is a valuable member of a professional team providing primary care. Some of the functions of the clinical

pharmacist include providing current drug information to the health-care provider and consumer at the time drug therapy decisions are being made, and monitoring the patient's drug therapy.

Like the social work student, pharmacy students will receive only part of their training at SHP. If SHP is implemented at UOP/PMC, students for the SHP program will be drawn from those students in the UOP School of Pharmacy's Doctor-of-Pharmacy program (clinical pharmacy specialization) who are interested in receiving their clinical internship experience at SHP.

III. INCORPORATING ADDITIONAL PROFESSIONAL CATEGORIES AND PROGRAMS INTO THE CURRICULUM

The School of Health Professions has been planned to accommodate additional professional training programs and continuing education programs in response to changing health-care and health manpower needs. There are at least three additional categories of health professionals that could be added to the School: those concerned with primary care (e.g., podiatrist); those associated with an assistant or associate-level training (e.g., dental assistant); and those associated with secondary or tertiary care (e.g., medical technologist). Continuing education programs could also be added.

Additional programs can be added to the School with relative ease because the curriculum is centered around health-care problems and professional tasks, instead of traditional courses. Incorporating new programs would not require developing new courses or new schedules. Instead, the following major steps would apply to incorporating any new program into the School of Health Professions curriculum. They are applicable to the addition of any category of health professional:

- Acquiring data to provide initial estimates of the type, prevalence, and priority of health-care problems faced by practitioners of the given profession, and comparing them with SHP's already existent problem list;

- Identifying the tasks for the proposed professional and comparing them with the School's already existent task lists;
- Designing additional curricular modules and/or adding the functions of the health professional category to existing modules, as appropriate;
- Modifying the composition of the School's health-delivery teams in the School's ambulatory care settings;
- Meeting pertinent accreditation and licensure requirements.

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CHAPTER 2

CURRICULUM

CHAPTER SUMMARY

The curriculum is designed to prepare students to deliver the specific kinds of primary-care services required in their professional practice. Consequently, the curriculum centers around each student's learning and demonstrated mastery of explicit performance objectives derived from the most common or preventable patient problems and the related professional tasks. The curriculum is time-variable. Both clinical and non-clinical learning experiences will be interprofessional, self-paced, and closely supervised by a faculty whose principal professional interests and competence lie in education for primary-care. SHP-operated primary-care clinical units, in both urban and rural settings, will be developed to provide high-quality patient care and a model learning environment for the students. The skills needed to communicate with patients and other health professionals, as well as the skills needed to be an independent and life-long learner are emphasized throughout the curriculum. The performance objectives for patient problems and professional tasks are grouped into individual learning modules, each presented by means of a multiprofessional study guide that includes description of the learning experiences, needed learning resources and the evaluation procedures. Study guides for hypertension, diabetes mellitus, and obesity have been developed as prototypes.

CHAPTER 2

CURRICULUM

I. INTRODUCTION

The major goal of the SHP curriculum is to prepare students to deliver high-quality primary ambulatory care. Several assumptions have guided its development:

- Competent health practitioners must bring approximately equal blends of humanism, scientific knowledge, and technical expertise to the care of patients.
- Competent health professionals must have the skills and motivation to be continuous learners.
- Competent health professionals must be able to communicate and work well with each other and patients, and to deliver high-quality continuing and comprehensive care.
- Each student learns best at his own rate and in his own way.
- The competence of a health professional cannot be assessed from evaluation of his knowledge alone; evaluation must also include the frequent measurement of his performance in clinical settings.

To meet its goal, the curriculum was determined empirically by examining what is actually needed for practice and estimating the relevant background information needed for understanding. The substance of the curriculum was derived principally from data on the high-priority primary health-care problems that professionals face, and from the tasks that they perform while providing health care in ambulatory settings.

The curriculum, based on these problems and tasks, will be organized into modules rather than into courses. A module consists of all the learning and evaluation experiences organized for a particular

high-priority health-care problem. For each module, a study guide will be prepared. The study guide specifies the associated tasks, the performance objectives related to the tasks, the appropriate faculty, the clinical resources and experiences, evaluation criteria and materials, and includes references to pertinent texts and/or self-instructional materials. The study guide document, itself a part of the module, is a road map for the total module. The module study guides, which include specially developed clinical examples and opportunities for practicing the relevant skills, are the principal vehicle around which students will organize their learning. Study guides incorporating roles for HCC, dental, and medical students, have already been developed for diabetes mellitus, hypertension, and obesity.* (The guides appear in Appendix 1.)

There will also be modules based upon certain general or prerequisite areas - such as interviewing skills, physical examination skills and general office procedures - depending upon the profession.

To meet the assumptions listed above, the modules emphasize both the humanistic and the scientific/technological components of care. The modules themselves provide experiences for the student that will develop his self-learning and communication skills as well as permit him, within realistic limits, to determine his own rate and sequence. Although it is impossible to provide truly individualized instructional materials, individual variation in learning will be encouraged and supported through the use of a faculty adviser. The flexibility of a modular curriculum and of competency-based testing permits increased opportunities for mobility between professions. This flexibility may also facilitate the progress of educationally disadvantaged students.

Evaluation for learning, as well as for certification by the School, is included in each module. These evaluations emphasize relevant performance rather than simply rote learning. Each module includes opportunities to apply the knowledge learned, practice important skills, and receive corrective feedback, with progress measured on the basis of competent performance, not on time spent.

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* as specified in the contract Scope of Work, BHRD Contract NO1-PE-24238

II. CURRICULAR STAGES

To conceptualize the flow of instruction, the curriculum for three of the six professions - the dental student, health care coordinator student, and medical student - has been outlined.*

It is important to note that the curricular stages shown have been developed for planning and organizational purposes. The reader should not infer fixed intervals or milestones between stages. The major features of each stage for the three categories of health professions students are listed in Table 1. (The clinical units referred to in Table 1 and in the accompanying text are explained in Section V of this chapter.)

Stage 1, Orientation, will average two weeks for the health care coordinator student, and eight weeks for medical and dental students. This stage includes an assessment of each student's previously acquired skills and knowledge in the health field. As a result of this assessment, some students may be exempted from areas in which they have already achieved competence; and others may be found to require remedial instruction. Each student's preferred learning style will also be assessed. Students and faculty explore various health-care systems, economic and ethical issues of health care, and the organization and resources of the School of Health Professions.

At this stage, students begin to gain experience and guidance in the development of self-learning skills, and communication and interviewing skills. Two kinds of student-teams are formed: the intraprofessional team, which consists of students in a single health profession, and the interprofessional team, which contains members from each of the professional categories trained in the School. A faculty adviser will be associated with each team. These teams continue to learn and work together throughout most of the curriculum.

During this period, the student and the School will mutually determine whether or not the student should continue in the School. This opportunity - either to withdraw without prejudice or pressure or to remain - is a unique feature of this orientation period. It should be emphasized that before admission, applicants will have been well

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* as specified in the contract Scope of Work, BHRD Contract NO1-PE-24238

TABLE 1

CURRICULAR STAGES FOR THE SHP CURRICULUM

Stage 1 - ORIENTATION

- assessment of students' background, skills, knowledge, and learning style
- initial experience in communication and interviewing skills, scientific language and learning skills
- opportunity to withdraw from School

Stage 2 - ACQUISITION OF KNOWLEDGE AND SKILLS IN SCIENCES BASIC TO HEALTH

- biomedical and clinical sciences
- behavioral sciences and communication skills
- physical exam skills, technical procedures, record-keeping

Stage 3 - PRACTICE WITH INTENSIVE SUPERVISION

M.D.:
- skills in problem-formulation and problem-solving
- refinement of history-taking and physical exam skills
- occurs principally in clinical units

D.D.S:
- communication skills in patient care
- assignment of first patients, under close faculty supervision
- occurs principally in general dental school clinic

HCC:
- communication skills, patient-screening, systems of appointment and record-keeping, and telephone techniques

Stage 4 - CLINICAL UNIT EXPERIENCE

- refinement of clinical and patient-care skills
- increasing responsibility for patient care
- interprofessional health-delivery teams comprised of students and faculty

Stage 5 - (for M.D. only) SPECIAL INTEREST EXPERIENCE (Optional)

- in-depth experience or remediation
- may be start of post-graduate training

oriented to the distinctive aspects of the SHP and the possible problems that a student unaccustomed to a relatively unstructured learning program might have. The re-evaluation during orientation will be based on new information gained from actual experience, and not from any unexpected events or a reappraisal of admissions data.

Stage 2, Acquisition of Knowledge and Skills in Sciences Basic to Health, will last approximately three and one-half months for the health care coordinator student, and eleven or twelve months for dental and medical students. At the end of this period, the medical and dental student will have acquired sufficient knowledge to be able to pass the current Parts I of the National Boards of Medical and of Dental Examiners, or their equivalents. All students will acquire the basic knowledge and skills related to health-care problems and the professional tasks needed to resolve them. During small group sessions, team and communication skills will be learned through exploring group processes (shifting leadership, conflict identification and resolution, and dependence and independence).

Much of the learning will occur through the self-instructional module study guides described earlier in this chapter. Although the study guides specify substantial reading and independent study, they also include planned activities with other students, with the student's adviser, and with resource faculty (see Chapter 3), and experiences in clinical settings. Each module includes opportunities for self-evaluation as well as for certification at the end of the module. There will be a module study guide for each of the high-priority problems (see Section III of this chapter) as well as for certain general or prerequisite areas, depending upon the category of profession (e.g., interviewing skills, physical examination skills, general office procedures).

During this stage, students will begin to acquire the knowledge basic to their understanding of normal and abnormal biological processes and the methods used to diagnose and manage health-care problems. Learning will occur at the level appropriate to a given profession. (For example, the knowledge of metabolism needed by the health care coordinator student with respect to diabetes will be different from that needed by the medical student.) Dental students will have substantial experience in a dental technique laboratory.

Students will begin to practice writing and maintaining problem-oriented patient records and will also begin to develop auditing skills. Much of their practical experience will occur in a clinical unit (see Section V of this chapter) with real or simulated patients. Initially, they will have substantial patient involvement, but little patient-care responsibility. Responsibility will increase with demonstrated competence.

To progress to Stage 3, SHP students will be required to demonstrate competence in both basic science and clinical skills pertinent to their profession, as defined by the module study guides. Competence for the health care coordinator student will be in terms of familiarity with essential vocabulary and with basic health-care problems, and satisfactory completion of simulated experiences in appointment and records systems and in the screening of patients' complaints. For the dental student, competence will be in terms of the capacity to work under close supervision with patients in the dental clinic. A medical student will be required to demonstrate capacities for increased responsibility for patient care, for carrying out a general history and physical examination and for formulating statements of patients' problems at the student's level of understanding. A variety of measures, including performance in each of the module study guides, personal observation, and written examination, will form the basis for certification of a student's readiness for Stage 3.

Stage 3, Practice with Intensive Supervision, will average two and one-half months for the health care coordinator, ten months for the dental student, and six months for the medical student.

For the medical student, there will be increased experience in the day-to-day examination and follow-up of patients and a gradual increase in responsibility for direct patient care. There will be emphasis on thorough formulation of patient problems and on problem-solving logic. It is at this stage that the student will begin to refine his knowledge and clinical skills in order to assume greater, full-time responsibility for patients in Stage 4.

Most of the Stage 3 experiences will be in the School's clinical units (see Section V of this chapter) or with ambulatory patients in a

setting that provides professional role models for exemplary primary-care delivery. If necessary for logistical reasons (such as limited patient availability and time), inpatients may be the focus for some of the learning activities during this Stage.

It should be re-emphasized that there are no rigid boundaries between stages, particularly Stages 2,3, and 4. For example, for one-half day per week a student with an interest and demonstrated competence in hypertension (and in the relevant history-taking, physical examination, and communication skills) may begin to see selected hypertensive patients in the clinical unit. This could occur prior to his having daily responsibilities in the clinical unit and having progressed through all of the patient-problem modules.

A dental student's Stage 3 experiences will take place primarily in a general dental school clinic. He will continue his work in the sciences basic to health and will be assigned his first patient under close faculty supervision. There will be substantial empahsis on communication skills required in patient care as well as an introduction to each of the dental specialty areas.

In Stage 3, the health care coordinator student will continue to refine his communication skills (including patient screening, in person and by telephone) and to study various record-keeping systems. Students will also begin to learn about general and third-party billing and payment procedures. In effect, these will be on-the-job experiences with close supervision that will allow the student to experience some of the functions and pressures of his profession without the full responsibility.

Stage 4, Clinical Unit Experience, will last an average of five and one-half months for the health care coordinator student, and twelve to thirteen months for medical and dental students.

In this stage, each student will function as a member of multi-professional health-care delivery team comprised of students and faculty in the various professions educated in the School (including those receiving only partial training - such as social worker and pharmacist - at SHP). The teams will operate in each of several clinical units to be developed by the School. (See Section V of this chapter.) Initially there will be three clinical units, one

located centrally on the medical center campus on which the School is located, another in a nearby underserved urban area, and the third in a rural (remote) setting. Generally, students will begin at the central clinical unit, where supervision and range of faculty are the greatest, and then move to the urban and rural units. Students will return occasionally to the central clinical unit either for remediation or to receive more sophisticated experience in delivering urban care. It is expected that the central clinical unit will have a mix of experienced and inexperienced students. However, students of all levels will be trained in all three units. Students may also acquire additional ambulatory-care experience in facilities other than the clinical units (see chapter 11).

Students will assume increasing responsibility for patient care gradually. Their performance will be monitored through their patient records and by direct observation.

During Stage 4, medical students will acquire hospital experience focused around inpatient problems related to primary care, including referral and follow-up after hospitalization, and management during hospitalization where appropriate. Clinical unit patients who are hosptialized will be followed, but not directly managed, by the responsible clinical team.

Stage 5, Special Interest Experience, an optional stage, exists only for the medical student and is estimated to last approximately two and one-half months. Its purpose is to provide students an opportunity for in-depth experiences in an area of interest (e.g., clinical research, basic science, humanities) elected by the student after discussion with his adviser. It may include remediation experiences to correct student deficits as necessary. It would be the last stage before graduation and might be used as the start of post-graduate training.

III. EMPIRICAL DERIVATION OF THE CURRICULUM

Curriculum development proceeded from a study of the frequent and high-priority health-care problems in primary ambulatory care and from the professional tasks needed to resolve these problems, rather than from a subject matter or organ system base.

A. Health-Care Problems

The problems for which people seek primary health care are a logical basis for defining the SHP graduate's future professional experiences and for developing an educational system.

Although not ideal, patient diagnoses constitute the most reliable source of such data available on a large scale. The National Ambulatory Medical Care Survey (National Center for Health Statistics, DHEW, 1973)* involved 23,407 visits and 431 physicians in ambulatory settings. Table 2, based on preliminary data from only 13,712 visits, shows the 41 most frequent (i.e., highest incidence) diagnoses in the study. Utilizing Williamson's system of setting priorities (Williamson, et al, 1968), these diagnoses can be arranged in a priority order that reflects both incidence and the potentially preventable disability associated with each diagnosis. (Appendix 2 illustrates the application of this procedure for the top 20 diagnoses.)

An additional and perhaps more desirable source of data is patient complaints or reasons for visits. Due to coding differences among various health-care delivery sites, sufficiently large composite data sources of these complaints are not yet available. There are, however, individual sets of data from each of several medical sites. (Bain, S.T., and Spaulding, W.B., 1967; Clute, K.F., 1963; Cross, H., 1972; Hodgkins, K., 1966; and Peterson et al, 1955). Table 3 represents a systematic collation of these data and reflects the leading problems (i.e., patient complaints) that are not covered in the list of 41 diagnoses.

Module study guides (see Appendix 1) will be constructed for each of the 41 diagnoses from the National Ambulatory Medical Care Survey and the thirteen problems shown in Table 3 (as well as for such areas as communication skills). These study guides will form the nucleus of the curriculum for all students. The 41 medical diagnoses represent approximately 67% of the diagnoses with which the M.D. (and nurse practitioner) graduate will likely be confronted. With the addition of the thirteen medical problems to these 41 diagnoses, it is highly probable that about 80-to-90% of the problems such graduates will face

*This and other source citations throughout the report are keyed to the reference lists that appear at the ends of individual chapters.

TABLE 2

MEDICAL DIAGNOSES IN ORDER OF INCIDENCE

Total Visits = 13,712

No.	Diagnoses	# of Diagnoses	% of Total
1	Surgical Aftercare	904	6.59
2	Medical Examination (inc. well baby and child care)	874	6.37
3	Acute Respiratory Infection; Common Cold	507	3.70
4	Sprains and Strains of Back; Vertebrogenic Pain Syndrome; Displacement of Intervertebral Disc	485	3.54
5	Lacerations and Wounds; Contusions; Injuries	478	3.49
6	Essential Benign Hypertension	462	3.37
7	Neurosis	405	2.95
8	Antepartum Care	391	2.85
9	Acute Pharyngitis; Acute Tonsillitis	358	2.61
10	Chronic Ischemic Heart Disease	291	2.12
11	Arthritis; Rheumatoid Arthritis; Osteoarthritis and Spondylitis	275	2.00
12	Diabetes	254	1.85
13	Orthopedic Aftercare	208	1.52
14	Dermatitis	198	1.44
15	Acute Otitis Media	194	1.41
16	Fracture of an Extremity	191	1.39
17	Hay Fever	187	1.36
18	Medical Aftercare	186	1.36
19	Obesity	184	1.34
20	Bronchitis	181	1.32
21	Synovitis, Bursitis and Tenosynovitis	160	1.17
22	Gastroenteritis	143	1.04
23	Acne and Seborrhea	131	.90
24	Cystitis	124	.90
25	Sinusitis	115	.84
26	Asthma	114	.83
27	Menopausal Symptoms	110	.80
28	Strains and Sprains of Hip and Lower Extremity	109	.79
29	Visual Refractive Error	100	.73
30	Influenza	98	.71
31	Viral Warts	96	.70
32	Menstrual Disorders	95	.69
33	Disorder of the Female Breast	84	.61
34	Peptic Ulcer	81	.59
35	Disorders of Prostate	80	.58
36	Anemia	79	.58
37	Personality Disorder	71	.52
38	Hemorrhoids	63	.46
39	Heart Failure	55	.40
40	Cerbrovascular Disease	51	.37
41	Acute Myocardial Infarction	50	.36
		Total	67.21%

(Adapted from National Ambulatory Medical Care Survey, National Center for Health Statistics, DHEW, Rockville, Maryland, unpublished data, 1974)

TABLE 3

COMMON MEDICAL PROBLEMS (Reasons for Visit)*

1. Depression
2. Conversion Reaction
3. Anxiety
4. Marital and Sexual Problems
5. Abdominal Pain
6. Headache
7. Fatigue
8. Cough
9. Dizziness
10. Fever of Unknown Origin
11. Alcoholism**
12. Drug Abuse**
13. School Problems**

* Not in order of priority or incidence. See text for explanation of sources.

* These problems are generally under-recorded in patient charts; and their listing reflects the belief of one of the staff that their importance warrants inclusion.

have been defined. It is likely that they will be able to handle the remaining 10 - to - 20% of problems not on these lists by virtue of their ability to transfer knowledge and skills. In learning about one problem (such as obesity), students must also learn about related but less frequent problems (such as Cushing's Syndrome). Patients with some of these 10-to-20% unlisted problems would be referred to other professionals for secondary and tertiary care after inital triage.

It should be emphasized that students will not be learning the rote diagnoses or management of several dozen patient problems, but rather, a systematic and thorough approach to treating patients with problems.

Some of the diagnoses and problems identified above, however, do not encompass appropriate roles for all six of the professions to be educated initially in the School, and the list may overlook some important problems or diagnoses in which the other-than-medical professions do play significant roles. Since the two sources of the data noted above were medical and not dental care-delivery sites, they do not reflect adequately the future professional life of a dental student. Likewise, if the HCC, pharmacy, and social work students are to be concerned with the whole person, these curricular content sources may not reflect their future roles adequately either.

Therefore, additional data, on dental care and on those problems most frequently presented to an HCC and social worker that are not medical-dental in origin, will need to be determined. This determination will also be made for "unique" pharmacy or nurse practitioner problems.

There is at least one recent study that contains data showing reasons for people's seeking dental care (Kilpatrick, et al, 1972; Kilpatrick, 1974). Table 4 shows the preliminary data from this study in slightly modified form. The eleven dental problems shown constitute 80% of the likely experiences of a primary-care dentist. Modules for these eleven problems, plus the dentist's responsibility in some of the modules concerning the 41 medical diagnoses and thirteen problems noted above, provide the basis for the dental curriculum.

HCC, nurse practitioner, social work, and pharmacy curricula will involve four curricular sources concerning primary care: medical diagnoses, medical problems, dental problems, and problems specific to

TABLE 4

COMMON DENTAL PROBLEMS (reasons for visit)

Total Visits = 1,679

No.	Problem	% of Visits
1.	Fillings	23.9
2.	Periodic exam	19.0
3.	Dental prophylaxis	17.9
4.	Extraction	5.2
5.	X-rays (not full mouth)	3.3
6.	Post-surgical treatments	2.8
7.	Initial oral exam	1.7
8.	Preparation of crowns	1.7
9.	Patient question or quick check	1.5
10.	Temporary filling	1.4
11.	Adjustment of complete denture	1.3
	Total	79.7

(Adapted from Kilpatrick, K., et al : "Expanded Functions of Auxiliaries in General Dentistry: A Computer Simulation," Health Services Research 7, pp. 288-300, 1972 plus personal communications, Nov. 1974.)

each professional category. Providing curricular elements for the HCC, nurse practitioner, social worker, and pharmacist students in dental as well as in medical areas should enlarge the capacity of the graduates in these professions to help patients receive truly comprehensive care.

B. Professional Tasks

The functions or tasks that a health professional performs in working with patients and in helping to diagnose and manage health-care problems can provide important data for developing a relevant performance-based curriculum. A variety of groups have studied health-care tasks (Bureau of Health Manpower Education, D.H.E.W., undated; Golladay, F., and Smith, K., 1973; Johns Hopkins Medical Institutions, 1972; Gilpatrick, E., 1972; and UCLA Division of Vocational Education, 1972). These studies generally employ a variety of methodologies, including observation, interviewing, and questionnaire techniques. Such methods can yield, for each health professional to be trained, task profiles that provide data on the frequency of performance of a given task and the percentage of time involved in performing that task. "Tasks" can include not only psychomotor skills, but also the more sophisticated behaviors involved in decision-making, clinical judgment, and the application of concepts. Some examples of tasks associated with the physician and illustrative of this range are: "remove sutures," "observe for patient's need to ventilate feelings," and "evaluate signs and symptoms of congestive heart failure."

Task lists have been acquired from various studies (University of the Pacific, 1973; American Association of Medical Clinics, 1973; Gilpatrick, E., 1974), and used in the development of the module study guides. For each high-priority health-care problem, those tasks most appropriate to that problem are selected for inclusion in the module. Thus, a study guide includes what is most relevant and can best be learned with respect to that particular problem. The specific tasks associated with three typical problems - hypertension, diabetes mellitus, and obesity - are listed in the sample study guides for those problems in Appendix 1.

IV. THE ORGANIZATION OF THE CURRUCULUM INTO MODULES

High-priority patient-problems and their associated professional tasks will form the basis from which the modular curriculum is developed. The module study guides form the core of the curriculum. A discussion of the advantages of using module study guides as the method for organizing the curriculum is found in Chapter 8.

The study guides are developed first by identifying those tasks that are needed to resolve the health-care problem or diagnosis of the particular module. Next, based upon these tasks, performance objectives are designed that reflect the knowledge and skills necessary to perform the tasks.* These performance objectives provide a guide according to which the student's competence can be evaluated. Finally, the specific learning experiences (including reading and text references, practice, clinical experiences, faculty sessions and evaluation procedures) are specified, planned, and developed. Development of each study guide will be carried out by content experts in that particular field in conjunction with primary-care providers and specialists in educational design.

Module study guides will be developed for the bulk of the formal curriculum, which includes the patient problems and diagnoses and such areas as communication and interviewing skills, medical audit, physical examination skills, maintenance of problem-oriented records, and general office procedures.

The curriculum-development process is described in further detail in Chapter 8.

A. Student Use of Module Study Guides

Module study guides will be used primarily in Stage 2 of the curriculum. Using the module study guides, the student, with the

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* For one of the prototype study guides in Appendix 1 - hypertension - the tasks were added afterward in a trial to determine how necessary task statements were to the development of performance objectives. Results were inconclusive. One staff member, experienced in the writing of objectives and the analysis of medical functions, believes that adequate module study guides can be developed without the use of tasks. He would rely solely on objectives generated by primary-care providers after reviewing a list of essential areas to be covered. However, relying more on expert opinion and less on data may increase the risk of development of a curriculum further removed from what is actually needed to provide care.

Chapter 8 contains further discussion of the methods that can be used in selecting the tasks related to each patient problem.

guidance of his faculty adviser, can individualize his course of study. Time limits are set to monitor the rate of student progress. Thus, students having difficulty keeping within expected time periods can be identified early, and appropriate remedial steps can be taken. This flexible approach is supportive of entry-exit, individualized pacing and sequencing, and competency-based testing.

Although students may proceed on an individualized basis through the modules, there are predetermined minimum levels of competence required for each module.

Students may elect to take advanced work in areas of special interest and indeed will be encouraged to do so, but they will still be held responsible for demonstrating prescribed, required competencies in all the modules. For example, every dental student will have to demonstrate predetermined levels of competence that will be identical for all dental graduates. However, each dental student will differ from all others in that he will progress at a self-selected pace (within limits) and might pursue certain areas beyond the levels of required competence. The educational plan should not be interpreted as conferring complete freedom upon the student to choose what he wants to learn. Actually, the student makes his sequencing selections from the required curriculum in a particular health professional category. Thus, variability will occur in pace, in sequence, and in overall expertise, but there will be no variability in the minimum required levels of competence.

B. Relationship to Basic Science

To satisfy the curricular requirements of the SHP, students will learn the basic sciences not as discrete disciplines, but as concepts and facts indispensable in dealing with patient problems. The module study guides contain basic science material where it is felt it will have the most relevance to patient care, thereby better ensuring its application, retention, and transfer. In addition, incorporating the basic science content in this manner eliminates some of the extraneous material and redundancy common to curricula organized in a discipline format. The modular format permits a student - using a study guide, his adviser, and the resource faculty - to pursue basic material in as much depth as is required or desired.

C. Inclusion of Self-Learning and Communication Skills

Self-learning and communication skills are integral, valued components of the basic curriculum. They are emphasized throughout each patient-problem (or diagnosis) module study guide as well as being the subject of module study guides relating specifically to them.

As the student progresses through the modules, he acquires and refines the skills of a continuous self-learner. He practices assessing his own knowledge and performance, comparing his performance with standards, and taking steps to remedy any performance deficits. He learns to determine how much he already knows and how much more he needs to learn. Auditing of the student's patient care will be a major mechanism used in the modules for developing these self-learning skills.

Likewise, practice of skills in communicating with patients and other health professionals is built into the study guides with specific opportunities for feedback. Health professionals, competent in such communication skills as listening, reassuring, and confronting, can help patients to recognize and verbalize problems and to feel comfortable in expressing them. Other communication skills involve verification of what the patient is communicating before acting on that information. The health professional must be able to convey information to patients and be sure that the message is understood. With respect to communication among various health professionals, stress is placed on skills that facilitate the expeditious sharing of information relevant to patient problems. These include such skills as clarifying, supporting, and identifying emotional factors impeding communication as well as record-keeping and reporting.

In the modules, communication skills will be learned and practiced in situations integral with the clinical skills needed to resolve or manage health problems. For example, a patient might state verbally that he is not worried about his major complaint and yet show visible signs of an anxious depression. Students will be taught to recognize incongruities in patient behavior (simulated or real) and a student's success in doing so can be measured and evaluated (e.g., using video-tape feedback). Other examples are contained in the study guides in Appendix 1.

V. THE CLINICAL UNITS

Crucial to the implementation of the entire educational plan is a clinical setting designed to provide primary ambulatory care of high quality and to provide students with an ongoing relationship with a particular patient population. The design of the clinical units will comprise features of current outpatient care systems with features that probably will predominate in future primary ambulatory health care, such as interprofessional team-care delivery. Their design must provide enough flexibility to allow students different levels of patient contact and responsibility consonant with their changing responsibilities and skill level; at the same time the clinical units - as responsible institutions and as educational models of health-care delivery - must render care of a quality that is consistent with the professional and humanistic goals of the SHP.

The clinical units will be a locus for continuous primary health care for a relatively stable population of ambulatory patients. A unit can either be tied to a major health-care institution or hospital or be an independent ambulatory-care facility. Appropriate outpatient or inpatient resources for secondary and tertiary care will be available for referral at all clinical units. Each unit will be self-contained and staffed with teams of fully trained members of each profession in the School, plus other professionals needed to complete the range of desired services; for the purposes of illustration, such a team might include physicians, dentists, dental assistants, social workers, nurse practitioners, health care coordinators, and clinical pharmacists. The precise numbers of faculty and non-faculty staff for each unit will be determined by the specific service and teaching commitments of that unit.

The clinical units, in which SHP students' major ambulatory-care clinical experience will occur, will be of three types: a central clinical unit at or near the School (in the case of UOP, at Pacific Medical Center in San Francisco), an urban clinical unit, and a rural clinical unit. One of each of these kinds of units is ideally required early in the School's operation. Preliminary estimates of size, location, staffing, and other features are included in Appendix 13; final

details will evolve as operation begins.* As the urban and rural units each serve different populations, the staffing patterns will be different from that of the central unit. For example, the rural unit will probably have a much smaller team, and access to secondary and tertiary care will be less direct.

Those faculty delivering care in the unit will function as a major support to the student, helping him to move through the curriculum toward mastery of his required competencies. A faculty adviser in the clinical unit will play a major role in the student's continued learning during Stages 2,3, and 4. The responsibilities of the faculty adviser are explained in the following chapter. Specific examples of the adviser's role are included in the module study guides in Appendix 1.

At any given time each student in a clinical unit will have a different set of capabilities from any other student. However, by the time they are certified by the School, all students will have achieved required levels of competence in every area. Within the context of a continuing responsibility for patient care and a stable cadre of faculty, the clinical unit makes it possible for the student to learn at his own pace. As a student demonstrates his capabilities for assuming increased responsibility for direct patient care, he will gradually become more involved in the day-to-day delivery of that care.

VI. CURRICULAR FLEXIBILITY AND CAREER MOBILITY

The lack of clear and unobstructed paths for career progression in the health professions is a problem drawing increasing attention. Career mobility, both vertical and lateral, is recognized as desirable for any profession, and efforts are being made to organize the allied health professions into such career lattices. A major response to this problem is the provision of such educational options as recycling through an entirely new educational program, participating in on-the-job training, and utilizing proficiency and equivalency testing.

The School of Health Professions, through its modular, competency-based, time-variable curriculum, provides a means for existing health

* Further discussion about various aspects of the development of the SHP clinical units is contained in Chapters 11,12, and 13 of this report.

professionals, as well as for individuals without experience in health care, to be matriculated with due recognition and credit for applicable work experience and prior education. Likewise, the flexibility of the SHP curriculum makes either a modification in health career goals or an interruption in schooling for the purpose of work a viable option for students.

In order to receive "credit" for his previous education and experience, the student must demonstrate specified levels of performance. The module study guides, with their specification of performance objectives, will expedite evaluation and "testing out" during the orientation period so that students with prior experience in one health profession (e.g., nurses aides, ex-corpsmen, various auxiliaries or assistants) can, by demonstrating their competence in the profession to which they aspire, avoid unnecessary repetition of "subject matter."

Similarly, should a student have meaningful reasons for changing his career, such a change would be accommodated if possible within the resources of the School. The student will receive credit for his demonstrated competence in any of the tasks and problems common to both his former and newly selected professions, and by testing out, will be able to transfer some portions of his learning experience to his new professional preparation. For example, if an SHP medical student decided that he preferred to become a nurse practitioner, he would need to demonstrate competence only in those areas of performances required by the nurse practitioner program that he had not already accomplished in the medical student program. Once he had gained certification as a nurse practitioner by the School, he would be prepared for licensure or certification by external agencies.

Some students, for financial or other reasons, may wish to exit temporarily during the course of their training to work at an intermediate level within their own professional tracks. For example, a student pursuing a career as a dentist may decide to leave school to work as a dental technician. He will need to find work compatible with his present level of training and permissible under existing licensing and certification regulations. At a later date he could resume his dental program. Since there may be some difficulty in placing students as

assistants, particularly in salaried positions, practicing professionals who are affiliated with the School will be encouraged to provide work experiences for students in their practices.

An interruption of schooling in order to work as an assistant in his professional field, enables the student to practice and apply the skills he has learned to a real-life setting. This kind of apprenticeship will provide him with an opportunity to test the merits of his career choice before totally committing himself to that career. During this period, the student can develop a concrete identification with his profession and possibly experience professional responsibilities that he may be unable to assume in his more carefully structured and supervised clinical training.

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CHAPTER 3

FACULTY

CHAPTER SUMMARY

The roles and responsibilities, selection, and orientation of faculty are discussed. There are three major roles for faculty: adviser to individual students and teams of students; resource faculty in specialized areas; and the primary-care clinician. Faculty will be selected primarily on the basis of their commitment to education and primary care. In addition to the usual methods of selecting faculty, great effort will be made to evaluate a potential faculty member's demonstrated performance as a teacher.

At the time of initial employment, a contract will be negotiated, specifically delineating the responsibilities of both the faculty member and the School and including the criteria and procedures for judging the faculty member's performance. Once hired, there will be an orientation period of approximately two months during which the new faculty member will become familiar with the educational plan of the School and begin to develop the personal relationships necessary for its successful implementation.

CHAPTER 3

FACULTY

I. INTRODUCTION

The highest priority of the faculty of the School of Health Professions will be the education of students. This is the implied goal of all institutions of higher education, but in health professions education in particular, teaching has often been regarded as secondary to research or patient care with respect to faculty selection, advancement and tenure. Inevitably, faculty are caught in a career conflict; a faculty member may be hired to teach, but he is rewarded for his publications and research. Even where high priority is given to faculty members' teaching and educational capabilities, the fact that these are not (or at least are not thought to be) as easy to evaluate as patient-care and research capabilities, makes it difficult to carry out a reward system centered upon individuals' educational strengths.

Better methods for measuring faculty effectiveness - e.g., utilizing student performance as the basis for measurement - are currently being investigated. Such methods may provide a basis for constructing a system of faculty selection and reward (see Chapter 6). Perhaps the most important outcome of these efforts will be to make the interdependence of faculty and student performance apparent. This interdependency - the bond between faculty and students for learning and delivering patient care - will be a cornerstone of the School of Health Professions.

The faculty of the School of Health Professions must be committed to the SHP educational philosophy, including priorities in education, patient-care, and research, and to a fundamental interest in primary health care. Although education and primary care will be the central concerns of the faculty, biomedical research will be encouraged, though primarily outside of the School itself (e.g., within the central university or a separate research institute). Research in education and

in health-care delivery will be encouraged within the School itself. Faculty will be responsible for sharing their interests and the results of their studies with colleagues.

II. DESCRIPTION OF FACULTY ROLES AND RESPONSIBILITIES

Both the full- and part-time faculty will participate in a range of activities, including teaching, advising, curriculum development, patient-care, research, and various administrative functions. The majority of the full-time faculty effort will be devoted to activities related directly to the School's educational program.* Teaching will be primarily in small groups and seminars, both within and outside of the clinical units.

In addition to faculty with backgrounds in clinical, basic, and behavioral sciences, there will be a small number of faculty with specific expertise in educational design and evaluation.

The SHP faculty will interract with students in three principal roles; a given faculty member can serve in more than one role.

ADVISER - There are two distinct kinds of adviser responsibilities:

- Student Advisers: The responsibility of a faculty member in the student adviser role will be to help individual students in planning, sequencing, and pacing their educational programs. In this capacity, the student adviser's functions are consultative and evaluative in nature. Activities for advisers include: (1) helping the student refine his career goals and guiding him in the design of an appropriate educational program; (2) helping the student acquire self-learning skills; (3) informing the student about available and suitable educational materials and faculty resources; (4) working with the student to establish a model for interpersonal relationships, as a step toward

*In Chapter 12, the assumption made for purposes of projecting SHP's operating budget, is that 70% of faculty time (averaged across professions and individuals) will be spent in the School's educational programs and the remaining 30% will be spent in patient-care or research activities not involving students (but considered essential for purposes of faculty members' maintaining their educational competence).

achieving the humanistic goals of the School; (5) helping the student determine whether his educational needs are being met; and (6) evaluating and providing feedback to the student with respect to his professional competence.

• Team Advisers: The function of a faculty member in the team adviser role will be to encourage group learning experiences in intraprofessional or interprofessional teams, including in the context of learning and delivering patient-care in the clinical units. The adviser will help to identify and coordinate appropriate learning resources as the needs of the team dictate. By encouraging cooperation rather than competition among team members, the adviser will help to establish the necessary environment for practicing a team delivery of health care.

Both the student and team adviser roles will be filled primarily by faculty members (representing all the professions educated in the School) experienced in the delivery of ambulatory care. Although it is not expected that advising will be any individual faculty member's full-time activity, it will probably be undertaken largely by faculty who are employed full time in SHP; the additional responsibility of advisers will most likely be clinical and administrative.

The student adviser role requires a close relationship between individual students and advisers, especially during the orientation and early stages of the curriculum. The development of this relationship will facilitate dealing with problems and difficulties that might arise anytime during the student's enrollment at SHP. Likewise, the team adviser will assist interprofessional and intraprofessional teams throughout their SHP experience, although the specific membership of the team will change from time to time as students progress through the curriculum.

RESOURCE FACULTY - The responsibility of faculty in the resource role will be to facilitate the student's acquisition of specialized skills or knowledge (e.g., biochemistry, drug counseling, gastroenterology, group process). This can be accomplished in a variety of modes, including individual consultation with the student in the clinical unit on a patient problem, small group seminars on a specific medical content

question, individual consultation on a basic science principle, or a team consultation on group process techniques. (Faculty with expertise in behavioral and biomedical sciences, in medical and dental specialties, and in education will also function as content experts in developing and updating the School's curriculum. Further discussion of the role of these "content experts" is included in Chapter 8.)

The functions of the resource faculty could be assumed by either part-time or full-time faculty members. Because of their probable backgrounds in clinical specialties or biomedical and behavioral sciences, those faculty who function in a resource role within SHP would, in addition to this role, be most likely to be involved in research or patient-care.

PRIMARY-CARE CLINICIAN ROLE - There are two distinct responsibilities subsumed by this role: teacher and practitioner. The essential function for either is to serve as a primary-care practitioner model (physician, dentist, health care coordinator, etc.) for the student.

- Primary-Care Clinician/Teacher: The faculty functioning in this role will instruct and supervise students working in the clinical units and other ambulatory-care facilities affiliated with the School. Advanced students will probably spend much of their time in the clinical unit learning and being closely supervised by these faculty.

- Primary-Care Clinician/Practitioner: In this role the faculty member will assume the responsibility for the continuity of health-care delivery in the clinical units, as a practicing health-care provider. In contrast with the clinician/teacher role, faculty functioning in the role of the clinician/practitioner will be teaching in the context of providing patient care, rather than directly supervising students' delivery of patient care. Students in the early stages of the curriculum (e.g., Stage 2) would likely spend much of their time in the central clinical unit observing and learning from faculty who are functioning in the clinician/practitioner role.

Although there are two distinct primary-care clinician roles, it is probable that one individual could alternate between the two roles

even within the time span of one day (e.g., teaching/supervising students in the morning; providing health care - with students observing - in an afternoon clinic). This arrangement would assure a continual balance of theory and practice for the faculty members serving in the primary-care clinician role.

Individuals who assume the responsibilities of the primary-care clinician role will usually be full-time SHP faculty members.

III. FACULTY SELECTION

A. Recruitment

The uniqueness and specificity of the three major faculty roles will necessitate the implementation of an active and extensive faculty recruitment program. Recruitment will be aimed at identifying and attracting individuals who possess the very specific and special attributes that are required to ensure successful implementation of the School's educational plans. Faculty with the following major characteristics will be recruited:

- *ADVISER and PRIMARY-CARE CLINICIAN FACULTY:* Primary-care providers who wish to devote substantial time to education, can demonstrate basic teaching or other educational skills, possess good communication skills, and wish to practice their profession as a member of a health-care delivery team.

  Faculty with adviser responsibilities will also need to be adept in counseling and group process skills.

- *RESOURCE FACULTY:* Primarily secondary- or tertiary-care providers or biomedical or behavioral scientists who are able to relate their specialized knowledge to the problems of providing primary health care.

Since SHP will want to attract students who are representative of all socio-economic backgrounds and to encourage students to practice in underserved areas, the recruitment program will make a major effort to identify, as prospective faculty, minorities, women, and health professionals currently working in underserved communities.

The geographical scope of the School's faculty recruitment program

will depend upon the School's site and the particular circumstances under which it is implemented. For a School established at UOP/PMC, recruitment of clinical and basic sciences resource faculty will begin within the confines of the Pacific Medical Center area - e.g., from the staffs of Presbyterian Hospital and the Institutes of Medical Sciences; and from the faculties of the UOP Schools of Dentistry and of Pharmacy, (the latter located in Stockton, California) - and, when necessary widen beyond it.* Faculty who will assume adviser and primary-care clinical roles would be recruited both locally (San Francisco area) and nationally.

B. Selection Process

The kinds and numbers of faculty openings will be determined by the School's educational program (rather than, for example, by considerations of individual professional or disciplinary strength or prestige). Once a faculty opening is identified, the initial step in the selection process will be the formulation, by the administration and faculty, of a job description specifying the responsibilities and candidate qualifications for that specific opening, in terms of the major roles described above. All reviews of candidates will be in the context of these specific job descriptions.

Usual methods of screening (such as curriculum vitae, written and verbal recommendations, and publications) will be employed in the preliminary stages of selection. Promising candidates will be interviewed by faculty, students and administrators. A final decision to hire will not be made without an assessment of a candidate's performance. One method that may be used to assess performance - resources permitting - will be visits to prospective faculty members so that on-site observations can be made. Examples of candidates' skills in communication and education will be observed or reviewed and the opinions of their current students and/or patients will be solicited. Alternatively, prospective faculty could prepare videotapes, or participate, while visiting SHP, in simulated situations that reflect the ones they will encounter in their prospective faculty roles.

*See Appendix 15 for a description of the institutions comprising the Pacific Medical Center complex.

C. Hiring

Once an offer is made and accepted, the new faculty member, and representatives of the faculty and administration, will jointly develop a contract. The contract negotiated at the time of initial employment will clearly delineate the responsibilities of the faculty member and the responsibilities of the School. The formal contract will specify:

- The faculty member's respective responsibilities in teaching, patient care, research, and administration;
- The criteria and procedure for measuring and evaluating the faculty member's performance in each of his areas of responsibility, including the designation of those individuals responsible for the measurement and evaluation, and the frequency with which the evaluation will occur;
- The faculty member's salary, fringe benefits and potential options for additional income;
- The means by which the faculty member may become competent in the educational areas required.

The contract will be periodically updated and subject to annual renewal; a contract will be renewed automatically provided that the faculty member meets his contractually agreed-upon performance criteria (and assuming the School's continued need for his kind of skills and expertise).

Improvement of the selection process will be dependent upon evaluation based on the performance of the faculty selected (Bolton, 1973).

III. FACULTY ORIENTATION AND TRAINING

Because there are no exact precedents for the School of Health Professions, most of its faculty will not have been accustomed to the distinctive educational plan of SHP, and many faculty members will have to learn new kinds of teaching roles and new ways of relating to students and administrators. An effective faculty orientation and continuing training program will be designed to facilitate new faculty

members' transition to the SHP environment and to assist them in improving their teaching and educational skills.

During orientation, faculty will be introduced to the details of the SHP educational plan, including the curricular modules and the evaluation system. Faculty will participate in the further refinement of the curricular materials, and will become sufficiently familiar with their contents to utilize them effectively. The primary-care clinician and advisory faculty in particular, will need to learn their respective responsibilities as incorporated into the various study guides.

The orientation will include an assessment of a faculty member's instructional skills, and assistance in improving these skills will be provided as needed. Each faculty member will, with the help of educational specialists, staff, and other faculty members, map out a continuing education program for himself, to be followed after the conclusion of the orientation period. On-the-job training in the process of education will be available to all faculty.

Since the faculty will be working in small groups during the orientation program, it it likely that an analysis of group process and team efforts will begin at this stage. In addition, the faculty will begin training experiences for the teaching of a team approach to primary care. The development of faculty teams is essential if faculty members are to serve as desirable role models for students. Thus, this preparation will serve two purposes: the faculty will become skilled in teaching team care, and the faculty will be able to work as a team to resolve common educational problems. Faculty training of this nature is presently being undertaken by the Institute of Health Team Development in New York. The Institute is a likely source of future assistance in preparing SHP faculty to teach interdisciplinary team approaches.

A period of approximately two months will be required for the orientation. At the end of this period, the responsible administration and faculty representatives will review the faculty member's performance and discuss any needed additional education or practice. The initially negotiated contract will be reviewed and any required changes will be incorporated. (For example, a change in a responsibilities may be necessary if the composition of the faculty or curriculum has changed.)

Clarity about each faculty member's roles and expectations, a system of rewards for educational as well as patient-care and research excellence, and the provision of on-the-job training in educational processes will all be essential to attracting and retaining the kinds of faculty to implement the School of Health Professions.

REFERENCES

Bolton, Dale L. Selection and Evaluation of Teachers. Berkeley: McCutchan Publishing Co., 1973.

Institute for Health Team Development. "Curriculum for Interdisciplinary Faculty Training," New York, 1974. (Unpublished document.)

CHAPTER 4

STUDENTS

CHAPTER SUMMARY

The criteria and procedures for student selection are discussed. Efforts will be made to choose students who have, in addition to satisfactory intellectual skills, major interests in primary-care delivery and the capability and motivation to assume responsibility for their own learning in a relatively unstructured environment. The emphasis will be upon selecting students who will succeed as practitioners (rather than solely as students).

Following an active recruitment program and an initial screening for satisfactory intellectual ability, candidates will be selected for interviews on the basis of attitudinal and motivational characteristics that can be assessed from a review of written application materials. Final selection will be made based upon personal interviews.

Membership on the admissions committee will be drawn from all academic levels and professions on the faculty, as well as from students and community representatives.

CHAPTER 4

STUDENTS

I. INTRODUCTION: THE STUDENT BODY

The educational program of the School of Health Professions suggests that SHP will be most attractive and most appropriate for students who are:

- Interested in a career in primary-care delivery;
- Intellectually and emotionally capable of succeeding in a self-directed, self-paced, relatively unstructured curriculum, and who are particularly motivated to assume responsibility for their own learning;
- Knowledgeable of the problems of current health-care delivery, and desirous of making improvements in it;
- Able to communicate well with others;
- Empathetic and caring toward others;
- Emotionally mature and flexible.

A student body with these kinds of characteristics is likely to include a large number of students whose backgrounds include work experience or formal training in health care and other service-oriented activities, participation in innovative educational programs, or involvement in independent academic projects. The preceding considerations will shape the School's admissions process and guide the self-selection that operates among its potential applicants. This chapter describes the principles and procedures of student selection that are appropriate to the School of Health Professions.

II. PRINCIPLES OF STUDENT SELECTION

A clearly formulated and effective student recruitment and selection program will be needed to ensure that the students admitted to the School are those most likely to become the kinds of professionals for whom the School is designed: concerned and competent primary-care

providers who can effectively utilize team methods of care delivery, and who are committed to a continual assessment and improvement of their professional competence. This - a student's probable career future, rather than his predicted capability strictly as a health professions student - will guide the establishment and implementation of the SHP selection process.

This last point deserves underscoring. Admission to health professions educational programs is often based heavily on an applicant's prior academic achievement, as defined and measured by grade point averages and performance on various standardized tests. Yet, there is no evidence that academic excellence in and of itself predicts the nature or quality of an individual's subsequent career performance.* Records of applicants' prior high academic achievement have been shown, at the most, to correlate with high academic achievement within the professional education program. High academic achievement prior to admission has not been shown to correlate with the clinical competence of the individual either while a student or later as a professional provider.

While our understanding of the factors that determine a student's professional career performance is imprecise, the SHP will make the important assumption that, assuming adequate intellectual capability, the student characteristics that correlate most strongly with clinical competence are ones involving motivation, character, and commitment - attributes that are not necessarily matched with academic superiority.

The intentional congruence of the School's performance-based curriculum and evaluation procedures with the anticipated nature of its graduates' professional practices should closely tie success as a student to competence as a practitioner. Thus, the School's student-selection criteria will emphasize the factors that appear to be strong prerequisites for delivering high quality patient care, which are largely non-cognitive ones.

However, there is no intention to disregard the relevance and importance of an applicant's academic and intellectual capabilities to his

* It is recognized that there is no universal agreement on what constitutes a "good" provider of health care. Certainly, insofar as SHP is concerned, the definition includes good judgment, empathetic relationships with patients, effectiveness in team-care delivery of health services, and dedication to self-evaluation and continuous learning.

competence as a health-care provider. The SHP selection process will regard the academic achievements and intellectual capabilities of its applicants in a perspective that recognizes that becoming a health professional requires a high level of intelligence and perseverance (both of which can be at least estimated by traditional measurements of academic performance), but that superior academic capabilities are not required to qualify an applicant for SHP.

Accordingly, a minimum standard of academic/intellectual capability, as measured by grades and/or various standardized examinations, will be established for each of the curricula within the School. The final level at which to set the prescribed academic standards can be determined only after the analysis of longitudinal data on the performance of SHP students and graduates. The sole purpose of the standard will be to identify those applicants who are sufficiently intelligent and academically capable to succeed in the SHP curriculum; its purpose is not to arbitrarily reduce the size of the applicant pool to a predetermined size or to limit it to only those who are the very highest academic achievers.

III. A SUGGESTED PROCESS FOR SELECTING STUDENTS

A. Introduction

The following framework is intended to illustrate the application of the above principles of student selection. Steps and details will be refined or changed once the decision to implement the School is made. Moreover, once operational, the process itself will be carefully evaluated to improve its functioning and the accuracy of its predictions.

The process outlined is intended to apply generally to all of the School's professional curricula; specific variations required from curriculum to curriculum are not discussed. The procedures apply most directly to students who will be official SHP students - i.e., medical, dental, health care coordinator, and nurse practitioner students. Admission to the SHP phase of training for social work and pharmacy students (who will be official students of other institutions and receive only part of their professional education at SHP) will be based upon criteria similar to those used in selecting official

SHP students, although the selection procedures can be less formal.*

B. The Procedure

Step One: Recruitment Program

The selection process will begin with an active student recruitment program designed to attract those individuals in whom the School is particularly interested and to discourage those for whom the School of Health Professions is not appropriate and whose chances for acceptance are negligible.

The recruitment program has two paramount responsibilities. The first is to attract as large a number as possible of qualified applicants from all socio-economic backgrounds. The second is to communicate as clearly and thoroughly as possible SHP's educational environment (including its experimental nature), educational requirements, and other expectations for its students. Caution will be necessary to prevent prospective applicants from misconstruing the School's flexibility in admissions criteria and in educational programming as leniency in either regard.

Step Two: Initial Screening

An academic/intellectual standard (as measured by past academic experience and/or results on standardized tests) for each professional program will be used as an initial screen of all applications - to eliminate applicants whose intellectual ability does not appear to be high enough for successful performance both as students and as competent health-care providers.

Step Three: The Second Screen - Selection for Interviews

Offers of admission will be limited to applicants who have been interviewed, and therefore, the basis upon which interviewees are selected is critical. This selection (from among all of these who have passed the initial academic screen) will be based upon a review of written application materials. This second review will evaluate and

*Acceptance of social work and pharmacy students into SHP will, of course, require the agreement of the institution from which a student will earn his professional degree; for a School implemented at UOP/PMC, representatives of the UOP School of Pharmacy and the UOP School of Dentistry will participate in the selection of students for the SHP dental and pharmacy programs.

rank applicants in accordance with predetermined criteria of the following kind:

- Probability of pursuing a career as a primary-care provider (a prediction that is currently difficult to make);
- Capability of engaging in self-directed learning;*
- Satisfactory verbal skills;
- Prior experience in or with health care, or an awareness of the realities of contemporary health care delivery;
- Potential to adapt to a variety of roles and levels of responsibility in the health-care delivery system;
- Pertinent educational background (such as particularly relevant subject matter or methods of education);
- Positive and empathetic attitudes toward others.

The degree to which each applicant has exceeded the minimum academic/intellectual standard for his professional program is not among the factors to be taken into account. To prevent the temptation to give undue weight to an applicant's academic achievement per se, this information could be excluded from the applicant's application docket once the initial screening has been completed.

In addition to a standard written application, documents that could be used in selecting applicants for interviews include written recommendations (structured and non-structured) from job supervisors, teachers and personal associates; supplemental questionnaires; and, possibly, non-cognitive assessment instruments. The reliability and validity of some of the information provided from these sources is subject to question and experimental study; great care will be required to use such information in a fashion consonant with its reliability

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* As evidenced for example by participation in independent study programs, self-initiated academic projects, and high quality independent research or thesis work; non-cognitive assessment instruments, useful in predicting independent instructional learning style preferences, could possibly be used as well.

and validity.*

The composition of the interviewee "pool" is crucial to a successful selection process. To maximize the reliability of selecting this group by means of an evaluation of written materials, substantial attention will be given to refining and prioritizing the proposed list of selection criteria, and to developing written documentation that will facilitate accurate judgments of the extent to which an applicant meets those criteria.

The quality of the applicant pool and the availability of School resources will influence the decision as to whether to hold the number of applicants interviewed to an arbitrary number or, alternatively, to offer interviews to only those whose application materials meet or exceed a certain predefined rating.

Step Four: Interviewing and Final Selection

The interview will play a particularly significant role in the selection process. Despite current studies questioning the validity or necessity of interviewing applicants, the SHP planning staff believes that it is indispensable to interview all SHP applicants who are being seriously considered. Interviewing is the only - albeit far from foolproof - way in which the School can obtain the information and feedback required to evaluate the applicant's suitability for SHP, and in which the applicant can evaluate the appropriateness of SHP to his needs and interests.

An interview can help to assess attributes and capabilities that cannot be adequately judged from paper credentials alone: the applicant's interpersonal communication skills, his judgment, his motivation, his problem-solving skills, his suitability to the SHP learning environment, and his potential to relate warmly and comfortably with patients, faculty, and peers. (This latter consideration is especially significant in view of SHP's emphasis on preparing its students to become providers of humanistically oriented patient care.) If possible, role-playing exercises

*Further, it recognized that the primary motivation for some applicants to have engaged in some of the health-care and innovative educational activities mentioned above may have been to acquire "admission tickets." Though a distressing factor, its relevance is uncertain; for example, no matter what the applicant's original motivation to spend a summer working in a health-care clinic, his actual behavior and experience in that setting may be all that matters.

or tests that will assess problem-solving abilities (not unlike patient management problems) could be utilized during interviewing to discern an applicant's ability to function well in health-care settings.

The direct observations of behavior and personality possible only in a person-to-person meeting can help to discriminate positively among many qualified applicants whose paper qualifications are similar. Conversely, as a negative selector, the interview can serve as a safeguard to the School, and ultimately the public, by eliminating from further consideration any applicant whose behavior during the interview signals unresponsiveness, lack of warmth, or poor judgment.

A standardized form for rating interviews will be developed. All applicants whose rating equals or exceeds a predetermined level will, by definition, be considered acceptable for admission to the School. If the predetermined minimum - which should be set independent of the number of applicants interviewed and of the number of available places - has been set high enough, it is unlikely that there will be any validity in trying to make further discriminations among the individuals in this group of acceptable applicants. Therefore, should the number of acceptable applicants exceed the number of offers of admission to be made, the final selection will be made on a strictly random basis.

Many significant details - such as specification of the relative importance of various non-academic selection criteria and of the most reliable way of evaluating applicants against those criteria (both in the review of application materials and in the interview) - have been omitted from the above description of the student-selection process. This omission reflects the planning staff's belief that such details are best left to those who will implement the selection process and to its recognition that in some cases, greater specificity needs to await the results of more extensive research both within and outside of the School of Health Professions.

C. Admissions Committee

The composition of the admissions committee will reflect the goals of the School and of its selection process. Membership will be drawn from all academic levels and all professions on the faculty, and (as they become available) from students. Community representatives

(including patients, potential patients, and organizations with a stake in health professions education and health-care services) will also be included. The composition of the committee should be shifted from time to time, as needed, to reflect the current emphasis of the School. To ensure both heterogeneity and continuity, the committee's membership could rotate on a staggered, three-year basis.

An orientation program will be developed for oncoming admissions committee members. The purpose of the orientation will be to clarify the goals and procedures of the student-selection process and to help members interpret and apply admissions criteria in an uniform a manner as possible.

As the School grows in experience and complexity, new problems will arise, and alternative means of student selection may become apparent. The committee will review annually its policies and procedures and make appropriate changes. As will be true of all components of the SHP, the committee will assemble a data base and develop instrumentation to refine the selection process. These data and instruments will serve not only the needs of the School of Health Professions, but those of the broader health professions education community and of the general public, all of whom are increasingly aware of the extent to which improvements in health-care delivery are dependent upon reorienting the procedures by which future health professionals are chosen.

CHAPTER 5

ORGANIZATION AND GOVERNANCE

CHAPTER SUMMARY

The School's organization and governance are designed to be congruent with its goals and functions. The roles, responsibilities, and accountability of students, faculty, and administrators will be defined and reviewed annually in an effort to make more explicit the criteria for decision-making. A new group named the "SHP governing body" will constitute the final fiscal and policy-making structure. It will formally relate to the parent university and its external affiliated research, patient-care, and educational entities.

Internally, the School's organization will not be based on a departmental structure, but rather will follow the form and function of the educational plan. The organizational structure includes a "module committee" and a "professions committee." For purposes of health-care and disciplinary research, departmental organization and identity will be maintained in affiliated institutions.

CHAPTER 5

ORGANIZATION AND GOVERNANCE

I. INTRODUCTION: THE OBJECTIVES OF THE ORGANIZATION OF THE SCHOOL OF HEALTH PROFESSIONS

The School of Health Professions must be organized to function responsibly and responsively for its internal and external constituents. An organizational and governance plan in concert with the basic rationale of the School of Health Professions will be one that:

- Maximizes communication;
- Involves interested and affected parties in decision-making;
- Avoids a rigid structure that precludes reasonable change;
- Places authority for educational matters within the faculty;
- Preserves the School's multiprofessional emphasis in all programmatic decisions and in curriculum implementation;
- Provides for ad hoc groups or task forces to deal with specific definable issues (and to disband when no longer needed);
- Determines criteria for accountability, and provides a mechanism for feedback and evaluation for all component groups within the School;
- Provides for an orderly transition of power as people and programs change;
- Clearly assigns advisory and decision-making responsibilities (to individuals and groups within and outside of the School, as appropriate) concerning: (1) academic affairs (instruction, curriculum development, selection

and promotion of students, and selection, assignment and promotion of faculty), (2) fiscal management and allocation of resources, (3) organization and delivery of patient-care services, and (4) management of research.

The organizational structure must be sufficiently specific and defined to protect the educational plan and ensure academic freedom, while being general and flexible enough to recognize the need for and even encourage change. The organization must provide a mechanism whereby patients, students, faculty, non-professional employees, and those segments of the private and public sector that support the School financially have a clear opportunity for real involvement in the decision-making process.

It is assumed that the School of Health Professions will be implemented within an existing academic health center. The organizational plan must, therefore, delineate the School's relationships with at least four groups: the parent or sponsoring university; affiliated hospital(s) and ambulatory-care facilities; adjunct research institute(s); and the surrounding community.

One of the unique features with which the School's internal organizational structure must deal is faculty governance within a multi-disciplinary context; a way must be found to give adequate voice to the legitimate needs of the faculty in each of the various professions, while preventing unwarranted splintering of the faculty along professional lines. It is also essential to assure that part-time faculty are given appropriate and realistic representation in governance and decision-making.

There are no existing models that seem entirely appropriate for either the internal or the external organization of SHP. The basic tenets of the SHP organizational plan must evolve from experience with traditional models and an awareness of their strengths and weaknesses, from consultation with experts, and from the formulation of alternatives or options. The development of a plan will require continued study and discussion by a small but representative group of the School's initial faculty and administrators.

The organizational guidelines that are presented in this chapter are based upon a desire to relate the School's structure to its functions. The achievement of this objective will entail modifications to the traditional forms of organization and governance in health professions education institutions. However, the organizational structure and the major academic and administrative policies of the School of Health Professions must be congruent with those of the university with which the School affiliates.

II. RELATIONSHIPS WITH AFFILIATED ORGANIZATIONS AND EXTERNAL CONSTITUENCIES

A clear and appropriate delineation of responsibilities and authority between the School and its several affiliated patient-care, educational, and research organizations is essential to the goals of SHP. A means of obtaining the guidance of other affected external groups and individuals in the determination of SHP priorities must also be developed.

The final fiscal and major-policy decision-making responsibilities for the School will be vested in a group named the SHP governing body, which will be established early in the School's development. The governing body will serve as the official link between the School's internal components and its various affiliated and external constituencies. Whatever the local circumstances under which the School is implemented, its governing body should be comprised, minimally, mally, of representatives of its parent university, of the ambulatory-care, hospital, research, and major educational institutions with which it affiliates, and community leaders and lay people representing patients. The governing body will help (in concert with students, faculty, and alumni) to ensure the School's success and accountability to the public, to bring pertinent experience and perspective to the review of the School's policies, and to present to the School's administration, faculty and students, the pertinent interests and concerns of the community and of groups not represented on the governing body.

The SHP governing body could either be formed from an existing

structure, such as a university board of regents, or be developed as a new, free-standing body. The external organizational structure proposed in this chapter (see Figure 1) is based upon a newly formed governing body - i.e., the SHP governing body will relate its activities to the School's parent university and to its affiliated research, patient-care, and educational entities, but it will function autonomously from the boards of regents (directors, trustees) of any of these institutions.

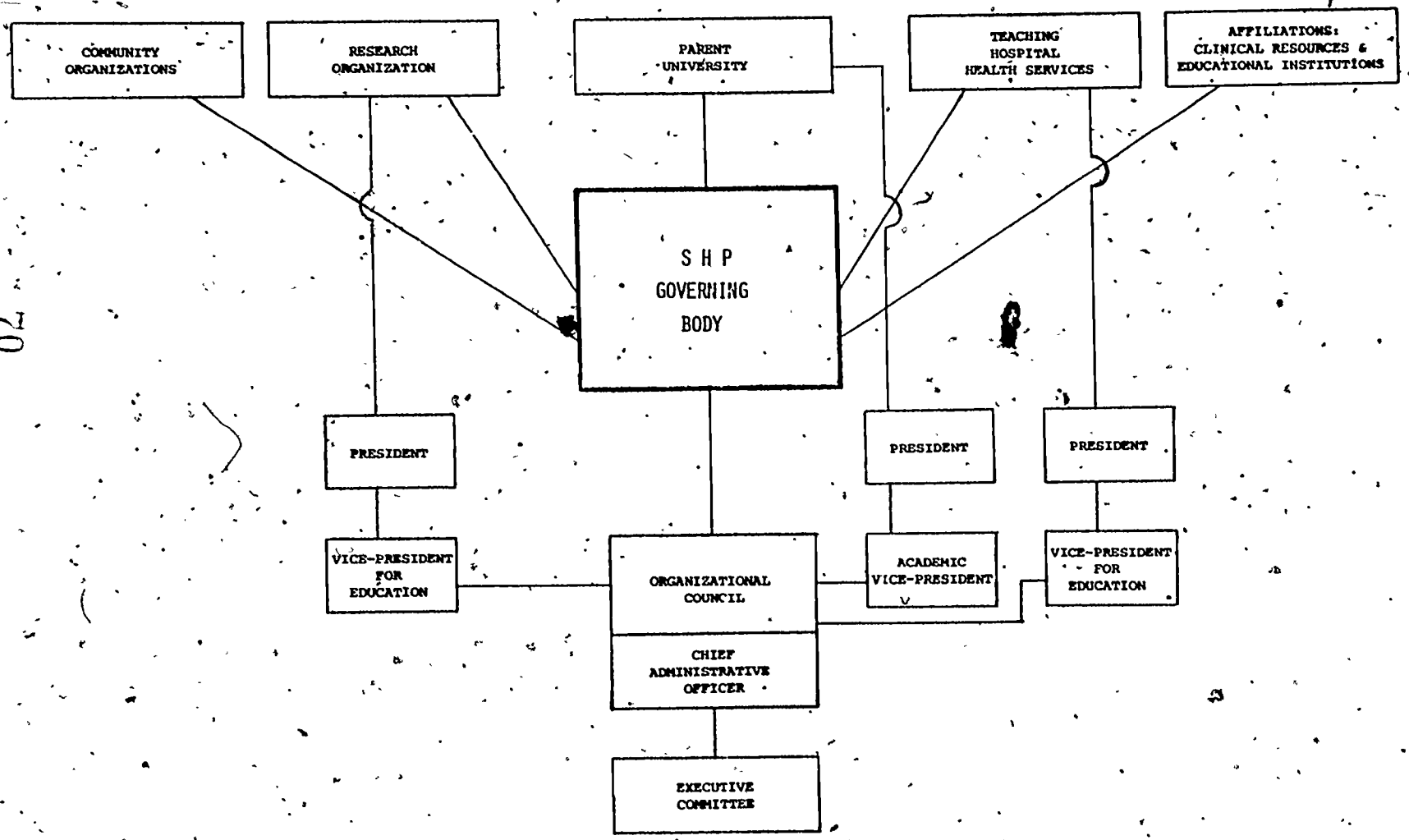
All members of the SHP governing body will serve for finite terms, and their reappointments will be regulated. All initial and subsequent members will be selected by the respective governing boards of the parent university, the affiliated hospital, the affiliated or adjunct research organization(s), the various other affiliated clinical and educational organizations, and community organizations. An individual designated to serve on the SHP governing body need not be a member of the governing board or an employee of the organization by which he is selected, though he should be able to represent the views of that organization. It is anticipated that those who are selected to membership on the SHP governing body will be primarily community leaders and representatives of the professions being trained in the School.

It is essential that members of the SHP governing body be particularly, and perhaps singularly, committed and dedicated to the goals of the School. Innovation in education requires constant modification and rethinking; individuals with simultaneous responsibilities or commitments to other educational institutions would find themselves rapidly over-committed and frequently confronted with potential conflicting interests and priorities between SHP and the other (competing) institutions.

The organizations that appoint members to the SHP governing body will retain authority in those areas with which they are traditionally and appropriately concerned; thus, academic appointments to SHP will be handled through the parent university; research appointments and activities will be handled by the research organization(s); and patient-care policies and services and appointments to hospital staff and departments will be the province of the pertinent hospital

FIGURE 1

PROPOSED EXTERNAL STRUCTURE
FOR A
SCHOOL OF HEALTH PROFESSIONS



health services organization.

The SHP governing body will relate to the School's chief administrative officer through an SHP organizational council (see Figure 1); the organizational council will include the academic vice-president of the parent university and the respective vice-presidents of education for the affiliated hospital health services and research organizations. The chief administrative officer of the School would be a member and the chairman of the organizational council.

The arrangements described above for the School's relationships with its affiliated organizations and external constituencies represent only one of several potentially workable arrangements. A number of optional structures for the School's "external organization" - with reference specifically to a School implemented at UOP/PMC - are presented in Appendix 4.

Formal legal relationships will be required between the School and each of the health-delivery institutions with which it affiliates for the purposes of student education. A sample formal affiliation agreement is included in Appendix 5.

III. INTERNAL ORGANIZATION OF THE SCHOOL OF HEALTH PROFESSIONS

A. Faculty, Student, and Administrator Roles and Priorities

The internal organizational structure proposed for the School of Health Professions is designed to make it possible for faculty, students, and administrators to fulfill their respective major responsibilities and priorities as described below:

- Faculty: SHP faculty will be responsible for developing and providing the educational experiences required by the curriculum. Members of the faculty will engage in patient-care and/or research (i.e., educational, clinical, or biomedical) as appropriate to each faculty member's background, to his needs for professional growth and development, and to the priorities of the School. Faculty members will also help to develop a governance plan that specifies authority, responsibilities, and

accountability, and will be responsible for abiding by the plan so developed.

Each faculty member will relate to the administration through a formal contract (specifying responsibilities, terms of performance, and means of evaluation), which will be the basis upon which a faculty member's performance will be judged and upon which his continued employment and promotion will be based.

- Students: All SHP students will accept responsibility for their own education and for effectively contributing to the selection and promotion of students and faculty. This latter responsibility is not an accepted practice in many schools. Although the responsibility will require students to invest sufficient time and effort beyond that required for reaching their strictly educational goals, it will increase and improve communication between faculty and students, and is considered by SHP to be an integral part of becoming a professional.

- Administrators: The primary function of the administration is to facilitate the educational activities of the School. SHP administrators will: (1) facilitate the interaction of faculty and students in the pursuit of the School's goals; (2) suggest, guide, and present options in priorities and suggestions for change; (3) provide the atmosphere and support for faculty and students to continually clarify goals; (4) relate to the SHP governing body concerning their performance of contractual expectancies (similar to the way in which faculty will relate to the administration); (5) become involved with all segments of the School and community in establishing policy, setting priorities, and developing programs; and (6) be the accountable officers for the School - for its management and

its continuing functioning and support.

B. The SHP Internal Organization: Structure and Function

The proposed internal structure for the School of Health Professions is illustrated in Figure 2.

The departmental organization familiar to dental, medical, and other health professions schools will be avoided in SHP; departmental structure, wherein each department has its own internal goals in research and graduate training, would be contrary to the SHP goal of providing education for the team delivery of primary health care.

However, the need for some administrative structure along professional lines for the purposes of health-care delivery, research, and graduate education is recognized. Hospital and specialty groups affiliated with the School will maintain departmental organization and identity. Similarly, the affiliated research institutes will maintain their organizational structures organized around disease, organ, or basic science disciplines. However, the internal organization of the School itself will not be based upon a departmental structure. SHP faculty will be able to maintain professional, financial, and academic associations with pertinent departments outside of the School, while working in a non-departmental arrangement within the School.

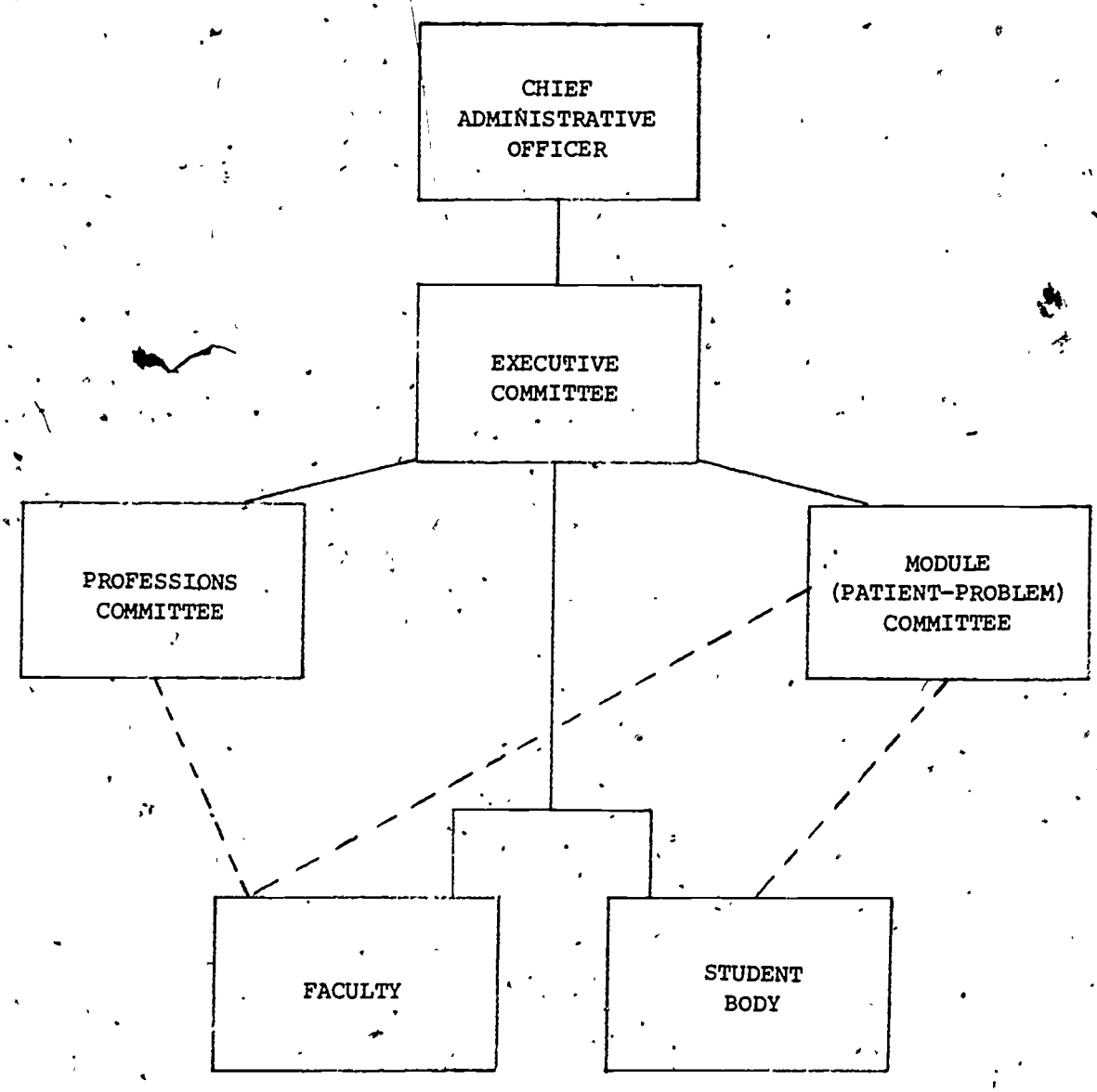
There are a variety of ways in which the faculty could be organized for advisory and decision-making purposes. For example, the various stages within the SHP curriculum (see Chapter 2) might be used as the basis upon which several committees could be developed. Another, more traditional, way would be to have one committee consisting of representation of basic scientists and of clinicians. Other possibilities would be to use organ systems or typical departmental structures as the mode of faculty representation for advisory and decision-making purposes.

The organizational principle selected for the School is neither of the above; instead, the basis upon which faculty advisory and decision-making groups will be formed will be the patient-problem modules upon which the curriculum is based.

A module committee, whose membership will be composed of, and

FIGURE 2

PROPOSED INTERNAL ORGANIZATION FOR A SCHOOL OF HEALTH PROFESSIONS



elected by, faculty, students and educational personnel, will be created; it will be responsible for the development of instructional materials, the evaluation and implementation of clinical experiences, interprofessional education, and the final student evaluation for the respective modules. As considerable overlap of involvement in the modules being developed will exist, a formula will need to be established to regulate the distribution of faculty, students, and support personnel on the module committee so that adequate and appropriate distribution can be assured.

The professional identity of SHP faculty members will be recognized through the establishment of a professions committee, whose membership will be composed of, and elected by, faculty from each of the professions educated in the School. The professions committee will be charged with specific responsibilities relating to health care (e.g., handling conflicts over areas of professional responsibility and authority). It is probable that both inter- and intra-professional subcommittees will be formed to deal with matters such as licensure (and relicensure) of students and faculty, new research developments or activities, and employment conditions. The various administrative concerns of the faculty, such as space, support personnel, travel, and changing assignments, will be handled through the professions committee.

The professions committee and the module committee will be the prime source of elected representatives to the SHP executive committee. The executive committee is the senior decision-making and advisory body to the central administration. It will meet, at frequent and regular intervals, with the chief administrative officer and others from the School's administration. The executive committee will set general internal School policy guidelines, in coordination with the chief administrative officer, and review and recommend appointments and promotions of both faculty and students.

The third source of executive committee members will be representatives from the faculty and student body who will be placed on the executive committee by general election. For purposes of initial discussion, it seems that weighting the representation of various constituencies on the executive committee would be desirable. (For example,

representatives from the module committee, professions committee, and from the faculty and students could be distributed at 4:2:1; thus, an executive committee of fourteen members, plus the chief administrative officer, would be composed of eight members from the module committee, four members from the professions committee and one representative each from the faculty and students.)

The central administration has not been specified beyond the chief administrative officer. By creating labels (e.g., dean, associate dean, president, vice-president, etc.), a set of expectations is created as to the style and activity of these individuals that may not be consistent with functional needs of the School of Health Professions.

Each committee (professional, module and executive) will have both advisory and decision-making roles. The professions committee will have decision-making responsibilities in health care, and the module committee will have decision-making responsibilities in curriculum implementation and interdisciplinary education. The executive committee must establish with the chief administrative officer a clear understanding of their respective decision-making responsibilities.

It shall be the duty and power of the faculty, through its elected representatives on the executive, professional and module committees, to recommend to the executive committee, and particularly to the administration or chief administrative officer, management decisions regarding the policy, goals and organization of the School, the welfare of its faculty, and the School's performance of teaching, research, and service functions. The faculty shall formulate and determine educational policy. The faculty and students shall also formulate and recommend student admissions requirements, determine criteria for student promotion, and shall recommend to the SHP governing body the granting of appropriate degrees.

From time to time, ad hoc or task force groups, primarily of faculty and administrators, will be created to handle specifically defined and critical issues for which consideration by the executive, professions, or module committees would be inadequate or inappropriate. To prevent creating rigidity and excessive complexity in the School's organizational structure, these groups should be disbanded as

soon as they have accomplished their express purposes. Such committees may be established, and their membership determined, by the chief administrative officer, by the executive committee, by the professions committee, or by ~~the module committee~~. Unless an ad hoc group's specific charge logically precludes students, every ad hoc group will include one or more student representatives.

IV. GENERAL ACADEMIC AND ADMINISTRATIVE POLICIES

When members of specialties, research organizations or patient-care departments outside the School are assigned educational functions within the School of Health Professions, their primary responsibility will be the education of SHP students; other responsibilities and duties will be of secondary consideration during the time of assignment. Each year faculty members of the SHP will negotiate the extent of their respective time commitments and responsibilities and their means of compensation with the School's chief administrative officer, and with the director of the professions or module committee and the chairman of their (external) patient-care or research department, if applicable.

A faculty member may first be recruited by an educational program within the School or by an outside patient-care or research department. If recruited by an educational program within the School, he may choose to have a secondary appointment within the appropriate external department.

The School of Health Professions has the responsibility to document, record, and evaluate its educational planning and implementation. To this end, educational, health-care and behavioral research shall be integral parts of the School and its first research priority. However, scientists with a major interest in biomedical research will also be encouraged to become involved in the School. For example, the Institutes of Medical Sciences (IMS) are an integral part of the geography and atmosphere of Pacific Medical Center in San Francisco. If the School were implemented at UOP/PMC, negotiations for time and space (for biomedical research) with the IMS would be carried out by prospective faculty members and by the chief administrative officers

of the School and of IMS. (See Appendix 15 for a description of the several institutions conprising the Pacific Medical Center complex.)

Faculty policy will conform in general to the statement of governance of colleges and universities in the American Association of University Professors documents and reports (1971), with the exception of tenure. As traditionally applied, tenure means continued support of a tenured individual, regardless of his performance of duties; only immoral behavior or program deletion are considered legitimate grounds for dismissal. In the School of Health Professions, a faculty member's continued employment with the School will be subject to annual renewal; his employment will be renewed automatically, provided that he has met the contractually agreed-upon performance criteria (and assuming the School's continued need for the skills and expertise of the faculty member). It should be emphasized that over the long range, the demonstration of excellence and creativity beyond the simple meeting of minimal performance criteria from year to year will be expected. This approach is intended to assure quality performance by faculty without sacrificing freedom of expression.

To permit the expression of a reasonably broad range of views by those who will have to abide by the School's governance, the writing of specific by-laws for the School of Health Professions should await the arrival of the initial faculty and administrators who will implement the School, and should be reviewed by students when the School opens.

CHAPTER 6

EVALUATION

CHAPTER SUMMARY

Evaluation is particularly important for the SHP since many of the School's concepts are experimental and dependent upon systematic assessment of performance. Systematic procedures are described and illustrated for evaluation of students, curriculum, faculty, administrators, and the organizational structure.

CHAPTER 6

EVALUATION

I. INTRODUCTION

The evaluation system at any educational institution is one of its most important components. It is particularly important for the School of Health Professions, many of whose concepts are experimental and dependent upon systematic assessments of performance.

The SHP defines evaluation as the process of describing some person, process, event, or product and judging its worth with respect to an explicit or implicit standard (Stake, R., 1967). Such judgments should usually provide information useful for decision-making.

Some evaluative activities occur informally as the student proceeds through the program. Evaluation experts have termed this formative evaluation since it helps form the instructional program. Students use the informal feedback obtainable from faculty contact and practice examinations to alter their study habits and devote increased time and effort to areas of deficiency. Faculty closely monitor educational programs as they unfold to discover where faculty effort needs to be increased or redirected, or where additional resources need to be brought forward.

At periodic intervals, it is necessary to make basic decisions about students or programs which require a more formal gathering and weighing of evidence. These evaluations are called summative evaluations. Since both the achievements of the students and the effectiveness of the programs, faculty, administrators, instructional resources and materials must undergo evaluation, the School will have four types of evaluation in progress at all times: (1) formative evaluation of students; (2) formative evaluation of programs, faculty, administrators, instructional resources and materials; (3) summative evaluation of students; and (4) summative evaluation of programs, faculty, administrators, instructional resources and materials.

II. PRELIMINARY EVALUATIVE PROCEDURES

Some preliminary steps essential to an effective evaluation process have already been performed in the course of planning the School of Health Professions, and this report reflects some of them. It is desirable that any new program and any revision of existing programs in health professions education be able to answer the following questions:

- What are the program's goals and objectives in terms of both instructional process and student performance?
- Are these goals and objectives appropriate and congruent with the demands of the present health-care system?
- Is the educational system that is planned to reach these goals appropriate, feasible, and practical in terms of cost-effectiveness, the state of present-day knowledge about health-care systems, the organization of medical education, and the principles of learning?
- What assumptions are made in designing the system?
- What methods are used to test these assumptions and then to modify the program accordingly?
- What data are to be collected regarding the program?
- When should reassessments of the program be made?
- How can improvements and changes in the program be made after it is underway?

III. PROPOSED FORMS AND METHODS OF EVALUATION

A. Introduction

Two evaluation biases should be made explicit to the reader. The first is the need for frequent and agreed-upon feedback concerning performance, regardless of whether the subject is students, curriculum, faculty, administration or organization. The second is that such feedback is infinitely more likely to change behavior in desired directions if the people affected agree beforehand on the frequency and kind of feedback and criteria involved.

B. Evaluation of Students

The evaluation of students will have three major goals. The first and most obvious will be ensure that each student demonstrates the competencies explicitly required by the School. The second goal will be to provide each student with frequent opportunities to assess his own progress. The third will be to provide the faculty with frequent evidence concerning each student's progress. The second goal should be achieved by virtue of the numerous self-evaluations in each module study guide (see Appendix 1 for examples) and the third goal should be achieved by virtue of the communications system described in Chapter 7. Therefore, this section focuses on the first goal - i.e., assuring that the student demonstrates the required competencies.

The evaluation of student achievement ranges from informal nods or words of approval to the certifying examinations found in each module study guide. The choice of assessment device or procedure will be suited to the kind of competemcy being evaluated. For example, if recall of knowledge were important to a particular objective, a multiple choice, true/false, or matching question format would be used since these are most suitable for evaluating this type of competence. If one wished to measure a student's ability to apply information, one could select a Case Study Problem format. (Fleisher, D.S., 1972; for an example, see pages 34-36 of the Obesity Module Study Guide in Appendix 1.) If problem-solving or clinical judgment is being assessed, then one could select a Diagnostic or Patient Management Problem, other written or computer simulations (Helfer, P.E., and Slater, C.H., 1971; McGuire, C.H., and Babbott, D., 1967; Williamson, J.W., 1965; Harless, W., et al, 1971) or an audit of the student's actions in patient records (Weed, L.L., 1972). For psychomotor skills (e.g., opthalmoscopy), non-written simulations are appropriate (Arsham, G., Colenbrander, A., and Spivey, B., 1973). Also, simulated patients can be utilized to evaluate communication skills. Various simulation problems are included in the modules so that students can gain practice and feedback in informal settings prior to encountering such problems in formal certification situations.

The achievement of attitudinal goals can be measured in three major

ways: by questionnaire, through structured role-playing exercises, or through structured oral examinations. The major attitudinal assessments will be made by faculty (especially advisers) and by fellow students. The evaluations in the School of Health Professions will emphasize application and problem-solving much more than recall of information.

It should be emphasized that in all cases, acceptable levels of performance will be predetermined before an evaluation is conducted. This ensures a criterion-referenced approach. A student either succeeds or fails to demonstrate a particular level of performance. If he fails, he has the opportunity to repeat (within limits) until he is able to demonstrate mastery.

C. Evaluation of Curriculum

It is highly desirable to monitor the day-to-day operation of the curriculum so that changes can be made during the program to correct for deficiencies. This can be done by faculty observation, informal discussions with students, student questionnaires, and analysis of student performance on practice quizzes. For the clinical aspects of the curriculum, data will be gathered from patient records and charts, informal observations, and patient opinion.

The major curricular components to be evaluated are the modules, both individually and in the context of the full curriculum. The effectiveness of each module, the clarity and appropriateness of instructional materials, and the sequencing and pacing of student study are examples of areas to be evaluated. Sources of data will include student performance during each module and in the clinical units; student attitudes toward the instructional materials, learning experiences, curricular organization, and faculty performance, and faculty opinion regarding ease of implementation and student problems.

The educational components of the clinical units are a second major subject for curricular evaluation. The ease, efficiency, and effectiveness of student-patient-faculty interaction are examples of areas to be studied. Data sources will include direct observation, interviews, and questionnaires.

Practice profiles systematically derived from patient records will provide current information on changes in incidence or prevalence

of health-care problems and diagnoses. Such changes could then be used to update the curriculum.

At regular intervals (e.g., yearly), student, faculty, and administrative representatives will review data on such overall issues as the following:

- Are the original curricular objectives still appropriate? If not, what changes need to be made and why?
- What evidence is there that the students are accomplishing the objectives? Is the evidence adequate or is more needed?
- What do the students and faculty think of the curriculum? Why do they feel the way they do? If student or faculty comments are not acted upon, why not?
- How effective has the faculty been in planning instruction and in relating to students?
- Are the program goals still appropriate?
- Are the goals, objectives, and instructional methods still congruent?
- What changes in the objectives, instructional procedures and evaluation methods need to be made in response to data from student performance and opinion?
- What new data must be gathered?

The measurable goal of the curriculum is to prepare graduates who can demonstrate the required collective competencies in a reasonable period of time. Beyond that, however, the School will gather data on the experience of its graduates in terms of placement and success in their practice settings and the extent to which the curricular goal of developing lifelong learners is being fulfilled.

D. Evaluation of Faculty

Assessing faculty competence is a complex and controversial task. With respect to a faculty member's educational efforts, several possibilities exist. The ultimate measure is the amount and rate of learning of the students for whom he accepts responsibility. This may appear paradoxical in a school that professes to place the major burden

of responsibility for learning on its students. The explanation is that while it is the student's responsibility to learn, it is the responsibility of the faculty - especially of the faculty advisers - to guide and counsel students to learn more efficiently on their own. Faculty responsibilities for facilitating student learning are specified in a faculty performance profile (see Chapter 7).

Other modes of evaluating faculty educational efforts include the following: (1) student feedback, mainly in the form of questionnaires; (2) analysis of the amount of time spent in educational activities (advising, individual and small-group teaching, creating module study guides, and service on educational committees); and (3) analysis of the quality of these educational endeavors. It is important to emphasize that teaching will not be evaluated on the basis of comparison with an ideal, because there is no one best way to teach. Rather, there are many educational styles and methods which ultimately promote learning, and each faculty member will be evaluated individually, in terms of his abilities to maximize his strengths (and minimize his weaknesses) in assisting students to achieve thier individual learning goals expeditiously.

A faculty member's research will be evaluated by those of his peers who are qualified to perform such an evaluation. The patient-care activities of the faculty can be evaluated in much the same way that was suggested for students - i.e., by means of patient-care record-audits. Patient interviews, and possibly patient compliance studies, can also be used.

Faculty reappointment, promotion, and salary increases will be based upon an individual's satisfactory progress in the course of frequent feedback of evaluative information. To the greatest extent possible, faculty evaluation must be conceived of as a positive method of encouraging and guiding individuals to improve their educational effectiveness; its potential for being regarded or used in a pejorative or punitive way should be avoided . For the system to be implemented in this spirit requires that the School make available adequate resources (e.g., in-service training) to enable faculty members to improve their performance in accordance with the feedback and direction they receive in the evaluation process.

E. Evaluation of Administrators

Administrators in the SHP are conceived of as facilitators and coordinators. Therefore, wherever possible, the specific responsibilities of each administrator will be defined in an individual performance profile (see Chapter 7). Each profile will contain statements referring to the timing, frequency, and criteria for the review of the administrator's performance; these reviews will provide feedback to the administrator and become springboards for corrective actions on his part. The reviews should be available to those in the School to whom the administrator is ultimately responsible and accountable.

F. Evaluation of Organizational Structure

A review mechanism will be incorporated into each organizational mode utilized in the School. For example, suppose an ad hoc group is given the task of defining a series of problems, putting them in priority order and suggesting options for their solution. In the formation of such a group, some written statement should be made regarding review of the group's work (i.e., the timing, frequency, and criteria for the review). This philosophy will be applied to as many organizational arrangements as possible.

These organizational reviews are unfamiliar to many and may prove difficult to implement at the beginning. An organizational development consultant, hired over a six-month to a full-year period to work with the School's initial faculty and administrators, might prove very helpful in creating these organizational review mechanisms. His assistance would be best rendered before the School opens. The consultant's involvement with the School should be extensive enough to ensure his familiarity with its objectives and the continuity of his advice, but not so frequent or extensive that he loses his outside, objective perspective.

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CHAPTER 7

COMMUNICATION SYSTEM

CHAPTER SUMMARY

A communications system that specifies the flow of information between and among the people involved in the School is outlined: There are three basic kinds of information - administrative, instructional, and evaluative - that are useful to administrators, faculty, students, and/or non-faculty practitioners. The Chapter describes these three kinds of information and the ways in which they will be utilized to maintain and improve communications within the School.

CHAPTER 7

COMMUNICATION SYSTEM

I. INTRODUCTION

For the curriculum and associated evaluation system described in the preceding pages to operate, relevant administrative, instructional and evaluative information must flow to and among the people involved in the School. This chapter describes the functions of the people (administration, faculty, students, and outside practitioners), the kinds of information involved (administrative, instructional, and evaluative), and the communications system which allows access to this information. Systematic advance planning of the flow of information in the School should increase the likelihood of having a good communication system, something rarely achieved in most health professions schools.

II. PEOPLE: ADMINISTRATION, FACULTY, STUDENTS, PRACTITIONERS

A. Administration

The role of the School's administrators is to facilitate the educational, patient-care, and research activities of students and faculty. The administration will develop and maintain an administrative system compatible with an individualized curriculum. This implies the need for administrative representatives to be actively involved in curriculum planning, as well as in continuous communication among students, faculty, and outside practitioners.

B. Faculty

The faculty of the School will function in at least one of three major roles: as advisers, as resource faculty, and as primary-care clinician teachers and practitioners (see Chapter 3). The adviser is responsible to his individual students and to an intra- and/or inter-professional team. The adviser is the student's major resource as he progresses through each module. The resource faculty of the School

(e.g., basic scientist, behavioral scientist, clinical specialist, and clinical scientist in any profession) is comprised of content experts whose responsibility is to facilitate the student's acquisition of specialized skills or knowledge in any given discipline. The primary-care clinician faculty deliver and teach patient care within the School, and supervise students delivering care.

C. Students

The student's goal in the School is to become a competent health professional. He has responsibilities as a self-directed learner and as a team member. His relationship with his adviser is of particular importance in his educational experience. With the adviser's help, he will progress through his educational program and gradually develop the skills of an independent learner. As he does, he will be able to select and pace his learning experiences, evaluate his progress and identify deficiencies. When the student feels he is ready to be certified by the School in a particular performance area, he can schedule his examination and evaluation time with his adviser.

D. Practitioners (Non-Faculty)

This group is to consist of graduates of the School, plus graduates of other schools, who are involved in continuing education at SHP, or who are providing feedback about the health-care system and patient needs, by means of conducting self-audits of patient records and of maintaining profiles of their practices. These two mechanisms will provide SHP with the data needed to maintain a curriculum that continuously reflects current health-care problems and needs.

III. INFORMATION: ADMINISTRATIVE, INSTRUCTIONAL, EVALUATIVE

The data accessible to faculty, students, practitioners, and administrators are categorized as administrative, instructional and evaluative. Because of the extensiveness of the desired communication system, information will be made retrievable through computer terminals whenever practical.

A. Administrative Information

Some of the administrative information will be disseminated by traditional methods such as meetings, memoranda, and bulletins. In addition, two computerized data files will make certain kinds of administrative information available to those involved in the School. One of these files will provide operational data, including organizational, financial, managerial, and other information about the School. The other file will provide health manpower information, such as educational requirements, employment opportunities, job descriptions, and salary ranges for the various health professions. This information will keep the School apprised of changes in health manpower needs and will also be available to assist students.

B. Instructional Information

A library/learning resources center will house most of the instructional materials, indexes, and catalogs*(e.g., of curricular problems, tasks, and learning resources) needed by the students, faculty, and educational support staff of the School. Information essential to the curriculum of the School will be available through annotated learning resources catalogs, which list the available instructional resources and materials and indicate their location. Instructional materials per se may or may not be computer-based and will include textbooks, module study guides, other self-instructional units, simulations, descriptions of clinical experiences with patients, and films. Computer-based materials can be obtained locally or made available through the Lister Hill National Network of Biomedical Communication. It is the intention of the School of Health Professions to utilize existing educational materials whenever appropriate and available.

C. Evaluative Information

Much of the evaluation materials will also be housed in the library/learning resource center. Evaluation materials will include simulations of health-care situations and forms for recording direct observations, as well as written and oral examinations. The module study guide

*See the following chapter for a discussion of the relationship of the various catalogs to the module study guides.

catalog will be organized according to patient problems, diagnoses, and certain other functional areas (e.g., general office procedures). Each module study guide includes self-assessment and final certification materials (see Appendix 1 for sample study guides). Certifying examinations will also be indexed and retrievable independent of the study guides.

There are several new and distinctive components to the Evaluation Information files:

- The performance profiles (students, faculty, administrators). A performance profile describes the responsibilities of each student, faculty member, and major administrator. Based primarily on the module study guides, each student will have a performance profile that identifies the degree of proficiency to be demonstrated before receiving a degree or certificate in his chosen profession from the School. The student uses this profile to direct and pace his own learning experience. Feedback from a variety of self-evaluation instruments and techniques, as well as from peers and faculty members, will help him to assess and monitor his progress.

  Each faculty member and administrator also has a performance profile. These profiles are developed jointly with those responsible for his hiring as part of the contract, and are modified over time. An adviser's performance profile will specify tasks related to involvement with students. A resource faculty member's profile will mainly reflect tasks related to the content areas for which he is responsible. A primary-care clinician faculty member's performance profile will describe patient-care and student-supervision responsibilities. The administrator profile identifies tasks related to managerial and organizational responsibilities. The performance profile varies with each faculty member and administrator and changes as his responsibilities are altered.

- The self-evaluation charts (students, faculty, administrators). Each student will maintain a self-evaluation chart composed of the self-assessment sections of the study guides, and other areas listed in his performance profile; the information will be proprietary to the individual. The results of every self-evaluation session will be recorded on the chart. This allows the student to evaluate the skills

in which he must demonstrate competence to monitor his progress through his educational program, and to determine when he is ready to be certified in a particular area.

A similar self-evaluation chart will also allow a faculty member or administrator to evaluate his own competence systematically in the tasks specified in his performance profile, and to correct any deficiencies. This system helps to ensure a high level of performance.

Similarly, a (non-faculty) practitioner may keep performance profiles and self-evaluation charts regarding his continuing education and medical audit activities.

- The certification chart (students). Each student will have a certification chart, which lists the objectives he must meet in order to obtain a degree or certificate from the School. The objectives are identical to the student's performance profile, but the certification chart includes his performance records. With the certification chart the student can monitor his progress throughout his educational program. The chart indicates areas in which he has been certified, those in which he has attempted unsuccessfully to certify, and those not yet attempted.
- The time-effort chart (students). The time-effort chart will tell a student how much time and effort he has expended as he progresses through the curriculum. This information will be recorded and available in both his self-evaluation and certification charts.
- A practice profile (practitioners). Professional health-care providers who are affiliated with the School will maintain individual practice profiles, which will provide an analysis of their practices in terms of the kinds of health problems seen most frequently. A practice profile will include such information as the sociological background of patients, the setting in which patients are encountered, and the patients' presenting complaints and diagnoses. This kind of information will be reviewed periodically and used to make changes or modifications in the curriculum.
- Curriculum information. Data to provide an indication of how well the curriculum is functioning will be kept in the evaluation information files. The data include descriptive and evaluative information about the curricular design, the process (e.g., length of

time required to complete a curricular module), and the outcome (e.g., the number of students certified in a given module).

IV. COMMUNICATIONS SYSTEM: INTERACTION OF PEOPLE AND INFORMATION

A computer system will make it possible for the people in the School to have access to the available information. The data will be stored in a School of Health Professions computing facility and will be made available through strategically located computer terminals. The system will also have access to educational materials stored in other health sciences computing facilities throughout the country.

Table 1 indicates each individual's degree of authorized access to both computerized and non-computerized information available in the School's data bank. Access is defined in terms of the ability of a particular kind of personnel either to view or to change the data in the various files. For example, the chart shows that a faculty member has unrestricted access for viewing all data in the health manpower file found in the administrative information section of the data bank. However, he has no authority to make changes in this data. As another example, a student can only view and change part of the self-evaluation file - namely his own.

The logical flow of computerized information among administrators, faculty, students, and practitioners has been developed and is described in Appendix 6; a flow chart details how the communications system can be used to view information in the files (consultation mode), to assess and judge (evaluation mode), and to change or update information (file maintenance mode).

Thus, important data will be available systematically to those who need it for planning and decision-making within the School. The expliciteness of the system should facilitate clear communication and allow appropriate changes within the system to be made with relative ease.

TABLE 1

INFORMATION - INDIVIDUAL ACCESS AND AUTHORITY -

FOR A SCHOOL OF HEALTH PROFESSIONS

INFORMATION	ADMINISTRATION		FACULTY		STUDENT		PRACTITIONER	
	View	Change	View	Change	View	Change	View	Change
ADMINISTRATIVE SECTION								
Operational Data	All	All	Part	None	Part	None	Part	None
Health Manpower Data	All	All	All	None	All	None	All	None
INSTRUCTIONAL SECTION								
Learning Resources Catalog	All	None	All	Part	All	Part	All	Part
Task and Problems Catalog	All	None	All	Part	All	Part	All	Part
Instructional Materials	All	None	All	Part	All	Part	All	Part
EVALUATION SECTION								
Module Study Guide Catalog	All	Part	All	Part	All	None	All	Part
Evaluation Materials	All	None	All	Part	All	Part	All	Part
Performance Profile	All	Part	All	Part	All	None	All	Part
Self Evaluation								
Self-Evaluation Chart	Part	Part	Part	Part	Part	Part	Part	Part
Certification Chart	All	None	All	Part	All	None	All	Part
Time and Effort Chart	None	None	Part	Part	Part	Part	Part	Part
Practice Profile	All	None	All	None	All	None	All	Part
Curriculum Evaluation Data	All	None	All	Part	All	None	All	Part

KEY: Access -
ALL - Unrestricted
PART - Restricted
NONE - No access

Authority -
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CHAPTER 8

DEVELOPMENT OF THE CURRICULUM

CHAPTER SUMMARY

This chapter and the related appendices outline and discuss the steps required to develop the full curriculum. These steps include systematic methods for identifying and updating the patient problems and professional tasks and creating the module study guides. A cost-effective approach for the development of each study guide, centered around a one-day workshop, is described.

CHAPTER 8

DEVELOPMENT OF THE CURRICULUM

I. INTRODUCTION

The primary feature of the School of Health Professions curriculum is the use of module study guides based upon empirically derived patient problems and professional tasks. The module study guides have been described earlier; they include specification of tasks and the performance objectives related to the tasks, of specific faculty available, of appropriate clinical resources, and of evaluation criteria and materials; and include references to textual and/or self-instructional materials. Three prototype modules have been prepared to guide and refine the steps needed for full curriculum development. (See Appendix 1.)

A curriculum organized around high-priority health-care problems can provide a student with basic biomedical, clinical and sociological knowledge, and the motivation for continuous learning. In effect, the student acquires necessary knowledge in the context of health-care problems rather than in a form that must later be independently integrated or extracted for applicability. The curriculum stresses a general approach to problems and problem-solving, not simply the solutions to the specific high-priority problems chosen for the modules.

To develop the curriculum, several steps are required:

- Health-care problems for each of the professions educated by the School must be carefully identified by a logical system that allows for updating and revision. These problems are the focus of the curriculum content, but they do not exclude additional problems and situations (e.g., general office procedures, patient audit).
- The professional tasks needed to deal with the specified health problems must be identified and, like the health-care problems, continuously updated. Those professional functions needed to accommodate anticipated future health-care delivery needs will also be included.

- Module study guides, based uopn problems and tasks, must be developed, and the accompanying learning and evaluation resources must be acquired or developed. The study guides and accompanying materials include the scientific, clinical, humanistic, and sociological information basic to each of the various professions, as well as the background related to the communication and self-learning skills that are integral to the School's curriculum. The content in the module study guides can be cross-referenced in a matrix of basic and clinical science categories, in order to demonstrate the comparability of the content in the SHP curriculum to that of standard curricula.

II. BACKGROUND

Early planning for development of the School of Health Professions curriculum was based on the possibility that students could learn about one health-care problem or professional task at a time (e.g., a student might decide to study the task "examine eyes with ophthalmoscope," outside of the context of any particular problem). These problems and tasks were to be catalogued and cross-referenced, so that it would be possible for a student to determine which tasks were particularly relevant to particular problems, and vice versa. Additionally, a student could consult the problem catalog and discover which other categories of health professions students in the School were involved with that problem and identify the particular task and responsibilities of those particular students. For the student to learn about the particular problem or task, he would consult the learning resources catalog for that particular problem or task.

The learning resources catalog was a precursor to the development of the module study guides. In substance, a page in the learning resources catalog was like the skeleton of a particular module study guide. The catalogs have been de-emphasized as curriculum development proceeded, being replaced in large measure by the module study guides. Appendix 7 gives examples of the various kinds of catalog pages that were considered.

The module study guides have solved several of the developmental and operational problems associated with using these catalogs, particularly for the professional tasks. (See Appendix 8 for a discussion of these problems.) Briefly, by virtue of this approach, the tasks relevant to a particular problem have been clustered into one problem-oriented study guide. This resolves the "clustering problem" discussed in Appendix 8 and provides an efficient use of student and faculty time and resources. It does place some restriction on the student's sequencing of learning particular tasks, but preserves the option to learn about the problems in the preferred sequence. The use of study guides as the curricular organizing principle produces some additional benefits. The module study guides explicitly describe the learning experiences and evaluation methods and place them in a desired sequence. This description and sequencing facilitates efficient planning for use of resources. The study guides should also prevent certain potential problems of curriculum implementation. For example, faculty disputes over "time" or "coverage" should be minimized, since students will learn to select what they need from the multiple resources specified in the study guides.

III. MODULE STUDY GUIDE DEVELOPMENT

Prototype study guides were created for three patient problems/diagnoses: obesity, diabetes mellitus, and hypertension. (The study guides appear in Appendix 1.) They were created in order to examine the feasibility of using problems and tasks to develop modules, to study the method of development, to judge the utility of the study guides, and to provide explicit examples of the SHP curriculum.

The following discussion reflects the experience gained during the development process. A more detailed explanation of the development of the three sample study guides is presented in Appendix 12.

A. Identification of Health Care Problems

The method for identifying health-care problems and for determining problem priorities discussed in Chapter 2 is feasible and desirable for curriculum development. In fact, the use of ambulatory-care records

and patient-problem data for educational purposes has been suggested and supported by other health profession educators (Lewis, C.E., 1973). However, useable and reliable health-care data covering the frequency of diagnoses, problems, and complaints, is required. Major difficulties in existing data are inconsistencies in coding among different providers, and limitations of the coding system itself - such as inadequate codes for patient complaints, symptoms, or family problems. However, groups are beginning to expand the coding systems to include these categories (Froom, J., undated; McFarlane, A.H., 1971).

To prevent the problem lists from becoming obsolete, patient-care data from the School of Health Professions clinical units, as well as from other health-care facilities, will be regularly reviewed and analyzed by experts in each problem area for new or changing health-care needs.

In addition, it is proposed that the graduates of the School of Health Professions maintain updated practice profiles reflecting the health-care problems faced in their everyday activities. Other health professionals in primary-care settings also will be encouraged to provide the School periodically with lists of the patient health problems with which they are confronted. These data can provide a comprehensive list of problems reflecting a particular practice profile. The communications system described in Chapter 7 has the capacity to store each of these practice profiles. As any reported profile is fed into the computer, the system can store and display these data and flag significant changes within each practitioner's profile. The system can also flag changes in problems common to the profiles of several practitioners. Periodically, the flagged reports from the computer will be reviewed to evaluate changes in problem/diagnoses frequencies and to determine the different tasks required to deal with the new problem profiles. This information will be used for modifying and updating the curriculum, as well as for continuing education programs for practitioners.

B. Identification of Professional Tasks

There are many groups engaged in systematic comprehensive analyses

of the tasks currently performed by health professionals (Gilpatrick, E., 1972; B.H.M.E., undated; UCLA Division of Vocational Education, 1972; Golladay, F., and Smith, K., 1973). In the development of the curriculum and the three prototype modules, the most extensive sources of task data were Technomics, Incorporated (McLean, Virginia), the Health Services Mobility Study (HSMS) (New York City), and the American Association of Medical Clinics (Alexandria, Virginia). Originally, Technomics developed and provided the SHP planning staff with a matrix of tasks performed by the categories of professionals to be educated in the School. A representative excerpt of this matrix and a simplified listing are presented in Appendix 9. Attachments I and II to the 1973 "Report of a Feasibility Study for a School of Health Professions" (University of the Pacific, San Francisco) present the complete matrices and are available upon request.

The early experiences with the Technomics tasks (see Appendix 10) provided substantial insights into the use of tasks for curricular development. Subsequently, "task descriptions" and "extended task names" developed by HSMS have been used, as well as tasks from the American Association of Medical Clinics. Examples of the HSMS task descriptions and extended task names are included in Appendix 11. The HSMS tasks were derived primarily from work done in a primary ambulatory care clinic that used a team approach for care-delivery. The American Association of Medical Clinics tasks were developed from a large group practice and are similar to the original Technomics tasks.

C. Developing The Module Study Guides

Once the health-care problems, the professional tasks, and the important communication and self-directed learning skills are identified, the study guides can be developed. Development will be rendered substantially easier by the current efforts of other health professions schools to develop, classify, and evaluate instructional materials. This kind of development is also being undertaken by the joint Educational Materials Project of the Association of American Medical Colleges, the American Association of Dental Schools, and the National Library of Medicine/National Medical Audio-Visual Center (National

Library of Medicine,1974).

Development of each study guide will be carried out by a team of content experts (e.g., biomedical scientists, behavioral scientists, clinical scientists, and administrators, as appropriate to the problem), primary-care practitioners, and educational design specialists. The bulk of this development will occur prior to the School's opening by teams of full-time faculty and consultants.

Once a problem for a given module has been selected, the collection of tasks from the data bank will be reviewed one by one. The initial task-selection process can be carried out by staff supervised by an appropriate health professional with knowledge of the particular problem. A task is selected from the pool for inclusion in the module if it meets the first criterion below and at least one of the remaining three:

- It must be administratively feasible to learn the task in this particular module, and
- The task must be critical to patient outcome for this particular problem... or
- The task must be specific to, or uniquely important for, this particular problem... or
- The task must not be more appropriate to a different high-priority problem.

Tasks to be used in other study guides are chosen from those remaining in the pool.

Following identification of the tasks, performance objectives for each task will be written, specifying the kind of performance that the student is expected to learn in order to demonstrate his competence in that particular task. The reader is referred to the study guides presented in Appendix 1 for examples. Writing of performance objectives will be carried out by the primary-care practitioners in conjunction with the educational design specialists. (As a trial, one of the prototype study guides was developed in large part without using tasks; instead, performance objectives were developed directly from the problem. This is discussed in Appendix 12; see, also, the footnote under Section IV in Chapter 2.

Once the tasks and performance objectives have been developed, they will be reviewed, refined, and rewritten individually by the content experts and by the primary-care practitioners. In addition, omitted tasks and objectives will be added, and inappropriate ones will be deleted, based on the opinion of the reviewers.

The next step will be creation of the study guide by those primary-care clinician faculty who have major responsibility for the particular module, working in consultation with the educational design specialists and the content experts. This group will outline and describe the learning experiences and evaluation procedures needed to achieve the performance objectives. Once a first draft of the study guide has been developed and distributed to all those involved, a one-day workshop will be held. The primary goal of this workshop is to refine the study guide and resolve any controversies among primary-care practitioners and content experts. Additional content experts or primary-care practitioners and students will be invited to this workshop for their input. Based on the workshop, the faculty with primary responsibility for the module and the staff will make the suggested changes and prepare the module.

Any additional development of evaluation or audio-visual materials will also be completed at this time. Listing and cross-referencing of the tasks in the module can then be undertaken for the development of the task and problem catalogs.

This cycle will be repeated until study guides have been developed for all the high-priority problems and diagnoses. Most of the relevant tasks will have already been incorporated into the appropriate patient-problem modules. The remaining tasks may themselves form additional modules (e.g., administrative skills, record-keeping skills).

In developing the diabetes, hypertension, and obesity study guides, it became apparent that there were certain skills that would very likely be necessary as prerequisites to any of the patient-problem modules. Preliminary experience with this developmental process suggests that, when the initial critical mass of faculty arrive (during the School's Development Stage - see Chapters 11 through 13), and begin to develop the curriculum, it will be important to agree at the outset on a standard age-related data base that will be collected routinely for all patients. Then history-taking and physical examination study

guides based on this standard data base should be developed for medical and dental students, along with a general procedures study guide for health care coordinator students. In addition, it will be desirable to develop module study guides on how to prepare and maintain a problem-oriented patient record and on how to audit records for quality of care.

The experience gained in creating each of the three initial module study guides is described and analyzed in Appendix 12, whose contents include the rationale for the selection of the three initial patient problems, a discussion of the workshops held in connection with each of the modules, and a description of how primary-care and content specialist consultants were utilized.

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CHAPTER 9

INVOLVEMENT OF HEALTH PROFESSIONALS IN SHP PLANNING

CHAPTER SUMMARY

The support and participation of a broad spectrum of health professionals was actively sought during the course of the present feasibility study at UOP/PMC. The means utilized, including initial communications, review/preview meetings, more formal meetings, and the development of a local Task Force are described and evaluated. An assessment of local support is included.

CHAPTER 9

INVOLVEMENT OF HEALTH PROFESSIONALS IN SHP PLANNING

I. INTRODUCTION

From the outset, the SHP Planning staff recognized that the active participation and support of a broad spectrum of national and local health professionals were essential to the School's planning and implementation. Individual health professionals and representatives of pertinent professional, educational and governmental organizations could make critical contributions into the School's design and provide advice and assistance in meeting the standards of accrediting, licensing and funding institutions.

This chapter discusses the ways in which outside health professionals were involved in the planning process, both generally and with regard to a School that would be located specifically at UOP/PMC.

II. INVOLVEMENT OF LOCAL AND NATIONAL HEALTH PROFESSIONALS

A. The First Year of Planning (Summer 1972-Fall 1973)

From the beginning, the planning staff encouraged outside health professionals to participate in SHP planning activities at whatever level they wished. During the first week of the project (late summer 1972), the SHP staff met with a number of health professionals in the San Francisco area who had expressed interest in the proposed School. It became clear that the extent of interest and commitment by these professionals varied, depending upon the amount of time available to them and the extent of the School's potential impact upon their respective professions. A small number of individuals both from within and outside the UOP/PMC complex (see Appendix 15), were very interested in the concept of the School and became directly involved in planning and decision-making, often commiting substantial time and

energy. Other professionals expressed interest and approval of the SHP concept and planning, but did not involve themselves directly in planning activities; these individuals expressed a desire to be kept informed of the planning staff's progress.

The staff also recognized the need to inform, and where appropriate, to involve in the planning, representatives of various national, regional and state professional societies, federal and state funding agencies, private foundations, and the California State Legislature and the U.S. Congress.

The goal of the planning staff was to establish a communication flow that would result in a continual, productive interaction among the above kinds of professionals and organizations concerning the design and implementation of the School. The planning staff established several methods for creating this ideal situation: weekly review/preview group sessions in which the most actively committed and involved group of health professionals could participate; meetings and personal contacts, primarily with local health professionals and health professional groups; distribution of reports on the SHP and its progress (including the distribution of the minutes of planning sessions); and group meetings with the health professional faculty and staff of the University of the Pacific and Pacific Medical Center. Most of these methods of communication and participation were used throughout the course of the SHP planning and feasibility study.

Initial Communications with Health Professionals. The planning staff recognized the importance of establishing and maintaining contacts with representatives of a wide range of health professions, especially until such time as the specific categories of health professionals to be educated by SHP were established. The objectives of these initial contacts included:

- Informing professionals of SHP plans, obtaining their reactions, and learning of their respective professions' interest in being involved in further planning;
- Obtaining their comments about the advantages and disadvantages of the SHP plans for their respective professions;

- Obtaining their suggestions for overcoming any forseeable disadvantages; and
- Obtaining their suggestions concerning the timing of further contacts with representatives of their professions and with accreditation and licensing bodies.

The planning staff contacted organizations connected with the following kinds of health professionals; physician, physician's assistant, medical assistant, medical receptionist, dentist, dental auxiliary, registered nurse, nurse practitioner, licensed vocational nurse, nurse's aide, podiatrist, pharmacist, social worker, dietician, physical therapist, medical technologist and health care administrator.

Some of the individuals with whom communications were established early in the project assisted the SHP planning staff in determining the specific categories of professionals for which the School would be initially planned (see Chapter 1). After the selection had been completed, the participation of representatives of professions that were not being included decreased, while the involvement of representatives of the selected professions increased. The contributions to planning of local representatives of the California Nurses Association and of the National Association of Social Workers were particularly extensive. (Representatives of these two professional organizations are also serving on the UOP/PMC Task Force, discussed below.)

Review/Preview Meetings. Each Thursday during the first year of the planning, the SHP staff conducted a three-hour meeting open to anyone who wished to attend. These sessions were designed to keep the most committed professionals informed of the previous week's progress and to preview activities for the following two weeks.

The "preview" was designed to allow those in attendance to identify areas of interest in which they would like to become actively involved. If an attendee of the review/preview session was attracted to a particular activity, he could approach the planning staff member who was responsible and arrange to participate in that activity. Although many health professionals were regular attendees at the

review/preview sessions, few became involved beyond the extent of attending the meetings. During the first year, while the planning staff was developing formative aspects of the School, it was difficult to productively involve individuals who could not be on hand full time to participate in the continual, often unscheduled, interchange of ideas. As the nature of the planning began to shift, in the project's second year, to the elaboration and refinement of the conceptual plan and to considerations of the School's implementation, the level of involvement by outside professionals - especially those from UOP and PMC - rose.

Meetings with Health Professional Groups. Early in the first year, the SHP planning staff met with the Interprofessional Relations Committee of the San Francisco Health Professions Council to present the concepts of the School of Health Professions. This session resulted in an agreement between the Interprofessional Relations Committee and the planning staff to establish formal and systematic communications between the two groups. One of the members of the SHP staff, designated as a representative to the Interprofessional Relations Committee, attended monthly meetings and presented progress reports. Later in the year, the planning staff returned to the Council with a follow-up presentation of the SHP plan as it had evolved.

A meeting with a number of San Francisco Bay Area professionals actively involved in innovative health professions training programs was held at Pacific Medical Center. There was no formal follow-up to this meeting, but communication links were established with many of the participants, including a group from the new Health and Medical Sciences program at the Berkeley campus of the University of California.

During the first year, a series of four meetings was held with large groups composed of representatives of several health professions. The meetings were designed to disseminate information and to offer an opportunity for involvement to those who were unable to devote considerable time to the planning. The planning staff believed it was essential to encourage those attending these meetings to partici-

pate in SHP planning as fully as possible and at the level with which they felt most comfortable. Therefore, each meeting was designed to be informative, to encourage participation, and to engage the attendees in formulating ideas for the School's planning. The formats of the various meetings and the names of attendees can be found in the planning staff's November 1973 "Report on a Feasibility Study for a School of Health Professions" (prepared for the Bureau of Health Resources Development, HEW).

Distribution of the Minutes. During the first year of planning, the minutes of each SHP planning session were distributed to a selected list of professionals for the purpose of keeping the recipients informed of day-by-day deliberations and progress.

In the initial stages of the project, the planning staff devoted a great deal of time to team-building and group-process activity in an effort to orient one another to their respective philosophies and ideas. Unfortunately, minutes could not convey the importance of this process, and they were more detailed than necessary for a general audience. In retrospect, it seems that this means of communication with outside participants should be used with greater discretion, and that greater care should have been given to both the preparation and the distribution of the minutes.

Contacts with Health Professional Faculty and Staff at UOP/PMC. Three meetings were arranged during the first year to share the plans for the School with the staff and faculty of Pacific Medical Center and the UOP School of Dentistry. The initial meeting introduced the members of the SHP planning staff and briefly discussed some of the early concepts of the proposed School. A subsequent meeting, attended by over 200 professionals from PMC and the UOP School of Dentistry, reviewed progress of the planning. The third presentation was designed to enlist the direct support and involvement of faculty and staff at PMC/UOP. The active support of some of these individuals was reflected in their subsequent membership on the Task Force (discussed below) that was created to consider implementation of a School of Health Professions at UOP/PMC.

B. The Second Year of Planning (Fall 1973-Fall 1974)

The contacts established during the first year of planning were maintained in the second year; in addition, a number of new individuals became involved in planning, and a number of new channels of communication were opened.

Health professionals were informed of the progress of planning through the staff's November 1973 "Report on a Feasibility Study for a School of Health Professions." This report was distributed to over 200 people (including health professionals, basic scientists, clinicians, educators and legislators) for reactions. Review of these reactions enabled the planning staff to identify areas of the planning and feasibility study that needed elaboration or modification.

The planning staff also made a number of formal and informal presentations of SHP plans to California State legislators and their staffs and to various governmental agencies and private foundations.

The published Research in Medical Education proceedings of the 1973 annual meeting of the Association of American Medical Colleges included a paper entitled "A School of Health Professions: A Model for Health Sciences Education," that was presented by the SHP planning staff in November 1973. This paper served as a means by which the planning staff communicated the concept of the SHP to many physicians and medical educators who were unaware of the study.

A number of formal consultants were engaged - especially in the second year - to assist the SHP staff in assessing the educational and financial requirements of the School of Health Professions. These consultants, who encompass a wide range of expertise (e.g., health education administration, ambulatory-care delivery, program evaluation) and represent a wide range of professions, provided valuable input to the design of the School and were also able to help the staff to view its progress from a critical and objective perspective. Equally important was the fact that many of the consultants also served as informal communication links between SHP and health professionals in many parts of the nation, helping to keep these health professionals informed of SHP planning progress and to elicit periodic feedback for the SHP staff.

In the Spring and Summer of 1974, a number of health professionals and students in the San Francisco area (including many from UOP and PMC) helped to prepare and review the three module study guides developed by the planning staff. (A description of their involvement is included in Chapter 8; names of individual participants are listed in the study guides included in Appendix 1 to this report).

III. INVOLVEMENT OF HEALTH PROFESSIONAL FACULTY AND STAFF AT UOP/PMC: THE SHP TASK FORCE

A. Background

As reported above, during the initial year of planning, the SHP staff held several meetings with the faculty and staff of the University of the Pacific School of Dentistry and of Pacific Medical Center to explain the SHP concept and to solicit attendees' interest and approval.

Following the completion of the November 1973 "Report on a Feasibility Study for a School of Health Professions," the SHP planning staff and various other UOP and PMC representatives felt that planning had evolved to a point where it was desirable and possible to give careful consideration to the requirements for implementing the School at UOP/PMC. The need to broaden leadership and responsibility for SHP planning beyond the core planning staff and to include key representatives of both Pacific Medical Center and the University of the Pacific was also felt. Consequently, in December 1973, a Task Force for the Consideration of a School of Health Professions was established as a formal means of increasing the involvement of SHP's potential constituencies in the planning and implementing of a School of Health Professions at UOP/PMC.

The Task Force, still active, is comprised principally of representatives of the following potential host and sponsoring institutions: Presbyterian Hospital (PMC); the Institutes of Medical Sciences; the University of the Pacific central campus; the University of the Pacific School of Dentistry; and the University of the Pacific School of Pharmacy. Representatives of pertinent professions not already in-

cluded in the preceding constituencies (i.e., health care coordinator and social worker) are also included on the Task Force. (A list of Task Force members is found in Appendix 13.)

The point of departure for the Task Force was the November 1973 Report, which Task Force members reviewed and critiqued. On the assumption that the Task Force would be in basic agreement with the philosophy of the November 1973 Report, Task Force members were charged (see Appendix 14) to: form a plan for the implementation of a School of Health Professions; to help identify the resources required and available to carry out the implementation; to design a timetable for implementation; to formulate recommendations; and to assume responsibility for communicating the Task Force's progress and findings to its various constituencies and to other interested groups.

B. Task Force Activities

The Task Force participated extensively in the next stages of planning for a School of Health Professions. The full Task Force met nine times from December, 1973, through June, 1974. A number of Task Force subgroups were formed and also met frequently throughout those seven months. The SHP planners acted as support staff to the Task Force and its subgroups.

While many members were initially reticent to support the SHP philosophy or the implementation of the School at UOP/PMC, the Task Force's deliberations culminated in an unanimous recommendation that the member's respective constituencies approve the SHP plan and endorse its implementation at UOP/PMC.

Task Force members also endorsed the planning of a clinical unit at PMC. They further agreed to keep the Task Force constituted indefinitely in order to promote its various recommendations, and to review and assist the SHP planning staff in continual refinement of the educational plan, specification of the School's financial requirements, and completion of a plan of implementation.

The SHP planning staff compiled the Task Force's deliberations and recommendations into the "Report of the Task Force" (Appendix 13), which was adopted by the Task Force on June 21, 1974.

Task Force members have invested a substantial amount of time and effort in considering a School of Health Professions. Their interest and commitment is evidenced not only by the time they have devoted to formal Task Force and subgroup meetings, but also by the ad hoc assistance that many of them have rendered to the SHP planning staff and its consultants.

IV. FUTURE INVOLVEMENT OF HEALTH-PROFESSIONALS

If the School of Health Professions is established at UOP/PMC, the Task Force will be maintained and perhaps enlarged, and its members will assist in the School's further development and implementation.

Wherever it is implemented, because of the School's experimental and pioneering aspects, it will be appropriate to convene an advisory group comprised of nationally prominent health professionals and educators and of local consumer representatives. This group would provide guidance to the School's initial administrators and faculty, and, at the same time, serve as a communication link between the School of Health Professions and pertinent organizations throughout the nation.

CHAPTER 10

ACCREDITATION AND LICENSURE CONSIDERATIONS

CHAPTER SUMMARY

Requirements for accreditation and graduates' licensure for a School of Health Professions located in California are reviewed. Few difficulties in gaining the required forms of approval are anticipated. The only potential problem might be the accreditation of the primary-care medical curriculum, whose content and curricular approach appear quite different from conventional medical undergraduate education programs. Possible ways to resolve this problem are discussed.

CHAPTER 10

ACCREDITATION AND LICENSURE CONSIDERATIONS

I. INTRODUCTION

The School of Health Professions departs from traditional health professions education in a number of significant ways; its uniqueness will require careful scrutiny by the public and private institutions that are involved in the School's accreditation and in the examination of its graduates for professional licensing.

Accreditation, which is non-statutory, refers to approval of an educational program by a national or regional non-governmental body that is officially designated by the U.S. Office of Education. Licensing, a statutory procedure that varies widely from state to state, refers to a state's approval of an individual to practice his profession in that state; it generally requires a candidate to have graduated from a program that is approved by the licensing board or agency and to pass a special examination. The factors governing accreditation significantly affect licensing and vice versa. Decisions in these two areas are based upon public policy as well as educational considerations. The wording of both governmental statutes and accreditation guidelines generally leaves broad latitude for interpretation.

The rapid evolution of new categories of health professionals has created a problem for state licensing boards and their related training programs. The emergence of nurse practitioners, nurse midwives, physician assistants, and of physician extenders in general, provides a case in point. Many of these physician-extender training programs have already produced graduates, yet some states (such as California) have no licensure requirements specified for them, or are presently in the process of determining whether licensure will be required.

The SHP curriculum contains the essential components required to educate competent primary-care providers. If the School is implemented, the tasks of those involved in implementation will include working with accrediting and licensing bodies to clearly communicate SHP's

curricular content and structure and demonstrate how they meet pertinent licensing and accreditation standards, and to develop options or solutions to any obstacles that the accrediting or licensing bodies might pose.

An examination of specific licensing and accreditation requirements and of their application to SHP follows. The discussion is based upon a review of written documents on licensing and accreditation, consultation with a lawyer expert in the field of health manpower, and staff attendance at conferences concerning licensure and accreditation. Most of the discussion relates to a School that would be implemented in the State of California, at UOP/PMC.

II. PROBLEMS AND POTENTIAL SOLUTIONS

A. Medical Curriculum

1. Length of Curriculum: There are prescribed accreditation and licensing requirements for the minimum length of physician training programs. The Liaison Committee on Medical Education (LCME), the accrediting body for undergraduate medical education, requires at least 32 months (Liaison Committee on Medical Education, 1973, p. 2). In California, a graduate of a medical education program needs to have completed 33 academic months and a minimum of 4,000 hours to be eligible to apply for licensure (California Board of Medical Examiners, 1972-73, p. A-37); other states have different legal specifications, although often the state accepts accreditation standards in this regard.

While the SHP program is time variable and there are, therefore, no predetermined lengths of study for any curricula, it is expected that SHP medical students will spend, on an average, 146 instructional weeks (=33 months), of 50 hours each (i.e., hours spent in various individual and group learning experiences), to complete their program. This yields an average program length that exceeds both the national accreditation and the California licensure requirements.

If a student were able to demonstrate competency in all the areas required by SHP prior to the 32 or 33 months of academic work (e.g., a student with previous health-care experience or applicable educational training), the student might serve as a supervised intern for the rest

of that period, and the School would delay degree-conferral until the student had completed the minimum time required for licensing and accreditation. In effect, the School and the student would have complied with the stated time requirements. This approach has already been used by other institutions. Some medical schools now permit students to substitute an internship year for the fourth year.

Another (though more remote) possibility would be to petition the licensing agency to exempt students from minimum time requirements as long as they had met the School's requirements for graduation. As far as California licensure regulations are concerned (i.e., in view of their advocation of educational innovations), such a consideration appears to be open. Were such exemptions permitted, individual petitions might be required initially; however, the exemptions could be granted eventually on a blanket basis.

2. Curricular Content: Review of accreditation and licensure requirements (Liaison Committee on Medical Education, 1973; California Board of Medical Examiners, 1972-73) indicates a crucial problem that must be resolved relative to curricular content: how the SHP medical curriculum, with its absence of courses per se, can be related to the specific and lengthy list of content subjects and total hours suggested or required by licensing and accreditation bodies.

One means would be to provide content comparisons between the proposed problem/task-oriented curriculum of SHP and the licensure and accreditation subject requirements, by categorizing the tasks, skills, and knowledge specified in the curricular modules into the corresponding subject headings used in the regulations.

Another approach would be to petition for exceptions to specific content requirements on the basis of SHP's being an experimental program whose ultimate credibility will be demonstrated by the comparability of its graduates with those of other medical schools. At least two medical schools (i.e., Ohio State University and the University of Illinois/Urbana) have implemented elements similar to those of the curriculum proposed for SHP; the satisfactory performance of their graduates on examinations of the National Board of Medical Examiners constitutes a precedent upon which SHP's request for exceptions to both specific content and curricular length could be based until SHP began graduating its own students.

3. Educational Innovations: There are no explicit constraints to educational innovation as far as accreditation is concerned. In fact, the guidelines encourage innovation (Liaison Committee on Medical Education, 1973). However, receptiveness toward innovation does not guarantee acceptance of the specific kinds of innovations proposed for SHP. The LCME and the pertinent state licensing body will require a thorough explanation of SHP's innovative features and of the means by which the competence of the School's graduates will be ensured.

Where applicable, the explanation of the proposed innovations will include: (1) evidence that portions of the program have already been successfully implemented by others (e.g., Ohio State University, University of Illinois/Urbana, McMaster University); (2) assurance that, if necessary, M.D. graduates will demonstrate that they can pass any external evaluations or examinations that are required by other schools (such as those of the National Board of Medical Examiners); (3) emphasis on the fact that each component of the School is being approached from an experimental posture and that a number of studies and evaluative mechanisms will be employed to ensure the quality of the educational program; and (4) assurance that hypotheses will be continually tested by collecting data that compare the performance of SHP students and graduates with explicit and measurable levels of performance. Care will be required to avoid the implication that the proposed School is a panacea for all problems in health professions education, and to stress, instead, that it should be viewed as an attempt to provide its students with high quality education which addresses the health-care problems that they will confront as practitioners, and which is responsive to students' individual learning requirements.

4. Equivalency Testing: "Equivalency" (or proficiency) testing refers to a policy whereby advanced standing is accorded to students who can demonstrate prescribed levels of competence in a given area. It is a means for the student to "test out" of a subject area, thereby earning exemption from certain formal coursework or other kinds of fixed requirements in a given area.

There are no written statements in the medical accreditation or licensure regulations (California) that would prohibit an institution's providing its entering students with the opportunity to "pass out" of

certain requirements on the basis of demonstrated competency or proficiency. However, the absence of written constraints should not be construed to mean there are none. For example, if a licensing body were strict in requiring each medical student to spend 33 months in undergraduate medical education, how would it react, for example, to the case of a former hospital corpsman who was able - by virtue of demonstrating certain competencies acquired in his experience prior to entering SHP - to meet SHP's requirements for graduation in as few as sixteen months? This is closely related, of course, to the question (discussed above) of SHP's meeting accreditation and licensure requirements concerning the length of the medical education program. One of the crucial issues involved is the licensing and accrediting bodies' acceptance of the School's methods for assessing students' competencies and of its choice of the specific competencies that will be required for graduation.

Resolving these matters will probably require negotiations between the School of Health Professions and the accrediting and licensing bodies. The fact that many existing medical schools already accept a student's demonstration of equivalency in lieu of his completion of formal course requirements, and the fact that there is a growing trend toward emphasis on ability to perform (rather than simply on an amount of time assumed to be necessary to reach acceptable levels of performance) should provide some support for SHP's position.

To eliminate the necessity for separate accreditation, the planning staff considered the possibility of implementing the medical curriculum as part of an already existing and accredited medical school. This approach would assure M.D. students a chance to receive their degree and be eligible for licensure even in the event that the experimental and innovative program failed. However, changing the attitudes of faculty and administrators of an existing school to permit innovations of the type and magnitude proposed by the School of Health Professions would be extremely difficult. Moreover, one of the prices of locating the program in an existing medical school might be an abandonment of the interprofessional nature of SHP. Weighing these considerations, the staff concluded that the medical curriculum should be implemented as part of a separate School of Health Professions, a conclusion that

necessitates meeting the same requirements for accreditation as any new medical school.

B. Dental Curriculum

Problems related to accreditation of the SHP dental curriculum and to the eligibility of its graduates for licensing will be minimal if SHP is implemented at UOP/PMC as an innovational program closely affiliated with the UOP School of Dentistry. From all indications it appears that the Council on Dental Education of the American Dental Association (the accrediting body for dental schools) would approve of the proposed SHP dental curriculum and of its being affiliated with the UOP School of Dentistry.

The California Board of Dental Examiners is the state agency charged with approving new dental programs with respect to the eligibility of its graduates for licensure. The Board may, in lieu of conducting its own independent investigations, accept and adopt the findings of the Council on Dental Education (California Board of Dental Examiners, Title 16, Chapter 10, 1973, p. 49); as the University of the Pacific School of Dentistry is accredited by the Council on Dental Education, it is unlikely that the SHP dental curriculum would have any difficulty in obtaining the approval of the California Board of Dental Examiners.

Review of accreditation materials indicates that the Council on Dental Education permits educational innovations and the granting by dental schools of advanced placement credit (A.D.A. Council on Dental Education, 1973). Thus, it is reasonable to assume that the accreditation of an SHP dental program established elsewhere than within an already established dental school would also not be jeopardized by virtue of its innovational nature.

C. Health Care Coordinator Curriculum

At present, no educational programs for health care coordinators per se, exist, even though the necessity for this new type of health professional is recognized (as evidenced by numerous on-the-job training programs for patient-counsels, patient-advocates or patient-representatives).

California has enacted Assembly Bill No. 1503 (Chapter No. 1350,

1972) which delegates the responsibility for approving educational programs for new health professions to the State Board of Health. The full implications of the State Board's approval of educational programs for any given new profession are not specified; however, such legislation does suggest that it will be highly desirable (and probably necessary) to obtain the cooperation and support of the State Board of Health prior to initiating the SHP health care coordinator program or any educational program for a new kind of health professional.

D. Nurse Practitioner Curriculum

Currently, there are no mechanisms for accrediting nurse practitioner education programs in California. Nurse practitioner programs are designed according to the area of practice or specialty; SHP's program will emphasize family care. Although there are no accreditation standards per se, there are professional standards, specific to specialty areas, that must be met. To make certain that SHP meets these professional standards, it will continue to consult with faculty members of existing nurse practitioner programs and representatives of appropriate boards or agencies, and to maintain close contact with the Director of Nursing Education of the California Nurses Association.

California has no licensure requirements for nurse practitioners. However, the activities of nurse practitioners are regulated to some extent by Assembly Bill No. 2879 (Chapter No. 9130, 1974), which broadens the Nurse Practice Act - which is concerned with regulation of registered nurses - to include many of the functions that are now being performed by nurse practitioners. Some of the additional functions that nurse practitioners perform, but that are not encompassed by A.B. No. 2879, can be legally covered by A.B. No. 1503 (mentioned above in connection with the helath care coordinator program), which authorizes the California State Department of Health to approve experimental health manpower pilot projects that teach new skills to existing categories of health-care personnel (such as nurse practitioner skills to R.N.'s).

E. Social Work Curriculum

There is currently no licensing required for graduate (masters-

degree) social workers in California. Graduate social work educational programs are accredited by the national Council on Social Work Education. Since SHP does not plan - at least initially - to itself grant social work degrees (but, rather, to offer the clinical field training for students enrolled in graduate social work programs at other local institutions), it will not have to obtain its own accreditation from the national Council. Since many of the SHP principles concerning health care and education seem particularly congruent with principles of graduate social work curricula (see Chapter 1), the accreditation status of the institutions whose students participate in the SHP program should not be adversely affected (and could be enhanced) by virtue of affiliation with the School of Health Professions.

F. Clinical Pharmacy Curriculum

The School of Health Professions will offer clinical experiences to students enrolled in the Doctor-of-Pharmacy programs of other institutions. If SHP is implemented at UOP/PMC, students participating in the SHP program will be students of the University of the Pacific School of Pharmacy.

As long as students in the SHP pharmacy curriculum are receiving their degrees from their parent, accredited institutions, the School of Health Professions will not need to address accreditation requirements directly. As in the case of the social work student, the SHP portion of the pharmacy student's education will need to be consonant with the objectives of the educational institution in which he is enrolled. If this is the case, affiliation with SHP should cause no difficulty concerning the parent institution's accreditation or the eligibility of its graduates for licensure.

III. SUMMARY AND CONCLUSIONS

Legal and accreditation requirements must be met in order to implement the School of Health Professions. Meeting the medical education accreditation requirements will be potentially problematic, but not impossible. For a School of Health Professions implemented at

UOP/PMC, the SHP dental program could be implemented as an experimental program under the University of the Pacific School of Dentistry, in which case legal and accreditation requirements should be easily met. Moreover, accreditation and legal (for California) standards for undergraduate dental education also suggest the acceptability of the SHP dental curriculum if implemented separately from an existing dental school.

There is presently no accreditation, at least in California, for nurse practitioner programs, and no accreditation or direct legal requirements for health care coordinator programs, per se. However, there are various professional standards and potential legal requirements that both the nurse practitioner and the health care coordinator programs will need to meet. Neither of these two programs will be designed without the consultation and approval of appropriate public and private agencies.

Finally, with respect to SHP's social work and pharmacy programs, the primary responsibility for fulfilling legal and accreditation requirements will rest with the institutions from which students are sent to SHP for part of their training.

The various approaches that have been presented for resolving potential problems related to SHP's meeting accreditation and state legal requirements can be categorized as follows:

- With ample resources and a strong commitment, the School could petition for changes in the wording or interpretation of current legal and accrediting requirements to permit the implementation of its educational programs without many of the present constraints.
- With fewer resources, the School could demonstrate its compliance with existing legal and accreditation requirements by correlating subject matter and hours of study in the School of Health Professions curriculum with any course content or length of study specified in particular accreditation or state licensing requirements.
- With respect to the medical program, the School could

seek temporary approval from the pertinent licensing body for SHP graduates to sit for licensing examinations on the basis that the program, while experimental, will eventually be able to demonstrate its comparability with other undergraduate medical education programs.

Licensing and accrediting bodies have broad latitude in the interpretation and application of their respective standards. The receptivity of these agencies to the School of Health Professions will depend, in part, upon a continuous interchange of information between representatives of the School and those of the pertinent licensing and accrediting bodies as the School is being planned and developed.

The regulations governing health manpower are currently a subject of national debate that promises fewer legal and, possibly, fewer accreditation restrictions on innovative education in the future. Since the School of Health Professions has been designed to respond to primary and changing health-care needs, the climate appears opportune for implementation.

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CHAPTER 11

IMPLEMENTATION OF THE SCHOOL OF HEALTH PROFESSIONS

CHAPTER SUMMARY

Implementation of the School of Health Professions will occur in three stages: a Feasibility Study and Initial Planning Stage, a Development Stage, and an Operational Stage (with a Start-Up Phase preceding full-level operations).

The Development Stage begins with the parent university's initial commitment to implement the School of Health Professions. During the two-and-one-half-year development stage, the initial faculty will be hired, financial resources will be marshalled, construction and remodelling will be undertaken, necessary organizational and institutional policies and procedures will be defined, the curriculum, the clinical units, and the related evaluation, communication and support systems will be developed, and the first students will be selected. Program initiation and expansion will occur gradually over a five-year Start-Up Phase of operation. In Year One of operation, ten primary-care physicians and ten primary-care dental students will enter, who will be joined in Year Two by eight health care coordinator students. Nurse practitioner, social worker, and clinical pharmacist students will be phased in during Year Three. In Year Six the School will reach its full enrollment of 360.

A major focus of the School's first several years will be the expansion and improvement of team-delivered primary care services.

A PERT-type chart, diagramming the early steps of implementation, is included. The implementation plan presupposes that the School of Health Professions will be located at an existing academic health center rather than be created as a completely de novo educational and patient-care center.

CHAPTER 11

IMPLEMENTATION OF THE SCHOOL OF HEALTH PROFESSIONS

I. INTRODUCTION

Many of the key tasks and concerns related to implementing a School of Health Professions have been discussed in preceding chapters of this report. The present chapter places these and additional considerations into a logical and chronological framework. A formal implementation plan is presented at the conclusion of the chapter.

This chapter should be read with the following points in mind:

- The implementation plans are predicated on the assumption that the School of Health Professions would (1) be developed as part of, or in close affiliation with, an existing university; (2) be able to affiliate with an existing nearby hospital for its students' inpatient experiences; and (3) be situated in a medical center characterized by pre-existing strength in clinical specialties and biomedical sciences, but by relative weaknesses in the areas of primary-care education and services.

  Thus, implementation of the School will not require creating either a new teaching hospital or a new institution of higher education, but it will require strengthening and developing new resources in primary-care education and services.

- It has been difficult to develop implementation plans without reference to a known and familiar setting. For this reason, much of the planning for implementation has been influenced by the local UOP/PMC context (see Appendix 15, which describes the UOP/PMC setting). However, the plans can be generalized to many other potential sites and sets of circumstances.
- The plans focus on those facets of implementation

that will be unique to a School of Health Professions, and de-emphasize the steps that are part of launching any new health professions educational enterprise.

- The implementation planning places greater emphasis upon program-development than upon facilities-development. This imbalance is partially redressed in portions of Chapter 12, in which the facilities required for a School of Health Professions are discussed. It is pertinent to emphasize here that in comparison with traditional health education programs (especially medical and dental), the School of Health Professions will require relatively less space and equipment for biomedical research and laboratory teaching, but relatively greater amounts of space and equipment for self-instructional purposes.
- Chapter 12, which deals with financial considerations, complements the implementation plans presented in this chapter, since the costs and funding prospects for the continued development and early operation of the School are fundamental components of its implementation.

Unless otherwise stated, all designations of specific years refer to the academic year, which begins in July of the year shown.

II. THE CONCEPTUAL FRAMEWORK OF A PLAN FOR IMPLEMENTATION

A. Introduction

This section of the chapter outlines the basic conceptual framework for the implementation of a School of Health Professions and discusses some of the ways in which the planning staff's understanding of the requirements for implementation has evolved.

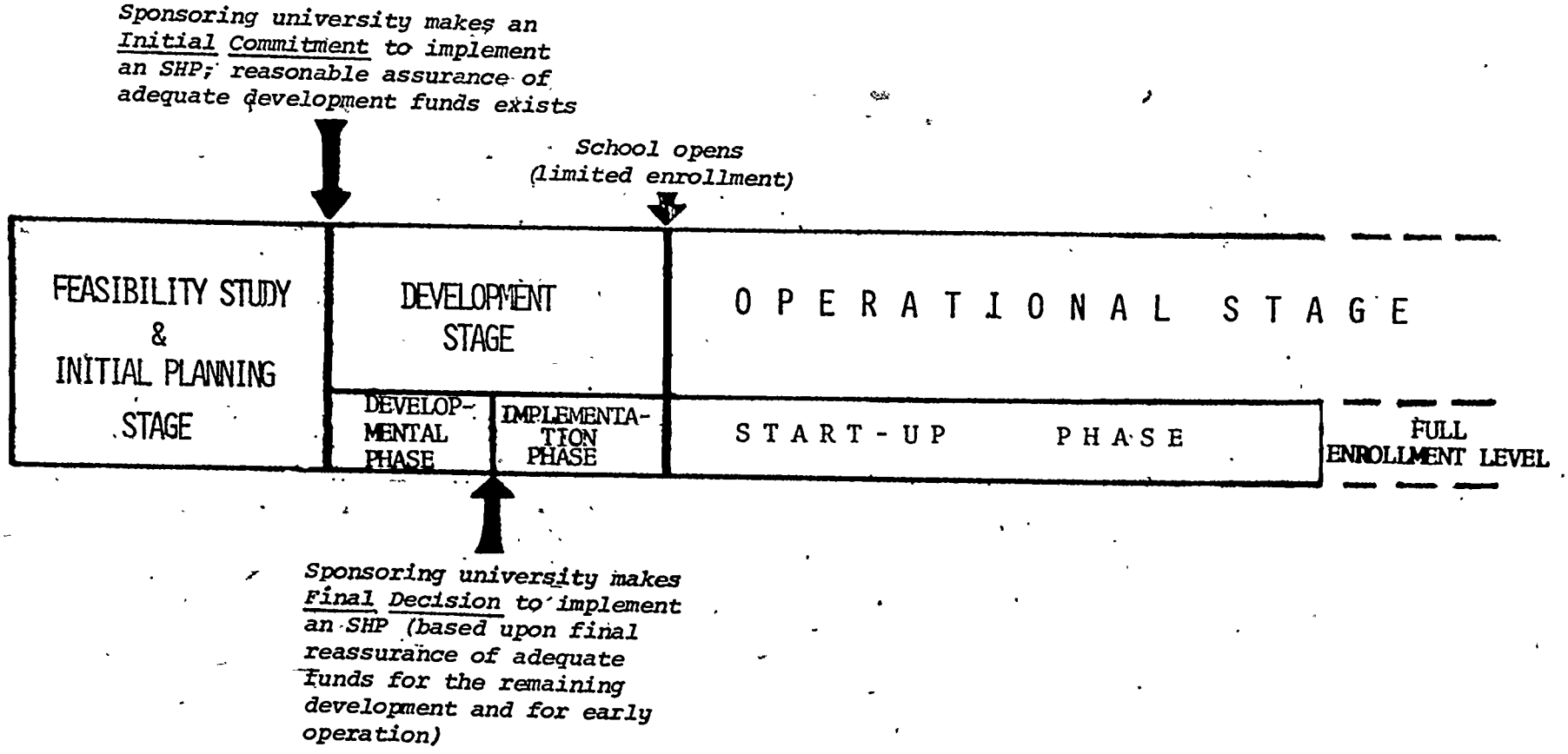
A diagram of the development and implementation process is shown in Figure 1. The diagram is based on a timeline, beginning with the initiation of a feasibility study and ending with the existence of a

FIGURE 1

CONCEPTUAL FRAMEWORK

FOR

IMPLEMENTING A SCHOOL OF HEALTH PROFESSIONS



fully operational school. Specific dates have been omitted from the diagram to keep it as general as possible. With respect to the School's possible implementation at the UOP/PMC site, the beginning point on the diagram is summer 1972 (the onset of the BHRD-supported feasibility study), and the projected "end point" is scheduled to be in Fall, 1982 (the projected date for achieving full enrollment).

The figure 1 diagram is divided into three major stages. The lengths of the bars representing each of the stages are in proportion to their probable durations for a School implemented at UOP/PMC.

B. The Three Stages of Implementation

1. First Stage: Feasibility Study and Initial Planning is the stage that, insofar as the current project is concerned, is now drawing to completion; the contents of this report indicate the scope of activities undertaken during this first step toward eventual implementation. At least in the case of this project, the two tasks of determining the School's feasibility and of carrying out initial planning for the School are closely interrelated, even though, in theory, they could be separated from one another.

2. Second Stage: The Development Stage, is defined as beginning at such a time as (1) SHP's sponsoring university has made an initial commitment based upon the School's educational feasibility to implement the School, and (2) there is a reasonable assurance of sufficient funds to sustain the School's development.

The following major activities will be undertaken during the Development Stage, which lasts from two to two-and-one-half years:

- Initial faculty will be hired;
- Financial resources will be marshalled;
- Required construction and remodelling projects will be undertaken;
- Various academic and administrative policies and programs (including faculty training programs, faculty governance, and internal organization structure) will be defined and implemented;

- The School's relationships with other pertinent institutions and groups - including pertinent accrediting and licensing bodies - will be developed or strengthened;
- The SHP curriculum (primarily the modules) and related evaluation, communications, and student support systems will be developed;
- The SHP clinical units and affiliated clinical resources will be identified and developed;
- The first students will be selected.

Discussion of the organization and development of the clinical units is contained in Section III of this chapter.

A number of one-to-three-year developmental projects, for which funding and sponsorship by private foundations and governmental agencies could be sought, have been identified for implementation during the Development Stage. A list of eight such projects appears in Table 1. Each of these projects is aimed toward designing, clarifying, testing, or implementing a key facet of the School's curriculum, clinical units, or general educational plan. All of the projects are scheduled to begin one or two years before the School's projected opening, though some will continue beyond that time.

The kinds of pilot activities identified by these projects will be undertaken in the course of the School's development regardless of whether or not outside sources can be found for their support. However, outside support will enable a project to be carried out on a larger scale and more systematically than will be the case if it must be supported entirely from the School's educational budget. Outside sponsorship will also help ensure national dissemination of project results. (See Chapter 12 for further discussion of projected costs and income for the School's educational program.)

Estimated project costs are included in Table 1 as a means of conveying the proposed scale for each project. The costs represent the most desirable level of activity - i.e., that which is likely to be possible only with assistance from outside funding agencies.

As planning and development continue, this initial list of developmental projects may expand or contract in response to the discovery,

TABLE 1

PROPOSED DEVELOPMENTAL PROJECTS FOR A SCHOOL OF HEALTH PROFESSIONS

PROJECT	BEGINNING YEAR*	DURATION	ESTIMATED ANNUAL COST
HEALTH CARE COORDINATOR: ROLE DEFINITION AND CURRICULUM PLANNING	2 years prior (1975)	1 year	$ 75,000
MODULE FIELD-TESTING (using students from established schools)	2 years prior (1975)	1 year	$ 50,000
CLINICAL UNIT DEVELOPMENT (Central Unit): Education and Health Care in a Primary Ambulatory-care Setting	2 years prior (1975)	1 year	$100,000
CLINICAL UNIT IMPROVEMENTS (Central Unit): Functional Interaction with Tertiary Care and Prepaid Group Practice	1 year prior (1976)	3 years	$150,000
TEAM TRAINING (Students from established schools utilizing SHP modules)	1 year prior (1976)	1 year	$ 50,000
INTERDISCIPLINARY EDUCATION: Determination of Optimum Content and Context	1 year prior (1976)	3 years	$100,000
FACULTY TRAINING PROGRAMS-- DESIGN AND OPERATION	1 year prior (1976)	3 years	$ 75,000
CONTINUUM OF EDUCATION: SHP and Continuing Education	1 year prior (1976)	2 years	$ 75,000

*Expressed relative to scheduled opening date for the School. The dates in parentheses refer to the implementation timetable for a School of Health Professions at UOP/PMC. Years shown refer to academic years beginning in July of the calendar year indicated.

by those responsible for the School's further development, of new needs and funding possibilities. Thus the list is only preliminary.

It is useful to divide the Development Stage into two phases: the Developmental Phase and the Implementation Phase. Many of the developmental projects will be started in the Developmental Phase. During the Implementation Phase, the various components of the School that were planned and organized during the preceding stages in the School's development will be put into effect in anticipation of the School's opening. For example, the recruitment of the additional faculty required for the School's Operational Stage (see below) will begin; the student recruitment and selection program will be activated and the first group of students selected; and the details of space assignment and scheduling will be worked out.

Since these kinds of tasks will not be undertaken until it is certain - barring unforeseen circumstances - that the School will in fact open at a designated point in time, the "boundary" between the developmental and implementation phases of the Development Stage can be described as the point at which the sponsoring university makes its final, official decision concerning the School's opening. This final decision is, in turn, predicated upon the university's being reassured of the adequacy of income to cover the operating and capital costs of the School's development and initial operation, and upon the existence of reasonable assurance that the School will meet pertinent accreditation and legal requirements (see Chapter 10). (This final decision contrasts with the sponsoring university's initial commitment to implement the School of Health Professions - the commitment that was sufficient to begin the Development Stage.)*

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* It should be pointed out that the Development Stage, as it is defined in this implementation framework, does not conform precisely to the formal definition of "development" used by the Liaison Committee on Medical Education (LCME) of the AMA and the AAMC. For a school to meet the LCME's definition of "in development," the school must have, among other things, the "(f)ormal commitment by a sponsoring body, such as a university or a state legislature, to establish a medical school," and "(f)irm assurances of financial support for both construction and operation" (form "Medical Education in the United States, 1972-1973," JAMA, Educational Number, Vol. 226, No. 8, November 19, 1973, page 903). These two prerequisites are similar to those designated in this chapter as defining the onset of the implementation phase of the Development Stage.

3. Third Stage: The Operational Stage begins with the matriculation of the School's first students. The Start-Up Phase of the Operational Stage covers the years prior to reaching the projected full enrollment level (see Section III of this chapter). In the case of the School's being implemented at UOP/PMC, the Start-Up Phase covers the five years from 1977 through 1981.

The convention of designating the transition from the Development to the Operational Stage as being the matriculation of the School's first students obscures the fact that the curriculum, programs, and clinical units of the School of Health Professions will continue to be "under development" well beyond the date of the School's official opening. While a similar statement could be made for all new educational institutions and programs, the observation is especially pertinent to the School of Health Professions, due to the School's innovative and experimental nature and its plan to remain responsive to changing educational and health-care needs. Therefore, to be complete, the purview of the "plan of implementation" needs to extend beyond the School's first year of operation.

C. Discussion

The implementation framework discussed above incorporates an evolution in the planning staff's conceptualization of the requirements for the further development of the School of Health Professions, especially concerning the role of the proposed developmental projects.

These developmental projects, most of which were identified early in the course of the current feasibility study (and labeled "pilot" or "demonstration" projects) are now viewed - the availability of funding aside - as being appropriately deferred until after the prospective sponsoring institution has actually made an initial commitment to implement a School of Health Professions and as definitely being preparatory steps to the eventual opening of a School of Health Professions.

This point of view represents a shift from the earlier concept that these projects could be - and at times, even should be - conducted prior to the sponsoring university's initial commitment for implementation,

and that operation of these projects would provide conclusive evidence as to the School's overall feasibility.

Both theoretical and practical considerations persuaded the planning staff to alter this concept. The theoretical consideration is that many of the features of the proposed School are already being successfully carried out at existing schools; the uniqueness of SHP lies in its attempt to combine those features in one institution and into a whole that is intended to be greater than the sum of its parts. Thus, the concept of a School of Health Professions cannot be tested, nor can the School itself be implemented, in a partial way.

The practical consideration is that many of the developmental projects would be difficult to conduct in a way that would be meaningful and directly useful in establishing a new school without the knowledge, at the time they were being conducted, that a School of Health Professions was in fact going to be opened. The clinical unit and team training projects illustrate this point; it would be difficult to recruit clinician faculty to organize a clinical unit to accommodate major educational as well as care-delivery functions unless it were expected that the school for whose purposes the unit's operations were being designed would actually be opened.

Another related concept that was considered feasible by some, but which has now been discarded, is the notion that it might be possible to implement a School of Health Professions solely by drawing upon sources of outside, restricted-purpose funds for the execution of a series of specific "pilot" studies and projects, which in and of themselves would eventuate in an operating School. The staff now recognizes that such heavy reliance upon this piecemeal method of funding and conducting program-development is neither desirable nor feasible, particularly for a school as complex and experimental as the School of Health Professions.

III. GROWTH OF THE SCHOOL: PROGRAM INITIATION, STUDENT ENROLLMENT, AND CLINICAL UNITS DEVELOPMENT

Programs for the SHP's initial six categories of students will be phased in as follows (years in parentheses refer to implementation at UOP/PMC):

Year Program Initiated	Program	No. of Students in First Entering Group
Year 1 (1977)	• Primary-Care Physician	10
	• Primary-Care Dentist	10
Year 2 (1978)	• Health Care Coordinator	8
Year 3 (1979)	• Nurse Practitioner	4
	• Social Worker	4
	• Clinical Pharmacist	4

Student enrollment projections for the first six years of the School's operation are presented in Table 2. Opening enrollment will be 20 students; full enrollment, to be reached in the sixth operational year, is estimated at 360 full-time equivalents. Maximum "class" sizes for both the medical and the dental programs will be reached in the fourth operational year; the maximum class sizes for the health care coordinator, nurse practitioner, social work, and pharmacy programs will be reached in the sixth operational year.

The SHP educational approach makes it likely that some of the students will be attending on a part-time basis, so that the actual number of students enrolled at any time will likely exceed 360.

Derivation of Preliminary Enrollment Projections: The projections of program starts and of student enrollment are preliminary. Insights and experiences gained in the course of implementing the School, decisions to incorporate programs for additional kinds of professions, and various external factors (such as national and local manpower policy, political events, financial developments, and accreditation requirements) could all affect the School's projected growth pattern.

Basically, the projections of the absolute and relative pace of development of the School's several professional curricula are the result of an attempt to balance a number of influencing factors. Among the chief considerations taken into account were: the lead-time required to develop and test out the SHP curriculum and related systems; the probable funding situation (costs and potential income); allegiance to interprofessional learning and to faculty and student team health-

TABLE 2

ESTIMATED STUDENT ENROLLMENT
FOR A
SCHOOL OF HEALTH PROFESSIONS

PROFESSIONAL CURRICULUM	ENROLLMENT[a]					
	START-UP PHASE					FULL ENROLLMENT LEVEL
	Year 1 (1977)[c]	Year 2 (1978)	Year 3 (1979)	Year 4 (1980)	Year 5 (1981)	Year 6 & on (1982)
PRIMARY-CARE PHYSICIAN						
1st Year[b]	10	20	30	50[d]	50	50
2nd Year	--	10	20	30	50	50
3rd Year	--	--	10	20	30	50
Total Physician	10	30	60	100	130	150
PRIMARY-CARE DENTIST						
1st Year[b]	10	15	20	30[d]	30	30
2nd Year	--	10	15	20	30	30
3rd Year	--	--	10	15	20	30
Total Dentist	10	25	45	65	80	90
HEALTH CARE COORDINATOR	--	8	20	30	45	60[c,d]
NURSE PRACTITIONER	--	--	4	8	14	20[c,d]
SOCIAL WORKER	--	--	4	8	14	20[c,d]
CLINICAL PHARMACIST	--	--	4	8	14	20[c,d]
TOTALS	20	63	137	219	297	360

[a]Expressed in full-time student equivalents.

[b]"Class" years or "levels" are specified for purposes of clarity and comparability only. They are based on an average projected curriculum length of 146 instructional weeks (48 per calendar year). This should not be interpreted as contradicting the SHP principle of time-variable, competency-based curricula. The remaining four categories of students are assumed to complete their respective programs in an average of 48 instructional weeks.

[c]Specific dates, expressed in academic years, refer to implementation of SHP at UOP/PMC.

[d]The first year in which the maximum projected entering class enrollment is achieved.

care delivery; the interdigitation of student and clinical learning experience requirements with the smooth functioning of the proposed SHP clinical units; and, finally, the pace at which the clinical units and other ambulatory-care programs and facilities can be organized.

The last factor was judged to exert the greatest influence on the pacing of program-development, whereas the immediately preceding factor - the interdigitation of the students' clinical education requirements with the functioning of the clinical units - was deemed to be the most complex to analyze and evaluate at this point in the process of planning a School of Health Professions.

Clinical Units Development: Figure 2 presents the principal assumptions about the pacing of the development of the clinical units (for a School implemented at UOP/PMC) that were taken into account in projecting program-initiation and student enrollment.

The central clinical unit (located at or close to the School's teaching facility) will be organized first. It is intended to be the most highly developed of the three types of SHP clinical units in terms of specialty back-up, proximity to inpatient facilities, and utilization of prepayment mechanisms. It would also probably be the site of the greater portion of students' clinical unit experiences - especially their most formative ones.

For a School implemented at UOP/PMC, the central clinical unit would be created from PMC's present outpatient clinics. To turn current clinic services into a model School of Health Professions clinic will include: increasing the space (possibly building a new facility) available for instructional purposes; expanding the patient population and instituting the kinds of services required to attract patients with the kinds of primary-care problems addressed by the SHP curriculum; determining precise staffing patterns (faculty and non-faculty clinic staff and students); introducing School of Health Professions faculty care-providers into the unit; initiating interprofessional team care; and restructuring care-delivery and administration (including modifying the patient-records system) to accommodate a large number of students in the clinic. Ideally, the central (PMC) clinical unit will also be able eventually to convert from a fee-for-service to a prepayment-plan basis of operation.

FIGURE 2

PROPOSED TIMETABLE

FOR THE DEVELOPMENT OF

AMBULATORY-CARE CLINICAL UNITS*

1975 and 1976: Creation of Central (PMC) Clinical Unit begins with the establishment of team-care delivery by SHP faculty in the PMC outpatient clinics.

1977: Central (PMC) Clinical Unit continues operations with the addition of SHP medical and dental students. Experience gained contributes to the subsequent development of the Urban and Rural (remote-site) Clinical Units.

1978: Health Care Coordinator students are introduced into the Central Clinical Unit.

Operation of Urban and Rural (remote-site) Clinical Units is initiated - faculty but no students.

1979: Urban and Rural Clinical Units continue operation with introduction of SHP students (all six professional categories).

1980 and 1981: All three Clinical Units continue to expand and improve operations in pace with the expansion of SHP student enrollment (full enrollment level is reached in 1982).

*for a School implemented at UOP/PMC

For purposes of planning and cost projections, a number of broad operating assumptions have been made regarding the creation of the urban and rural (remote site) clinical units. The most important of these is that whatever the particular "base" from which either an urban or a rural clinical unit is formed, to comply with the timetable in Figure 2, it must include a pre-existing patient population which is appropriate, with relatively minor expansion, for the SHP educational program; with regard to the San Francisco Bay area, the creation of the requisite patient population de novo would probably be neither administratively, politically, nor financially feasible. This operating premise nearly precludes any route other than the acquisition of already established clinical operations serving reasonably stable patient populations. Even then, the development of model SHP urban and rural clinical units will be a demanding task, and one that may take a number of years.

In light of the preceding observations, it is possible that students' remote-site urban and rural clinical experiences will (at least initially) be acquired in a number of existing care-delivery programs with which SHP will affiliate for the participation of its students and their SHP faculty preceptors. For the rural experience this might mean, for example, assignments to solo practitioners, rural group practices, rural clinics, and community hospitals. Regardless of whether these kinds of assignments end up as temporary substitutes or as permanent replacements for the envisioned SHP model urban and rural clinical units, they will be selected on the basis of their capacity to serve the educational objectives of providing health-care experiences in socio-economically and medically underserved patient populations and of providing students an opportunity to learn to adapt team care-delivery to a given patient population.

As indicated above, the School is planned to open with only 20 students in the medical and dental programs, and to phase-in the remaining four programs over a two-year period. Thereafter, enrollment in all six programs will be increased gradually until full size is reached in the sixth year of operation. This conservative growth pattern recognizes the desirability of implementing the unique interprofessional curriculum on a gradual and manageable scale, of allowing

sufficient time to establish team-care delivery in the clinical units before all six categories of students and professionals are absorbed into the units, and of expanding enrollment only as quickly as the development of appropriate clinical experiences permits.

Beginning the medical and dental programs two years ahead of the nurse practitioner, social work, and pharmacy programs will help compensate for the discrepancy in the lengths of the various professional programs. It is assumed that health care coordinator, nurse practitioner, social work, and pharmacy students will require, on the average, one year to complete their respective programs, and will have assumed major patient-care responsibilities within the course of their program. Medical and dental students are estimated to require an average of three years to complete their programs and to achieve the competence required for assuming major responsibilities for patient care (Stage 4 of their curriculum, as described in Chapter 2) at about the end of their second year. Therefore, by the time the initial group of nurse practitioner, social work, and pharmacy students are admitted to SHP, the initially admitted group of medical and dental students will be available to serve with them on patient-care delivery teams.

The opening of the health care coordinator program is postponed until the School's second year of operation in order to permit completion and evaluation of the results of developmental work in clarifying the health care coordinator's role (one of the developmental projects). Initiation of the health care coordinator program at as early a date as possible is critically important for the development of student health-care delivery teams and for the purpose of clarifying the ways in which student health care coordinators and their professional (faculty) counterparts interract in their pivotal roles in patient-care delivery in the central clinical unit.

IV. THE ROLE OF THE FACULTY IN IMPLEMENTING THE SCHOOL OF HEALTH PROFESSIONS

The key features of faculty participation in developing and implementing a School of Health Professions are described below. The description is restricted to faculty activities during the Development Stage, so that instruction of students is not included.

A. Faculty Composition

During the Development Stage, the faculty will be comprised primarily of primary-care providers representing, minimally, the professions to be trained in the School of Health Professions. (In the case of the health care coordinator, a new profession, the faculty representatives might be drawn from individuals with experience in unit managerial or similar patient-care oriented administrative positions.) In addition, a number of individuals with experience and competence in curriculum evaluation and instructional design will be included as full-time members of the faculty. A small number of biomedical and behavioral scientists, mainly on a less than full-time basis, will also be included.

As will be true of faculty hiring in general, selection criteria for faculty for the Development Stage will emphasize demonstrated interest in teaching and curriculum development and expertise in patient care (or research), since it is probable that the faculty who join the School during the pre-operational period will stay on to assume instructional responsibilities when the School opens.

The decisions concerning the precise number and kinds of faculty hired during the Development Stage will be governed by the curriculum-development and eventual instructional requirements of the School and by the other kinds of developmental work required, rather than by professional disciplinary strength, departmental prestige, or similar considerations that are of lesser relevance to the basic goals of the School of Health Professions. The precise faculty pattern that was developed for purposes of estimating Development Stage costs is included in Chapter 12.

B. Faculty Activities

Each of the primary-care providers on the faculty will spend the majority of his time establishing team-care delivery and other changes in clinic operations in the central clinical unit (preparatory to introducing SHP students into the unit), and developing the modules and evaluation materials required for implementing the curriculum. The remaining time will be spent in other developmental or administrative

activities (e.g., developing faculty governance plans, student admissions). The educational specialists on the faculty will devote their entire time to assisting in the development of the module study guides and study and evaluation materials and in developing and conducting faculty training programs designed to strengthen teaching effectiveness and instructional-development skills.

The faculty will play the predominant role in developing the School's curriculum, a process that will center around developing modules for the kinds of patient problems and diagnoses discussed in Chapter 2. Until SHP has its own students, students of other health professions schools will be consulted in designing the curriculum.

The greatest responsibility for defining and developing the curricular content will be held by the faculty members who are primary-care practitioners representing the various professions to be trained in the School. Biomedical scientists, behavioral scientists, clinical specialists and subspecialists, administrators, educational specialists, technical support staff, and students will be drawn upon as resources, as will many consultants from outside of the School. This distribution of responsibility applies not only to the curriculum-development effort that will occur prior to the School's opening, but to all subsequent curricular updating and revisions as well.

The development of the curriculum and clinical learning experiences for the health care coordinator, nurse practitioner, social work, and pharmacy programs will continue into the first two years of the School's operation (i.e., when there are only medical and dental students - and, beginning in the second year, health care coordinator students as well). During these two start-up years (1977 and 1978 for a School implemented at UOP/PMC), faculty for these four other professions will complete the development of the curricula for their respective professions, initiate team instruction and team health-care delivery for the medical and dental programs, and, with other faculty, prepare for the eventual integration of the curricula for all six professions. In the School's second year of operation, faculty in all professions will begin to organize team-care in the rural and urban clinical units as well as continue to improve and expand the patient-care and educational components of the central clinical unit.

V. A FORMAL IMPLEMENTATION PLAN FOR A SCHOOL OF HEALTH PROFESSIONS

A. Introduction

The contract with the Bureau of Health Resources Development requires the preparation of a formal plan of implementation for a School of Health Professions. This plan, presented in Figure 3, is the immediate result of planning sessions held in June, 1974, but incorporates the results of earlier planning sessions and of interim modifications. It contains some specific references to UOP/PMC, but is readily generalizable to other settings.

The plan is a reasonable temporal and logical statement of the effort involved in implementing a School of Health Professions. It puts in visual perspective many of the issues dealt with in the earlier chapters of this report and incorporates some additional considerations as well. However, the plan is not entirely self-sufficient; the text of this chapter and the plan are complementary - rather than congruent - to one another.

B. Explanation of the Plan

The implementation plan (Figure 3) combines some features of PERT technique with the traditional timeline-type of presentation. Each boxed entry represents a milestone (i.e., a goal or accomplishment). All connecting lines indicate critical sequence in the direction indicated by the arrow: A dotted line merely implies the critical ordering of events; a solid line between two boxes implies, in addition, an intervening activity that must be performed in order for the second of the two goals to be achieved. No attempt has been made to attach specific dates to the plan, but the horizontal distances between boxes are intended to approximate the estimated relative times required to complete various components of implementation.

Whenever possible, separate lines of progression are presented for each of the various components of the development and implementation process (e.g., development of educational support resources, faculty development); these lines are arranged vertically. Thus, the horizontal "axis" of the plan relates the various implementation components to

one another temporally, while the system of lines and arrows relates these components to one another logically.

The Plan begins at a point in the planning process equivalent to the state that the planning at UOP/PMC had reached in early summer, 1974 - that is, about two years after the beginning of the feasibility study - and ends with the matriculation of the School's first student. For a School of Health Professions implemented at UOP, this end point occurs in 1977. Since the "development" process will continue well beyond the School's official opening, the conclusion of the implementation plan with the matriculation of the School's first students is somewhat arbitrary.

The plan in Figure 3 is divided into three major "phases." The "Planning Phase" is congruent with the final part of the Feasibility Study and Initial Planning Stage portrayed in Figure 1; the Plan's "Developmental" and "Implementation" Phases are roughly congruent with the two phases of the same names that constitute the Development Stage shown in Figure 1.

The plan is on the next page.

FIGURE 3

IMPLEMENTATION PLAN

FOR A

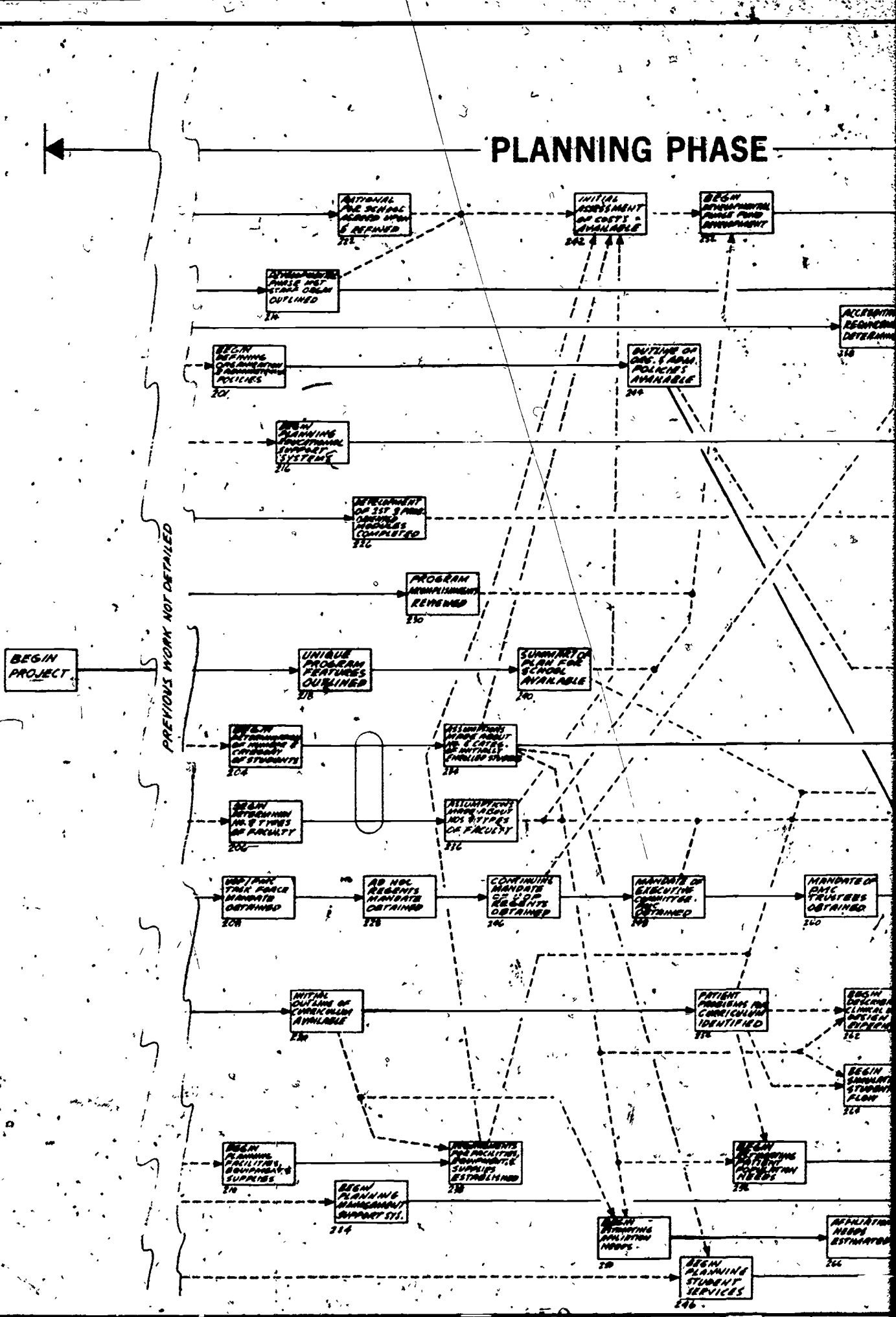
SCHOOL OF HEALTH PROFESSIONS

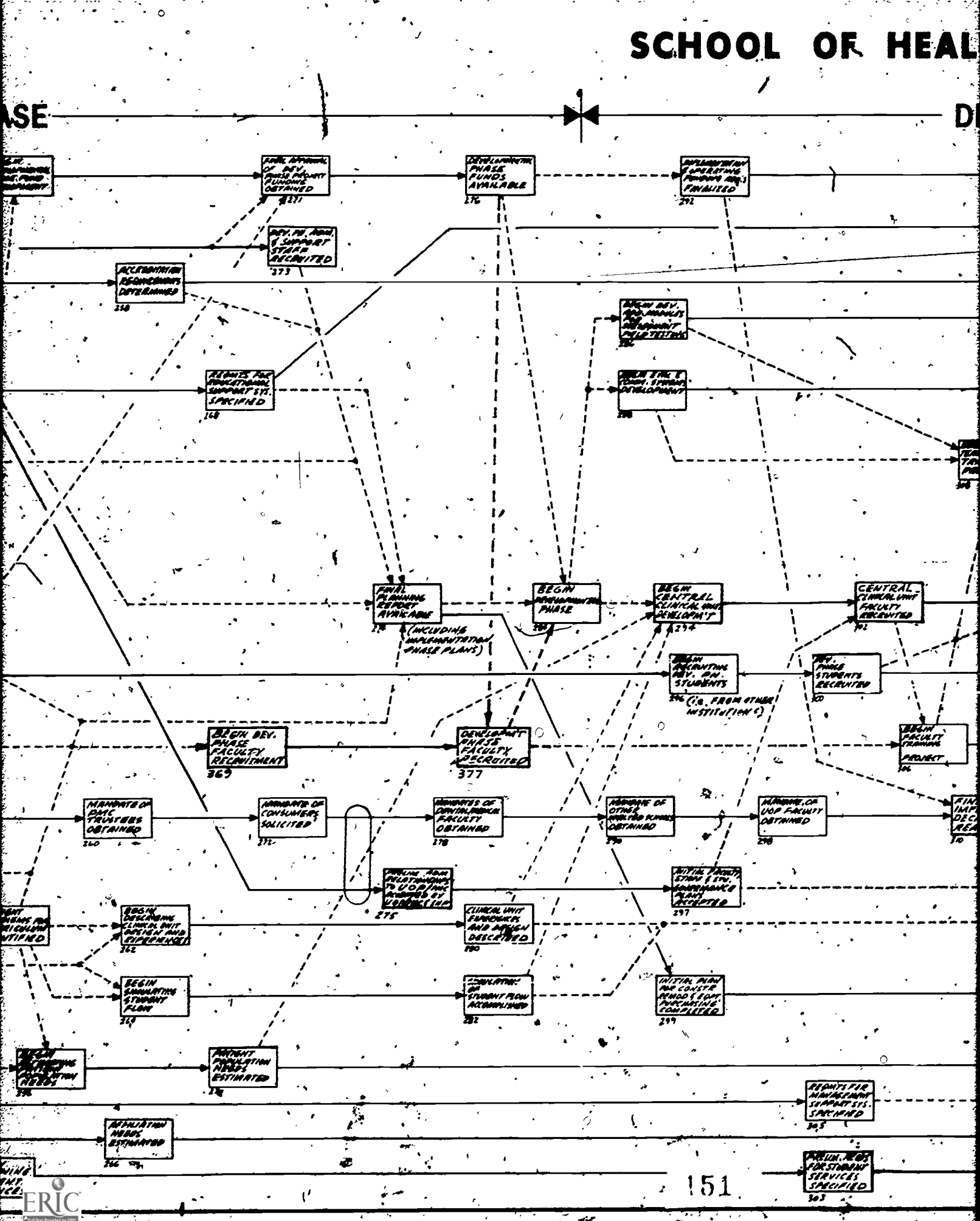
The Implementation Plan is to the right. Directions for reading the Plan are as follows:

Time: flows from left to right.

Goals (milestones): shown in boxes.

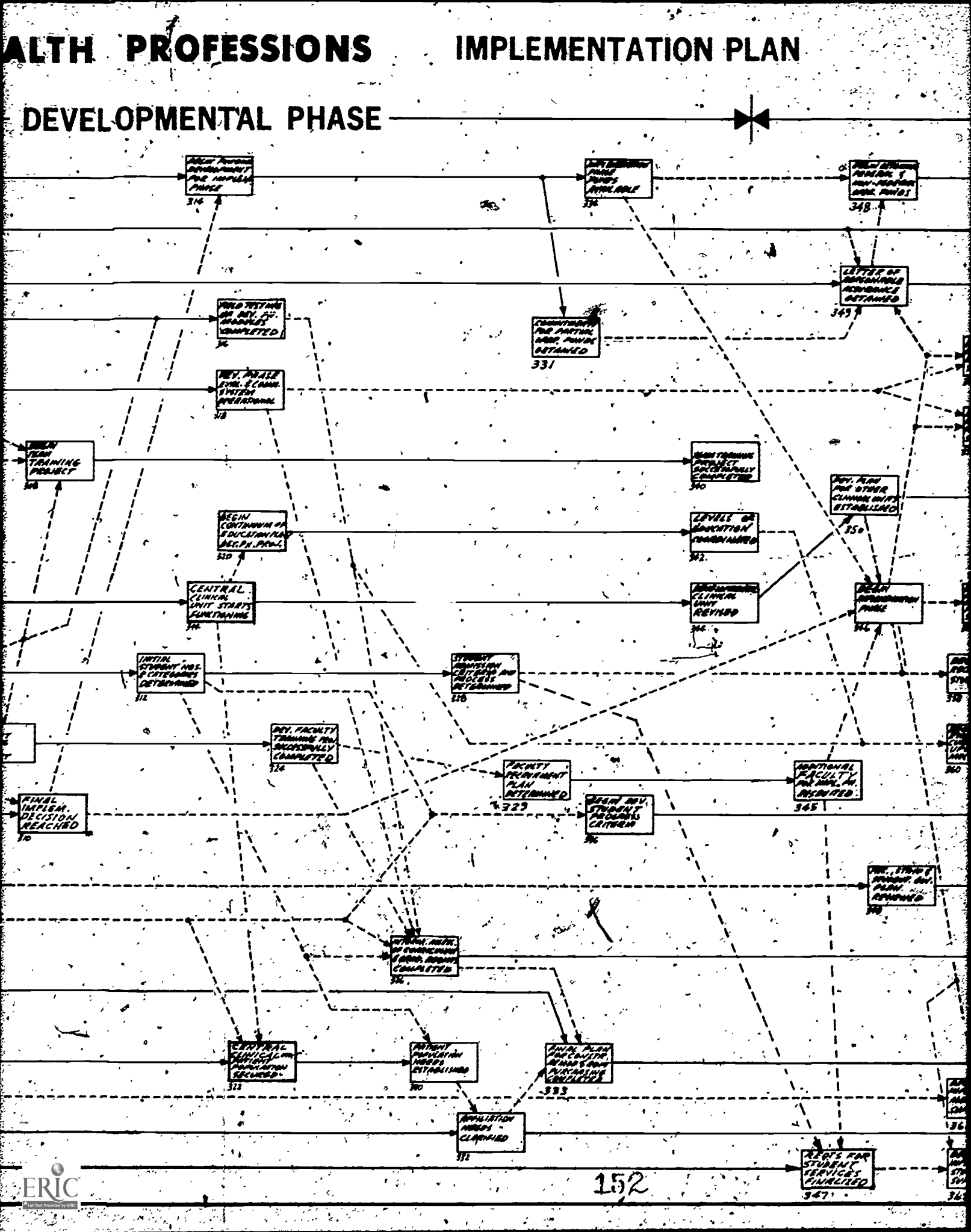
Critical Sequence of Events: All lines indicate critical sequence. Solid lines indicate the existence of one or more intervening activities that influence the lapse of time between two connected goals.


PLANNING PHASE
PREVIOUS WORK NOT DETAILED
BEGIN PROJECT
NATIONAL PHILOSOPHIC AGENDA DEFINED & REFINED
INITIAL ASSESSMENT OF COSTS - AVAILABLE
BEGIN ENVIRONMENTAL IMPACT FUND ENVIRONMENT
PHASE OUTLINED
BEGIN REFINING ORGANIZATION & ADMINISTRATION POLICIES
OUTLINE OF ORG. & ADM. POLICIES AVAILABLE
BEGIN PLANNING EDUCATIONAL SUPPORT SYSTEMS
DETERMINATION OF 1ST 3 PHASE CURRICULUM MODULES COMPLETED
PROGRAM ACCOMPLISHMENTS REVIEWED
UNIQUE PROGRAM FEATURES OUTLINED
SUMMARY OF PLAN FOR SCHOOL AVAILABLE
BEGIN DETERMINATION OF NUMBER & CATEGORY OF STUDENTS
ASSUMPTIONS MADE ABOUT NO. OF COURSES AVAILABLE ENROLLED STUDENTS
BEGIN DETERMINATION NO. & TYPES OF FACULTY
ASSUMPTIONS MADE ABOUT NOS. & TYPES OF FACULTY
USOE/PHRC TASK FORCE MANDATE OBTAINED
AD HOC REGENTS MANDATE OBTAINED
CONTINUING MANDATE OF REGENTS OBTAINED
MANDATE OF EXECUTIVE COMMITTEE OBTAINED
MANDATE OF DATC TRUSTEES OBTAINED
INITIAL OUTLINE OF CURRICULUM AVAILABLE
PATIENT PROBLEMS FOR CURRICULUM IDENTIFIED
BEGIN PLANNING FACILITIES EQUIPMENT & SUPPLIES
REQUIREMENTS FOR FACILITIES, EQUIPMENT & SUPPLIES ESTABLISHED
BEGIN PLANNING MANAGEMENT SUPPORT SYS.
BEGIN ESTIMATING APPLICATION NEEDS
BEGIN PLANNING STUDENT SERVICES


SCHOOL OF HEAL
ASE
D
ACCREDITATION REQUIREMENTS DETERMINED
250
PLANNING FOR EDUCATIONAL SUPPORT SYS. SPECIFIED
168
FINAL PLANNING REPORT AVAILABLE
(INCLUDING IMPLEMENTATION PHASE PLANS)
BEGIN IMPLEMENTATION PHASE
BEGIN CENTRAL CLINICAL UNIT DEVELOPMENT
294
CENTRAL CLINICAL UNIT FACULTY RECRUITED
BEGIN ACCEPTING ADV. ON STUDENTS
296 (i.e. FROM OTHER INSTITUTIONS)
ADV. PHASE STUDENTS RECRUITED
BEGIN DEV. PHASE FACULTY RECRUITMENT
369
DEVELOPMENT PHASE FACULTY RECRUITED
377
BEGIN FACULTY TRAINING PROJECT
MANDATE OF BMC TRUSTEES OBTAINED
260
MANDATE OF CONSUMERS SOLICITED
MEMORANDA OF UNDERSTANDING FACULTY OBTAINED
278
MEMORANDA OF OTHER HOSPITAL FACULTY OBTAINED
MEMORANDA OF UOP FACULTY OBTAINED
298
BEGIN DESCRIBING CLINICAL UNIT OPERATION AND EXPERIENCES
262
BEGIN SIMULATING STUDENT FLOW
263
CLINICAL UNIT EXPERIENCES AND AREAS DESCRIBED
290
SIMULATION OF STUDENT FLOW ACCOMPLISHED
282
INITIAL PLAN AND COSTS FOR MANAGEMENT SUPPORT SYS. COMPLETED
299
PATIENT POPULATION NEEDS ESTIMATED
AFFILIATION NEEDS ESTIMATED
266
REQMTS FOR MANAGEMENT SUPPORT SYS. SPECIFIED
305
REQMTS FOR STUDENT SERVICES SPECIFIED
303

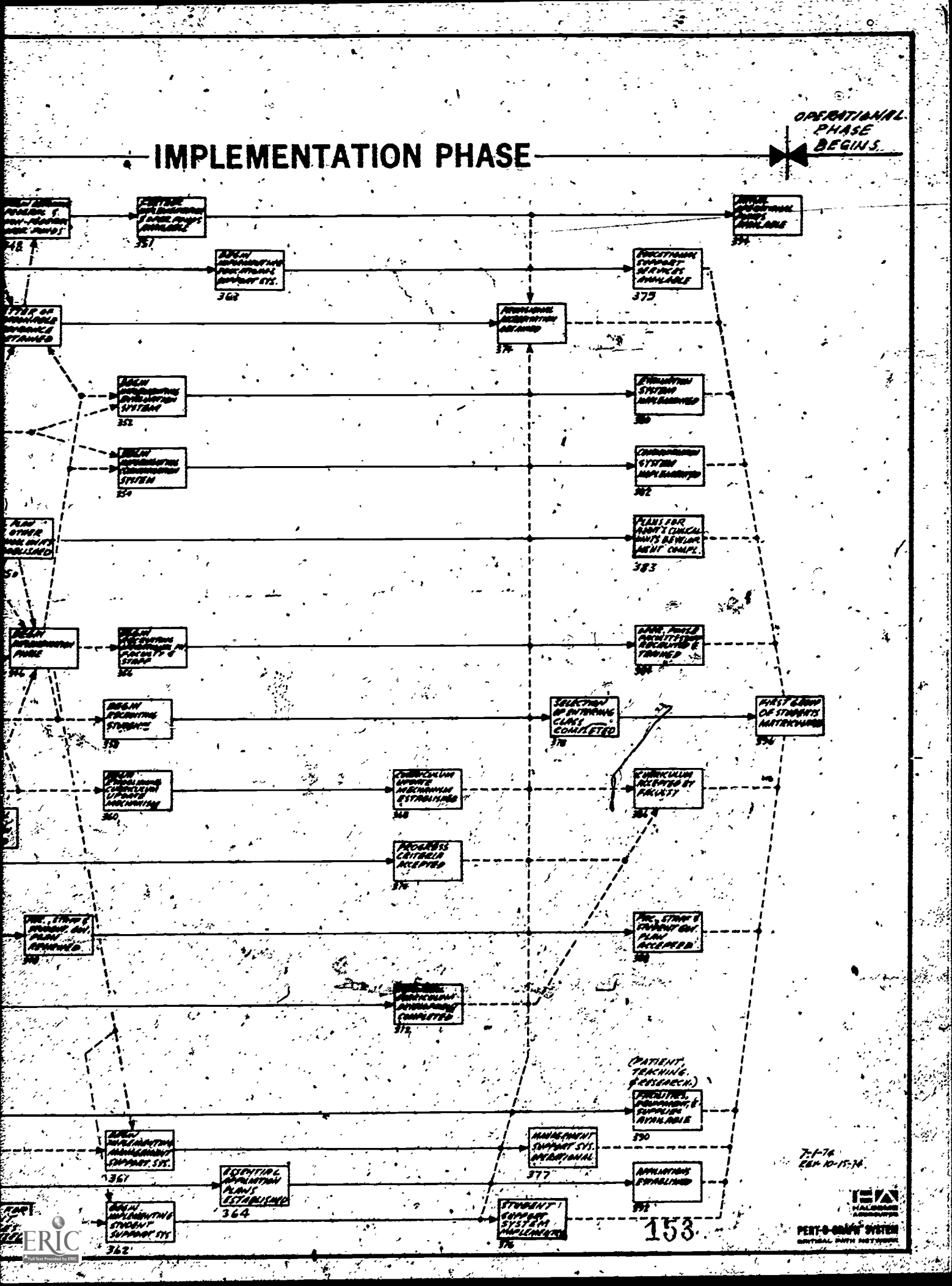
ALTH PROFESSIONS IMPLEMENTATION PLAN

DEVELOPMENTAL PHASE



IMPLEMENTATION PHASE

OPERATIONAL PHASE BEGINS



Final Report on a New
School of Health Professions
Vol. I

Feb. 5, 1975

ERRATA SHEET

Chapter 12

Please forgive our missing the following corrections before sending this chapter "to press." Unless otherwise noted, lines are counted from the top of the page down.

p. 134, footnote: Change "1975" to "1977."

p. 136, line 8: Change "projects" to "projections."

p. 137, line 3 from bottom of page: Add a comma after the word "consideration."

p. 140:
- line 6: Delete the second "data."
- subheading "A": Change "Educations" to "Education."
- 5th line of text under the "Introduction" subheading: Remove the comma between the name of the publication and the date.

p. 144, line 11: The mispelling of "uncertainty" is duly noted.

p. 164:
- line 21: Correct "Schools's" to read "School's."
- line 23: The period should be inside the right-hand parenthesis.

p. 166:
- line 9: The period should be inside the right-hand parenthesis.
- line 15: Add a comma after the word "year."

p. 168, footnote: Remove the right-hand parenthesis from the end of the footnote; place it at the end of the word "location" in the 4th line from the bottom of the footnote.

p. 175, line 6: Change "program" to "programs."

p. 177:
- 2nd line under "Faculty Needs" subheading: Correct "through out" to read "throughout."
- footnote: Remove the comma in the 2nd line (after "faculty F.T.E.").

p. 180, bottom line: The missing page number reference is 160.

p. 185, footnote, line 7: Erase the words ". . . and of the required SHP clinical units. . ."

p. 189:
- line 4: Change "99th" to "93rd."
- line 23: Remove the comma after "through"; place it after the "HEW."

p. 191:
- line 26: Add a comma after the word "population."
- line 29: Add a comma after "primary care."

p. 192, 1st line of bottom paragraph: Remove the comma after the word "foundations."

p. 197:
- line 8: Decapitalize the word "patient."
- line 10: Remove the left-hand parenthesis.
- lines 16 and 17: Delete the entire reference in the parentheses; it is an error.

p. 199, line 5: Change the word "of" to "is."

p. 137, line 3 from bottom of page: Add a comma after the word "consideration."

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p. 199, line 5: Change the word "of" to "is."

p. 202, line 20: Change the colon to a semicolon.

p. 206, line 6: The mispelling of "capital" is duly noted.

p. 210:
- line 21: Change "school" to "schools'."
- 3rd line of bottom paragraph: Insert the word "financial" between the words "unpredictable" and "state."

CHAPTER 12

FINANCIAL CONSIDERATIONS:

- PERSONNEL AND OTHER RESOURCE NEEDS
- COST AND INCOME PROJECTIONS

CHAPTER SUMMARY

This chapter presents financial projections for the School of Health Professions. Cost estimates are based upon the optimal SHP educational program, whereas income projections have intentionally been kept conservative.

Operating expenses and income have been developed for a 2-1/2-year Development Stage, and for a 5-year Start-Up Operational Phase, as well as for full operational (full enrollment) level. All costs shown are for the School's educational program; it has been assumed that the School's patient-care and research programs will be self-supporting. The projections of operational costs were developed from a thorough analysis of SHP students' instructional needs, from which the faculty requirements were determined.

The estimates of operating income were developed from interpretations of current and prospective trends in the support of health professions education and from additional considerations concerning the kinds of income that might be available to the School of Health Professions in particular.

The School's capital funding needs are based upon a determination of the space required to support the School's educational programs.

The chapter concludes with a comparison of projected costs and income and an evaluation of some of the key factors that may, over the next few years, significantly affect the projections developed in this study. The evaluation of these factors suggests that the School's financial prospects may be better than those suggested in this study.

CONTENTS
of
CHAPTER 12

In view of the length and complexity of this chapter, the following lists of tables and of the organization of the textual material is provided:

TEXT

***

(Each major Section begins on a new page.)

TABLES AND FIGURES

CHAPTER 12

FINANCIAL CONSIDERATIONS

- Personnel and Income Projections
- Cost and Income Projections

I. INTRODUCTION

This chapter is the result of an extensive effort to unite the complex components of the SHP educational plan with specific estimates of personnel and other resources in order to develop realistic calculations of costs and income. The projections are based on careful and prolonged examination of the SHP programs as they will be - rather than upon the application of conversion factors to cost data from other schools. Both operating and capital fund requirements have been considered.

Projections of operating (non-capital) expenses and income will be presented for the School at full operational level (i.e., full-enrollment), and for each of 7½ preceding years of development and start-up.*

The estimated operating expenses for the School at full operational level have been developed from program specifications and methodology - described in this chapter - that are consonant with the educational plan, philosophy and curriculum described in preceding sections of this report. The projected expenses for each of the years of the Development Stage and of the Start-Up Phase relate to the scheduling and other considerations for the School's implementation that were presented in the preceding chapter.

The financial projections deal primarily with the School's educational budget. The estimated costs and income for all patient-care and research that is not related to the instruction of SHP students are referenced only indirectly, because it is assumed that

*For a School implemented at UOP/PMC, the development period is projected to begin in 1977, and full enrollment is projected to be reached in 1982.

the School's budget will be required to cover only those items that are connected with its educational programs. (This point will be amplified in following sections of this chapter.)

It should be pointed out that the projecting of operating income for the School has been particularly difficult, due, in large part, to the heavy reliance of health professions educational institutions upon public (especially federal) support, and the high level of uncertainty and contingency connected with the future of public support of health professions education (HPE). As will be reemphasized in Section IV, the income estimates have been intentionally kept conservative.

In conformance with state budgeting conventions, estimates of operating expenses and income for all years are presented in 1974-dollar levels. The use of a consistent dollar level assumes that inflation will affect both costs and income equally. Capital fund requirements, which are broken down into a five-year investment schedule, are presented both in mid-1974 dollar levels and at the inflated dollar amount anticipated for the year of actual expenditure.

Unless otherwise noted, all specifically designated years in this chapter refer to the academic year beginning in July of the year shown.

II. MAJOR ASSUMPTIONS

The budget estimates for the School of Health Professions were developed within the context of several fundamental assumptions, listed below. Their full implications and significance will become apparent when the detailed projections are presented and discussed in Sections III through V of the chapter. The assumptions are:

- The cost projections are not tied to any one specific site for SHP, although adaptations of the generalized estimates to a UOP/PMC location are provided where useful. The projects do assume, however, that the School will be established in an existing academic health-care center that contains, minimally, a medical library, a teaching hospital and a dental school.
- There exists locally, a group of individuals with the range of skills required of the School's resource faculty, including in medicine, dentistry, and biomedical sciences (e.g., protein chemists, endocrinologists, endodontists).

  The full-time faculty could be recruited from anywhere in the nation. However, it is important that individuals with both the special expertise and the commitment to education required to be SHP resource faculty already exist in close geographic proximity to the School so that their essential content knowledge can be utilized on a part-time basis.*

  Relatively few areas of the nation include the sorts of individuals required to meet these specific needs regarding SHP resource faculty; examples include the Northern California Bay area, Los Angeles, Boston, Chicago, Philadelphia and New York.

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*The employment of most resource faculty on a part-time - rather than on a full-time - basis is consistent with the School's general educational and faculty policies (see Chapter 3). It is also cost-effective, in that (1) it can reduce the School's costs for faculty salaries, support staff and space, and (2) it potentially reduces the need and related cost (applicable to full-time faculty) arising from having to continue to support individuals at a higher level or for a longer period of time than is warranted by either the quality of their work or the School's program needs. This kind of flexibility is particularly important during the early stages of the School's development and operations, when frequent reassessments of program and faculty needs are likely to occur.

- The School will be an independent unit in the academic health-care center, with its own students drawing on other units or programs for resource faculty and various services and paying only the incremental costs (including direct and indirect items) for services, rather than a portion of the overall costs according to a common variable such as student numbers.
- The School will use (in addition to its own clinical units) many existing clinicial resources such as hospitals, clinics, and doctors' offices for its educational programs. It is assumed that only the increased operating costs of these facilities resulting from the presence of SHP educational programs - rather than a proportional amount of the facilities' overall operating costs - will be borne by the School. This assumption is consistent with the kind of financial arrangements that generally exist between U. S. health professions schools and their affiliated clinical resources.
- The School will not have to bear any portion of setting up the patient-care programs in its clinical units. Such costs include both the promotional expenses and the losses that may be incurred during the units' first years of operation when expenses will likely exceed income.
- Cost and income estimates are made on the basis of the six professions selected for the initial SHP student body - the four that will be fully educated within the School (primary-care physician, primary-care dentist, health care coordinator, nurse practitioner) and the social worker and clinical pharmacist (which represent the kinds of professionals who could be partially educated by the School in conjunction with other established educational institutions).

The cost and income estimates do not take doctoral programs, internships, residencies, fellowships, traineeships, or continuing education programs into consideration, although it is anticipated that these kinds of programs will either already exist wherever the School is located or be added in the future.

as necessary for the completeness or enrichment of the principal SHP programs. It must be assumed that if any of these programs were added to, or became affiliated with, SHP during the time covered by the budget projections in this report, that they would be self-supporting.

The exact interrelationship of the SHP program to medical residencies, especially in primary-care areas such as family practice and internal medicine, has not been established. It is probable that in the early years, residents' participation in the SHP educational process (of medical and other kinds of students) will be minimal-even though residents may provide some content assistance - in view of the fact that residents' own previous educational experiences will have been so different from those being provided in the School of Health Professions.

The responsibility of the School's basic science (biomedical and behavioral) resource faculty, insofar as their commitment to SHP is concerned, will be to SHP students, rather than to graduate (i.e., Ph.D.) student education. The non-departmental internal structure of the School should help foster this orientation. Also, it is likely that several of the individuals hired to function as basic science resource faculty for the School will be clinicians, whose major orientation outside of SHP is toward resident or fellow education rather than research and basic science graduate education.

As is the case in all health professions schools, faculty and other employees of the School will be involved in the three major areas of education, patient-care and research. The School's budget will remunerate all employees of the School of Health Professions fully for effort (assumed to be equal to time) involving the School's educational programs, but only for that effort; it has been assumed that research and patient-care will be self-supporting. Educational-program activities include: student contact and

preparation time, curriculum-development, and related administrative and committee work (any of which will at times involve some overlap with patient-care or research activities).

Based on a 40-hour professional week, faculty members will be expected to commit, on an average, a total of 70% of their SHP time to eduational activities and the remaining 30% to patient care and/or research. The 30% level of effort is considered to be essential for the faculty's maintenance of its educational and professional excellence.

The financial support of health professional faculty, particularly in medical schools, is highly complex and may include money from four or more major sources, including the school's budget, biomedical and educational research grants, training grants, and patient-care fees. The assumption made in developing the financial needs for the School of Health Professions is that once the School's Start-Up operational Phase begins, salary and general expenses attributable to either research or patient-care activities will be covered by non-School sources of income (principally research grants and patient-care fees). Thus, on the average, a full-time faculty member will require direct support from the School for 70% of his overall effort. The faculty will, of course, be comprised of individuals with many different patterns of effort and support -- stemming from their varying skils, time commitments to SHP, and capacities to attract outside funding.

The School's space and capital fund requirements are limited to instructional, instructional support and instruction-related space, plus to that portion of additional research or patient care space that is considered related or essential to the School's educational program. The development of other patient-care or research space is not considered to be the School's financial responsibility.

In the capital cost projections, all required space will be assumed to be created by new construction rather than by remodelling of existing space.

III. COSTS OF THE SCHOOL OF HEALTH PROFESSIONS

Section III is divided into two principal parts: (A) a brief background on the methods used in cost-accounting health professions education, and (B) a major presentation and discussion of the development of the costs for the kind of School of Health Professions that has been discussed in this report. The first part is intended to help the reader evaluate the cost data for SHP data developed in the second part.

A. Background: Methodology for Cost-Accounting and Cost-Development in Health-Professions Educations

1. Introduction: Techniques for the analysis and development of the costs of education of health professionals have advanced recently with the publication of two major studies of costs of health professions education: the Association of American Medical Colleges' 1973 report, Undergraduate Medical Education/Elements-Objectives-Costs, (1973), and the National Academy of Sciences, Institute of Medicine's 1974 report entitled Costs of Education in the Health Professions. The I.O.M.'s approach to cost-development is similar to the one that has been used for the School of Health Professions.

A major problem identified in both of these basic HPE cost studies is that health professions schools have multiple, interrelated products, and that the educational costs can vary quite widely (especially in medical schools), depending upon the amount of effort allocated to each specific kind of output or task. A medical school, for example, has outputs of at least medical students, residents, research, and patient-care, and it is extremely difficult to allocate total costs accurately among each of these outputs. The addition of several other categories of students - such as in the case of the School of Health Professions - makes cost-allocations even more difficult, particularly within the School's educational program itself. Clearly, explicitly stated assumptions and definitions concerning categorization of activities

are essential to any discussion of HPE costs, so that results can be recomputed if different assumptions or judgments are desired.

2. The Institute of Medicine Study:* The I.O.M. cost study, authorized by the Comprehensive Health Manpower Training Act of 1971, analyzed data from a nationwide sample of 82 schools in the eight professions of medicine, dentistry, osteopathy, optometry, pharmacy, podiatry, veterinary medicine, and nursing, in an effort to estimate the average annual cost of educating students to the first professional degree in each of these respective professions.

The I.O.M.'s methodology for determining the costs of education for each kind of program was based upon analysis of faculty activities (faculty effort study); the assignment of direct faculty costs was developed from its findings of the percentage of faculty effort in each of the following thirteen activity categories (I.O.M., Pts. I and II, 1974, p.28):

ACTIVITY	DETAIL
Teaching Activities	
(1) Teaching	Formal teaching, classroom lectures, etc.
(2) Preparation for Teaching	All teaching preparation activities
(3) Curriculum Development and Evaluation	Teaching support activities
Joint Activities	
(4) Joint Teaching and Patient Care	Patient care with students present

(continued on next page)

*A concise explanation of the I.O.M. approach, covering additional points to those made here and in later parts of this Chapter, can be found in the "Introduction" to the April, 1974, unpublished version of Part III of the report on the I.O.M. Study. The full bibliographic citation for the Study is in the reference list at the conclusion of this Chapter.

(5) Joint Research and Teaching	Research with students present
Research Activities	
(6) Independent Research	Research with no students present
Patient-Care Activities	
(7) Patient Care	Patient care in any setting; no students present
(8) Hospital/Clinical Administration	
General Support Activities	
(9) Administration	General administrative activities
(10) Service	Service to profession and to outside organizations
(11) Professional Development	
(12) Writing	Professional writing, other than research findings
(13) Absence	Sickness; vacations, etc.

The I.O.M. assigned the other costs of the schools studied largely on the basis of the percentage distribution of the faculty effort. In the clinical setting, only the incremental costs were included as part of the education costs. Thus, the education of medical students did not bear a percentage of costs of patient care unless the patient care was directly affected by the presence of students. Also, the study did not include any imputed educational costs, such as the cost of volunteer faculty. Costs for topics taught outside the health professional schools themselves were also not included.

The patient-care activities that were included in the I.O.M.'s education cost were restricted to those involving clinical instruction. The amount of research effort included in the education cost was determined by judgement of a panel of experts in the pertinent

professions.

The most important item in the I.O.M. Study was the identification of the net education expenditure, which is defined as the full cost of the education program less revenues assignable to those portions of research and patient care considered (by I.O.M.) to be essential to the education for a particular profession. The I.O.M.'s net education expenditure does not, therefore, represent full resource costs in the economic sense; it merely represents the unfunded portion of the education costs.

The I.O.M. findings, based on the 1972-1973 academic year (FY 1973), showed the cost of education varying extensively between the highest- and the lowest-cost schools in any given profession. The ratio for pharmacy was the highest - 3.6:1. For medicine and dentistry, the ranges were 2.7:1 and 2.6:1, respectively.* In all cases, the I.O.M. Study showed faculty costs to constitute the single largest element in the instructional cost; for those professions pertinent to SHP, the percentages were: pharmacy - 30%; dentistry - 36%; and medicine - 43%.**

3. The Association of American Medical Colleges Study: Like the I.O.M., the A.A.M.C. cost study (limited to undergraduate medical education) started from the perspective that the undergraduate medical education process is broadly composed of elements of instruction, clinical activity, and research. In determining educational costs, the A.A.M.C. followed an approach similar to I.O.M.'s, except that the A.A.M.C. attempted to consider the full resource cost of the undergraduate (M.D.) medical education program, which is significantly different from the net educational expenditures identified by the I.O.M. Study.

The A.A.M.C.'s full resource cost is defined to include all of the goods and services required for the undergraduate medical education program, including the components of patient care and of research considered by A.A.M.C. to be essential to the schools' educational programs. Some of these represent items that are currently contributed

*These ratios were derived from data on p. xiv of Parts I and II (bound in one volume) of the I.O.M. Study.

**These percentages were derived from the costs of instruction for these respective professions in Parts I and II of the I.O.M. Study.

freely (e.g., services of volunteer faculty), others are items that are generally not paid for (e.g., the extra costs to hospitals incurred by the presence of students), while still others are costs that may be presently borne by educational units other than the medical school.

The A.A.M.C. identified a greater portion of research cost than did the I.O.M. as being part of the cost of the medical education in that the A.A.M.C. considered a major involvement in research to be a necessary ingredient of the medical education program and, therefore, an activity that a school would have to fund, along with its other educational costs, if its research funding by outside agencies were discontinued or reduced. Similarly, a sense of uncertainity about the future of arrangements governing health-care payments to hospitals resulted in A.A.M.C.'s also including in its educational costs a greater portion of patient-care activity than did the I.O.M.

B. Cost Projections for SHP: Presentation and Discussion

This major part of the chapter covers both the operating expenses and the capital fund requirements for a School of Health Professions. Annual operating costs are presented for the School at full operational (i.e., full-enrollment) level, and also for each of its development and start-up years.

All cost estimates are derived from the SHP educational plan as interpreted through the basic assumptions that were included in Section II. The educational program specifications and the cost-development methodology will be thoroughly explained, but greater detail can be found in Appendices 16-A and 16-B. All program specifications should be regarded as estimates and as averages, and not as prescribed "courses of study."

Since the School's developmental and start-up expenses are closely related to its full-operational-level operating needs, the development of the full operational level costs will be considered first. Following a brief introduction, the cost projections are presented and explained in the order shown at the top of the following page.

Operating Costs

§ Full Operational Level

§§ Development Stage (prior to arrival of first students)

§§§ Start-Up Phase (prior to full student enrollment)

§§§§ Discussion

Capital Costs - Educational Space and Funding Requirements

1. OPERATING COSTS

The development of SHP's operating costs followed an approach similar to the one used by I:O.M. to estimate average per-student costs in several different professions. This approach, part of the Institute Study's "constructed-cost" method, regards the fundamental building block in the determination of the education cost to be the specific instructional and instruction-related activities of the faculty.*

The application of this kind of cost-development process to the School of Health Professions entails first determining the School's requirements for faculty size. These requirements are derived from an analysis of:

- Students' instructional needs, which are, in turn, based upon: (1) the number of students enrolled in each professional program, and (2) the amount of time each student spends in each of several modes of student/instructor interaction (referred to as "student learning experiences")

and of

- The amount of faculty involvement in patient-care and research activity that is essential to the School's educational program.

Following this analysis of faculty requirements, the next step in the process is to determine the School's requirements for the following four principal cost items:

- Personnel and materiel support requirements for faculty and students (e.g., library, educational resources)

*The method is explained beginning on page 169 of Part III of the I.O.M. Study report.

- Other direct operational needs (e.g., supplies, travel, telephone)
- Administration and general support requirements (e.g., clinical resources, minor remodelling)
- Indirect fixed cost item needs (e.g., utilities)

The costs for such student-support items as housing, health care, and recreation have not been projected; it is assumed that these activities will be operated from student fees. (Nor has any provision been made for the construction of facilities related to these items.) The cost projections also do not include any specific line item for faculty and student transportation to and from rural clinical education sites nor for temporary student housing at those sites.*

The distinct advantages of the constructed-cost methodology (previewed above), and the reasons for its use in this study, should be pointed out. The chief merit of the method - which builds costs from "the ground up" from specifications concerning student/instructor interactions and the components of the educational program - is that the cost projections it produces are accurate reflections of a school's instructional program. A second advantage is that the approach requires educators to clarify their educational goals and instructional methods and requirements much more precisely than is usually done.

Finally, the method can be utilized not only to develop comprehensive, long-range cost projections for a new school or program, but also to add clarity to curricular and budgetary evaluation and revision of operating programs; the method can be used to easily analyze the marginal budgetary impact of contemplated changes in instruction or curriculum, or to isolate and highlight existing high-cost areas that might warrant further examination.

These several applications of the constructed-cost method make it particularly useful to new and developing schools, and especially to ones as untraditional and experimental as the School of Health Professions.

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*The general operating expenses estimate should be adequate to cover this kind of faculty and student transportation but not the temporary student housing (which, unfortunately, frequently represents a substantial out-of-pocket expense to health professions students in programs that include extensive clinical work at remote sites.)

§ *OPERATING COSTS* -- FULL OPERATIONAL LEVEL

Introduction

Projections of the SHP's total operating expenses are very directly related to its faculty costs: faculty compensation was found to be the most important component of the cost of instruction in all of the professions studied by the I.O.M., and faculty activities govern the requirements for almost all other cost items, including secretaries, technicians, miscellaneous direct expenses, and physical facilities. Therefore, the fundamental unit for the development of the School's operating expenses is the full-time equivalent (F.T.E.) faculty requirement.

Derivation of Faculty F.T.E.

The constructed-cost method used to develop SHP's faculty requirements is based upon estimates of the following kinds of specifications for each of the six professions:*

- Numbers of enrolled students;
- Average length of the curriculum;
- Kinds and frequency of various student learning experiences, assembled into "curriculum schedules";
- Number of students in a group for each kind of student learning experience, and the number of faculty required for each kind of learning experience;
- Faculty preparation and evaluation time required for each faculty/student contact hour, for each kind of student learning experience;

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*Most of the program specifications - such as the "curriculum schedules" or the estimated lengths of each of the professional curricula - have not been stressed in earlier parts of this report, since they were developed for the primary purpose of providing precise enough estimates for developing costs by the particular method that will be explained. In view of the high degree of flexibility in the SHP educational program, it needs to be strongly emphasized that these and other kinds of "program specifications" are meant to represent estimates and averages only, and not prescribed (or even necessarily typical) pathways through the curriculum.

- Distribution of overall faculty effort among education (instruction and instruction-related or instructional support activities), patient care, and research, including the maximum instructional effort required per full-time equivalent faculty.

The specifications used for SHP are as follows:

- Enrollment and Average Length of Curriculum: At full operational level, the School will contain 360 students distributed as follows:

Kind of Student	Average Enrollment per Level	Average Program Length (in academic weeks)	Total Average Annual Enrollment
Primary-Care Physician	50	146 (approx. 3 acad. years)	150
Primary-Care Dentist	30	146 "	90
Health Care Coordinator	60	48 (approx. 1 acad. year)	60
Nurse Practitioner	20	48 "	20
Social Worker	20	48 "	20
Clinical Pharmacist	20	48 "	20

(The word "level," rather than "class," is used in the above inset to preserve the notion of SHP's time-variable curricula. For the three programs for which curricular stages -see Chapter 2- have been outlined, the student enrollment is shown by level instead of by Stage, so that comparisons with more conventional HPE programs can be made.)

The full-operational level enrollment projections are based on the assumption that the School must be an economical and effective unit. The numerical distribution of students among the various professional programs reflects, in part, the balance required for the clinical units, which will form the major portion of the School's clinical education program.

For purposes of cost projections, the length of the programs for primary-care medical and dental students has been estimated at about three full-time academic years containing 146 weeks of instruction (approximately 48 weeks per year).* "Full-time" means 50 hours per week in SHP learning activities (discussed below). The minimum length for each the medical and dental programs will probably be 132 full-time weeks. It is assumed that most students will complete the program in somewhere between 132 and 146 weeks. The amount of time that students might collectively spend beyond 146 weeks is assumed to be offset by the amount of collective time below 146 weeks, so that no additional F.T.E. faculty will be needed for those students who take longer than 146 weeks to complete the curriculum.**

The program length for health care coordinator, nurse practitioner, social work, and pharmacy students has been estimated at 48 full-time (50 hr./week) weeks. It is estimated that few if any of these students will require longer than 48 weeks to complete the program and that some may complete it in less time.**

Student Learning Experiences: To better visualize the several curricula and to develop basic specifications for use in the derivation of the School's faculty requirements, a total of fourteen distinctive kinds of learning experiences have been projected for students in the various SHP programs. Each kind of experience implies a specific mode of interraction between students and instructors (and, as shown in Appendix 16-A, also implies a specific level of faculty time required, and, therefore, of faculty cost). The learning experiences, including the very important one of self-learning

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*For the medical curriculum, the 146 weeks includes Stage 5 of the curriculum, which is optional (see Chapter 2), but is included for the generation of financial projections.

**Since faculty will be paid for a 48-week working year, the faculty F.T.E. requirements would not be reduced even if - as is unlikely - the average program duration turned out to be significantly below 146 weeks for medicine and dentistry and/or significantly below 48 weeks for any of the other four professions.

and study are:

- Lectures
- Seminars and Practicums
- Small Groups
- Patient Care-Related Activities - Clinical Units
- Team Activities: Conferences and Skills-Development - Clinical Units
- Other Ambulatory-Care Experience
- Inpatient Experience
- Hospital-Based Experience
- Emergency Room Experience
- Dental Technique Lab.
- Dental School Clinic Experience
- Resource Consultation
- Advising Consultation
- Self-learning and Studying (without Faculty)

Precise definitions of each of these kinds of learning activities, including the relevant group size, are provided in Figure 1.

- Estimated Curriculum Schedules: Assumptions have been made concerning the average number of hours per week that a student will spend in each of the above kinds of learning experiences. The resulting weekly "curriculum schedules" are based on an assumption that each student will spend 50 hours per week in various SHP learning activities, a significant portion of which includes self-learning. Coupling the 50 hours per week with the previously stated assumptions about the average program lengths for each of the six professional programs yields a total of 7300 hours per student for the medical and dental programs and 2400 hours per student for each of the remaining four programs (health care coordinator, nurse practitioner, social work, and clinical pharmacy).

The weekly curriculum schedules are shown in Tables 1-A through 1-F, beginning on page 153. For the medical, dental, and health care coordinator students, the schedules are differentiated by the curricular stages explained in Chapter 2.

- Faculty Work Year - Distribution of Effort: The work year for a full-time faculty member is considered to be 1920 hours (40 hours per week for 48 weeks). The distribution of these 1920 hours that is considered appropriate for the School of Health Professions,

FIGURE 1

DEFINITIONS OF STUDENT LEARNING EXPERIENCES FOR SHP

- LECTURES: One instructor imparting information to a large group of students (includes grand rounds).
- SEMINARS AND PRACTICUMS: Regular seminars and practicums, which are sessions of supervised practice of manual skills and techniques - e.g., giving injections, practicing interview skills - or science labs; number of students is about 20-25.
- SMALL GROUPS: Greater student/faculty interaction than in seminars (average size group about 8 students for one faculty member).
- PATIENT CARE-RELATED ACTIVITIES - CLINICAL UNITS: Consists of student observation of care-delivery by faculty (including by consulting specialists) and of supervised care-delivery by students; number of students per group is 6 for medical and dental students and 8 for others (based upon instructional component only of joint patient-care/teaching activity).
- TEAM ACTIVITIES: CONFERENCES AND SKILLS-DEVELOPMENT - CLINICAL UNITS: Includes inter- and intraprofessional student team conferences for discussion of specific patient cases and for development of generalized interprofessional teams skills; number of students per group is 6.
- OTHER AMBULATORY-CARE EXPERIENCE: Students' observation of care-delivery or their supervised delivery of care in ambulatory settings other than the SHP Clinical Units; same group size as for the patient care-related activities in the clinical units.
- INPATIENT EXPERIENCE: Consists of traditional ward clerkships and related activities.
- HOSPITAL-BASED EXPERIENCE: Consists of observation and some practice participation in various administrative systems, for the primary purpose of acquiring familiarity with the relationship between inpatient and outpatient care.
- EMERGENCY ROOM EXPERIENCE: Consists of observation of, and practice in, patient screening and patient flow, for purposes of strengthening triage skills.
- DENTAL TECHNIQUE LAB: Same kinds of learning experiences as in typical dental school technique lab.
- DENTAL SCHOOL CLINIC EXPERIENCE: Supervised delivery of care by students in a dental school clinic (as distinct from the SHP clinical units).
- RESOURCE CONSULTATION: Interaction between student and faculty members (average of 2 students with one faculty member) to deal with "content" in biomedical sciences, behavioral sciences, and clinical sciences, and with other kinds of content appropriate to the student professional category concerned; occurs within and outside of the clinical units.
- ADVISING CONSULTATION: One-to-one interaction between student and primary-care clinician adviser faculty concerning the "content" of primary-care delivery and the student's educational process and progress (e.g., evaluation, goal setting, remedial work); occurs within and outside of the clinical units.
- SELF-LEARNING AND STUDYING (WITHOUT FACULTY): The time the student spends in reading, working with various self-instructional materials, performing self-evaluations, etc. This is the only kind of learning experience not pertinent to the computation of faculty instructional requirements (and to the faculty FTE derived therefrom).

and that was used for cost projections, is:

Student Contact and Instructional Preparation and Evaluation (including in clinical settings)	55% (1,056 hours per year)
Curriculum Development	5%
Administration and Committees	10%
Research and/or Patient Care	30%
	100%*

Hours in excess of 40 per week, which would be spent in research, patient care, and professional development, are beyond the definition of a full-time faculty member's time commitment to SHP.

The Student Contact and Instructional Preparation/Evaluation time constitutes the instructional program; that, plus the additional total 15%-effort devoted to curriculum development and to administration and committees constitutes the 70% of overall faculty effort that is directly related to the School's educational program (and that portion of the faculty's compensation that is borne by the School).

The 30%-effort in research and/or patient care is the amount considered to be appropriate for the faculty's maintenance of professional competence. As indicated in preceding sections of this report, the research conducted in SHP will include research in education and in methods of care-delivery, and in clinical and behavioral sciences, as well as biomedical research.

The faculty effort distribution used for SHP is similar to that used in the I.O.M.'s constructed-cost model for medical and dental schools (I.O.M., Pt. III, 1974, p. 172), but the SHP distribution includes somewhat higher percentages for student instruction.

- Determination of Faculty Requirements: The following brief

*This distribution of faculty time is an average across all individuals and all professions.

TABLES 1-A THROUGH 1-F:

Explanatory Note

Tables 1-A through 1-F, on the following pages, show the estimated number of student hours per week in the various kinds of learning experiences that were defined in Figure 1.

In actual fact, the number of hours in each type of experience will fluctuate from week to week; what the tables show are averages over the estimated duration of an entire curricular stage (in the case of the medical, dental, and health care coordinator curricula - Tables 1-A through 1-F), or over the estimated duration of the entire curricular program (in the case of the remaining four professional categories - Tables 1-D through 1-F). Thus, with reference to medical students, the 1.8 hours per week that are depicted in Table 1-A as being spent in patient care-related activities (which amounts to 14.4 hours for the estimated 8-week duration of Stage 1) could be distributed as follows: 3 hours in one week, 2 hours in another week, and 5 hours in a third week, with the remaining 4.4 hours spread over the remaining 5 weeks of the Stage.

It should be reemphasized that both the number of weeks per professional program (or per curricular Stage) and the distribution of student hours among the various kinds of learning experiences are estimates and averages to begin with. Given the flexibility of the SHP curriculum, the actual amounts of time spent in given learning activities and the total amount of time spent in completing the SHP program will differ from student to student, with varying degrees of resemblance to the estimated schedules depicted in Tables 1-A through 1-F.

TABLE 1-A

ESTIMATED CURRICULUM SCHEDULE FOR PRIMARY-CARE MEDICAL STUDENTS

TYPE OF LEARNING EXPERIENCE	AVERAGE STUDENT HOURS PER WEEK				
	Stage 1 (8 weeks)	Stage 2 (52 weeks)	Stage 3 (23 weeks)	Stage 4 (53 weeks)	Stage 5 (10 weeks) (optional)
Lectures	3	3	--	2	--
Seminars & practicums	3.2	3	--	3	--
Small groups	4.8	2	--	2	--
Patient care-related activities - clinical units	1.8	3.6	12	16.8	6
Team activities (conferences and skills-development) - clinical units	.8	1.5	5	7	2.5
Other ambulatory-care experience	3	2	--	3	10
Inpatient experience	3	3	10	--	10
Resource consultation	.9	1.1	1.5	1.7	1
Advising consultation	1	1	1	1	1
Self-learning & studying (without faculty)	28.5	29.8	20.5	13.5	19.5
TOTAL HOURS PER WEEK	50.0	50.0	50.0	50.0	50.0

TABLE 1-B

ESTIMATED CURRICULUM SCHEDULE FOR PRIMARY-CARE DENTAL STUDENTS

TYRE OF LEARNING EXPERIENCE	AVERAGE STUDENT HOURS PER WEEK			
	Stage 1 (8 weeks)	Stage 2 (46 weeks)	Stage 3 (39 weeks)	Stage 4 (53 weeks)
Lectures	3	4	3	2
Seminars & practicums	6	3.2	4	1.2
Small groups	9	---	2	1.8
Patient care-related activities - clinical units	3	4.8	--	21
Team activities (conferences and skills-development) - clinical units	1.2	2	--	8.7
Other ambulatory-care experience	--	4	--	--
Dental school clinic experience	--	--	20	--
Dental technique lab.	--	20	--	--
Resource consultation	1	1	1	1
Advising consultation	1	1	1	1
Self-learning & studying (without faculty)	25.8	10	19	13.3
TOTAL HOURS PER WEEK	50.0	50.0	50.0	50.0

TABLE 1-C

ESTIMATED CURRICULUM SCHEDULE FOR HEALTH CARE COORDINATOR STUDENTS

TYPE OF LEARNING EXPERIENCE	AVERAGE STUDENT HOURS PER WEEK			
	Stage 1 (2 weeks)	Stage 2 (14 weeks)	Stage 3 (10 weeks)	Stage 4 (22 weeks)
Lectures	28	10	2	5
Seminars & practicums	6	6	4.8	5
Patient care-related activities - clinical units	.6	4.8	12	11.2
Team activities (conferences and skills-development) - clinical units	.2	2	5	5.5
Emergency room experience	1	3	3	3
Hospital-based experience	1	4	3	3
Resource consultation	.3	.7	.8	.7
Advising consultation	.5	.5	.5	.5
Self-learning & studying (without faculty)	12.4	19	18.9	16.1
TOTAL HOURS PER WEEK	50.0	50.0	50.0	50.0

TABLE 1-D

ESTIMATED CURRICULUM SCHEDULE FOR NURSE PRACTITIONER STUDENTS

TYPE OF LEARNING EXPERIENCE	AVERAGE STUDENT HOURS PER WEEK
Lectures	4
Seminars & practicums	4
Patient care-related activities - clinical units	13
Team activities (conferences and skills-development) - clinical units	4.5
Other ambulatory-care experience	2
Resource consultation	1.6
Advising consultation	.5
Self-learning & studying (without faculty)	20.4
TOTAL HOURS PER WEEK	50.0

TABLE 1-E

ESTIMATED CURRICULUM SCHEDULE FOR SOCIAL WORK STUDENTS

TYPE OF LEARNING EXPERIENCE	AVERAGE STUDENT HOURS PER WEEK
Lectures	3
Seminars & practicums	5
Patient care-related activities - clinical units	10.8
Team activities (conferences and skills-development) - clinical units	4.5
Other ambulatory-care experience	6
Resource consultation	1
Advising consultation	.5
Self-learning & studying (without faculty)	19.2
TOTAL HOURS PER WEEK	50.0

TABLE 1-F

ESTIMATED CURRICULUM SCHEDULE FOR CLINICAL PHARMACIST STUDENTS

TYPE OF LEARNING EXPERIENCE	AVERAGE STUDENT HOURS PER WEEK
Patient care-related activities - clinical units	19.2
Team activities (conferences and skills-development) - clinical units	5
Resource consultation	1.7
Advising consultation	.3
Self-learning & studying (without faculty)	23.8
TOTAL HOURS PER WEEK	50.0

explanation of the usual way of determining faculty requirements for university-level instruction is included to highlight the very different method used in this study. Faculty requirements are ordinarily developed from a series of formulae based upon student credit hours (number of students multiplied by credit hours for each course) per faculty member, with an allowance made for the course level (freshmen through graduate). Additional allowances may be made for so-called high-cost areas (e.g., biology and engineering). Included in the formula requirements is an allowance for the maintenance of professional competence, including some research.

Though they have come to be generally accepted in universities throughout the country, such formula computations have specific limitations, arising primarily from the variation among academic disciplines. They have major limitations with respect to health professions schools (principally because of the clinical component of instruction), and they have not been applied (except partially in one or two cases) to medical and dental schools nor to many other health professions schools. Credit-hour based cost computations are, in any event, inapplicable to SHP, which has no courses or predetermined curriculum per se.

A major variable in the cost projections for HPE lies in the clinical area of instruction, where the size of the instructional group varies widely, as between review of patient diagnosis (with one student per faculty member) to grand rounds (with fifty students). Furthermore, in clinical instruction, the faculty member is both teaching and providing patient care at the same time. An additional complexity in determining HPE faculty requirements is the existence of a wide variation among clinical settings - between, for example, an outpatient in a clinic, and a hospitalized patient in an intensive-care unit.

SHP's faculty instructional requirements have been developed by applying a set of assumptions about faculty preparation/evaluation time for each kind of learning experience to the curriculum schedules for each profession. The results were then further factored by the

maximum number of students that could be taught by one faculty member for that particular learning experience (the "group size").

The methods and results of translating the average weekly curricular schedules for individual students (shown in Tables 1-A through 1-F of this chapter) into the total annual student hours for the School, and from there, into the School's total annual faculty instructional hour requirements, are presented in full detail in Appendix 16-A, Tables 3 and 1, respectively. The assumptions about group size and faculty preparation/evaluation time for each of the student learning activities, by profession, are included in Table 1 in Appendix 16-A.

Table 2 in Appendix 16-A shows the conversion of faculty instructional hours into the School's faculty F.T.E. requirements. The conversion is done by equating one F.T.E. with every 1056 hours of required instruction (which is the 55% of the total 1920 hours per year that is assumed to be devoted to instructional activities).

- Faculty Numbers: The total annual faculty F.T.E. requirements generated by this procedure is 110.9 F.T.E., broken down by program, as follows:

Program	F.T.E. Faculty
Medical	48.9
Dental	31.5
Health Care Coordinator	13.8
Nurse Practitioner	5.7
Social Work	5.6
Clinical Pharmacy	5.4
	110.9 F.T.E.

Since the learning experiences and student-hour distributions were formulated separately for each of the six professional curricula, the method used to determine the faculty F.T.E. makes it appear as though all teaching in a given curriculum is done by faculty of that respective profession, and that all student learning groups are intra-professional. The approach being used for deriving SHP's faculty F.T.E.

requirements could be easily adapted to incorporate specific assumptions concerning the amount of interprofessional education (and, also, to incorporate differentiations between such instructional categories as clinical and basic science), but it was thought that such specificity would be of questionable accuracy. Furthermore, as explained in the footnote*, it appears that this additional kind of specificity would not materially affect the faculty requirements and costs that have been developed for this report.

The actual faculty will be comprised of individuals with both full- and part-time commitments to SHP, but no specific breakdown between full- and part-time faculty members has been made. There are a number of effects - many very subtle - upon costs that could be expected from a variation in the ratio of full- to part-time faculty members; but most would be fairly minor, and it was thought to be premature and arbitrary at this point to make a definite assumption about this ratio.

For most of the cost projections in this chapter, all faculty have been considered to be full time (i.e., equal to the F.T.E.), an assumption that should not significantly affect the accuracy of cost projections.

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*Many of the kinds of student learning experiences outlined above are not only able to be interprofessional activities, but, in fact, are intended to be so most of the time (especially for example, various clinical learning experiences).

Since: (1) the definitions of each learning experience and of their respective estimated faculty preparation times are constant across the six SHP curricula, (2) the maximum group sizes (student/faculty ratios) for the given learning experiences are frequently the same (or nearly so) from profession to profession, and (3) the faculty composition and average salaries used in the cost projections (as described later in the text) intentionally allow for interprofessional education (e.g., the assumption that salary for nurse practitioner-program faculty is on the high side to cover for some of the instruction of nurse practitioners being given by Ph.D. basic scientists and/or M.D.'s), the "interprofessionalization" of the six curricula should not alter the costs projected by this study in any substantial way.

It will be potentially cost-reducing in those cases where the particular learning activity can absorb large numbers of students and where the maximum group size is not reached by students from one profession alone - lectures are good examples - (assuming, of course, that the activity is appropriate for students of more than one profession). However, such situations will be relatively rare in SHP, in light of the School's emphasis on small group and individual learning experiences.

A very rough estimate, based on the School's educational plan and delineation of faculty roles (see Chapter 3) is that no more than one-third of the total faculty effort would be undertaken by faculty members employed on a less than full-time basis. As stated previously, individuals with many of the required resource skills, such as membrane physiologists, gastroenterologists, and orthodontists, are assumed to be available in the geographic area around the health center at which SHP is located, and therefore, would be available on a part-time basis.

No separate item for consultants appears in the full-level operating budget. However, it is probable that a small portion of the cost amounts projected for faculty would be used instead to hire consultants.

- Faculty Salaries: The average estimated faculty salaries have been categorized by professional program rather than by faculty members' respective backgrounds (such as, Ph.D. - basic scientist, nurse practitioner, M.D. - clinician, etc.).

Where applicable, salaries are based on the FY 1973 (acad.yr. 1972-73) salaries in the I.O.M. Study, increased by at least 8% to adjust to a FY 1974 base, and, in some cases, further increased to allow for the non-standard specialty mix of the faculty for a given program (e.g., the fact that some of the teaching of social work students will be done by M.D.'s).

The salaries used for the cost projections (maintained at 1974-dollar levels for all years) are:

Program	Average Salaries (1974-level)
Medical	$28,000 (I.O.M., FY 1973= 25,900)
Dental	25,000 (I.O.M., FY 1973= 21,967)
Health Care Coordinator	16,000
Nurse Practitioner	18,000
Social Work	18,000
Pharmacy	20,000 (I.O.M., FY 1973= 16,500)

Although the faculty in the School will not, as explained above, strictly follow these groupings (e.g., it will include biomedical and behavioral scientists and educational design specialists as well), the formulation of average salaries has made allowance for this fact.

- Salary Costs: The total annual salary cost at full operational level is $2,688,900 (of which only 70% is assumed to be borne by the School budget). The costs are broken down by program as follows:

Program	Average Salary	Faculty F.T.E.	Total Annual Salary Cost
Medical	28,000	48.9	1,369,200
Dental	25,000	31.5	787,500
Health Care Coordinator	16,000	13.8	220,800
Nurse Practitioner	18,000	5.7	102,600
Social Work	18,000	5.6	100,000
Pharmacy	20,000	5.4	108,000
	TOTALS	110.9	2,688,900

The Annual Operating Budget - Faculty and Other Costs

The following explanation of the derivation of the SHP operating costs is keyed to the full-operational level annual budget presented in Table 2. The personnel items in Table 2 have been assigned to either the educational budget or to the research and patient-care budget (assumed to be self-supporting), according to criteria explained below. The educational budget is the one that the School itself must support. The educational budget, at full operational level, is $4,638,342 per year.

Direct Cost Items: The direct cost items, approximating $3,600,000 per year are as follows:

Personnel - Total annual educational budget cost = $2,613,199.

- Faculty: Total annual educational budget cost = $1,882,230, which is 70% of the total direct (i.e., excluding fringe benefits) faculty salaries of $2,688,900.*

*As shown under the "Total Dollars" column of Table 2. The total of $2,688,900, renders an average faculty salary of $24,246.

TABLE 2

ANNUAL OPERATING EXPENSES

FULL-LEVEL OPERATION
(1974 dollars)

EXPENSE CATEGORY		EDUCATIONAL (SHP) BUDGET		RESEARCH & PATIENT-CARE BUDGET		TOTAL
		% of Total Cost	Dollars	% of Total Cost	Dollars	DOLLARS
DIRECT EXPENSES						
PERSONNEL						
Salaries						
Faculty	110.9 FTE[b]	70%	1,882,230	30%	806,670	2,688,900[b]
Clerical Staff @ $8,800	65 FTE[b]	57%	326,040	43%	245,960	572,000
Technicians @ $10,000	37 FTE[b]	20%	74,000	80%	296,000	370,000
Subtotal Salaries			2,282,270		1,348,630	3,630,900
Fringe Benefits (@ 14.5% of Salaries)			330,929		195,552	526,900
Subtotal Personnel			2,613,199		1,544,182	4,157,381
SUPPLIES & EXPENSES (@ 7% of Educational-Budget Salaries)			159,759		N/A[c]	N/A
CENTRALIZED SUPPORT ACTIVITIES (Personnel & Materials)						
Library			103,000			
Educational Resources			372,600			
School Administration			350,000			
Subtotal Centralized Support Activities			825,600			
SUBTOTAL DIRECT EXPENSES			3,598,558		N/A	N/A
GENERAL OVERHEAD[d] (@ 15% of Direct Expenses)			539,784		N/A	N/A
CLINICAL RESOURCE COSTS			500,000		N/A	N/A
TOTAL COSTS (Educational Budget)			4,638,342		N/A	N/A

[a] That is, beginning with the first year of full enrollment, which is projected to be reached in the School's sixth year of operation (1992 for a School implemented at UOP/PMC).

[b] From page

[c] N/A = not calculated because not applicable at this time or not calculated.

[d] Includes maintenance, utilities, space, purchasing costs, and central university administration.

The educational faculty salary cost (this time including 14.5% fringe benefits) constitutes approximately 52% of the total annual educational operating budget exclusive of the clinical resources line item.*

- Clerical: Total annual educational budget direct salary cost (i.e., exclusive of fringe benefits) = $326,040.
  A total of 65 F.T.E. is projected, with 57% allocated to the educational budget (based upon the assumed need for one clerical F.T.E. for every 3 faculty F.T.E. for education) and 43% allocated to the research and patient-care budget (based upon one clerical F.T.E. for every 4 faculty F.T.E. for research and patient care). The salary cost distribution follows the F.T.E. distribution. The estimated average salary is $8,800.
- Technicians: Total annual educational budget direct salary cost (excluding fringe benefits) = $74,000.
  A total of 37 F.T.E. (based upon one technician F.T.E. to every 3 faculty F.T.E.) is projected, with 20% of the F.T.E. effort and salary cost allocated to the educational budget and 80% to the research budget. (There may also be additional technicians - none of whose time is involved with the Schools's educational program, who are funded totally from research and/or patient care). The estimated average salary is $10,000.
- Fringe Benefits: Total annual educational budget cost = $330,929, calculated at an average of 14.5% of the educational-budget portion of the total of the direct salary cost for faculty, clerical, and technician personnel.

Supplies and Expenses - Total annual educational budget cost = $159,759.

*The estimated clinical resources cost is just under 10% of the Schools's annual operating costs.

This covers such items as travel, postage, telephone, etc. The cost is estimated at 7% of the educational-budget portion of the direct salary cost (i.e., 7% of $2,282,270).

Centralized Support Activities - Total annual educational budget cost = $825,600.* This consists of three major expenditure subcategories, each of which includes both personnel, and materials:

- Library: Annual estimated cost = $103,000, which represents only the incremental cost incurred by an existing library for SHP needs. The estimate is consistent with the I.O.M. study estimate of $418,000 total cost, including space charges, for a medical library for a School with 100 students in each class. (I.O.M., Pt. III, 1974, p.222).
- Educational Resources: Annual estimate = $372,600, comprised of $171,750 personnel cost, $163,350 for computer costs, and $37,500 for other direct operating expenses.**

*During its full operational level, the School's various centralized support activities will probably receive additional support to that shown in Table 2 from overhead costs assigned to research and from the resident education budget.

**The educational resource estimate was calculated as follows:

Personnel:		
5 professionals @ $20,000	$100,000	
5 support personnel @ $10,000	50,000	
fringe benefits (14.5%)	21,750	
		$171,750
Computer:		
Lease @ $5,000/year	$ 60,000	
Student-Use Time	103,350	
		163,350
Other Direct Operating Expenses:		
(25% of direct salaries)	$ 37,500	
		37,500
		$372,600

The item consists largely of computer activities, and the acquisition of various audio-visual and other self-instructional materials to meet the School's special requirements in these areas.

- School Administration: Annual estimate = $350,000. This item covers the personnel and expenses associated with the offices of the chief administrative officer and of student services. (Central activities such as purchasing are included within the general overhead provision).

General Overhead - General overhead covers such items as maintenance, utilities, space, purchasing costs, and central university administration. The overhead is calculated at 15% of the direct educational budget costs of $3,598,558, and amounts to $539,784 annually.

Clinical Resource Cost - The clinical resource cost, estimated at $500,000 per year is an allowance to affiliated in- and outpatient clinical education facilities (including, possibly to the patient-care services of the School's own clinical units), to cover the additional patient-care expenses these facilities incur because of the presence of SHP students (e.g., extra supplies and/or support personnel). Traditionally, medical and nursing school have not had to pay this cost, but a figure has been included to be conservative. (This figure should not be misconstrued as the projected cost of patient-care at these sites, a figure that is far greater and assumed to be supported from the respective patient-care institutions' income for services.)*

*The $500,000 annual cost is based on the assumption that the School will be able to both build and operate its own clinical units according to the timetable presented in Chapter 11. If this is not the case, the School will probably incur a larger clinical resources expense than that shown, but will, of course, experience a reduction in its capital budget. If the School is able to operate its own units but unable to build its own facilities, it will incur rental expense beyond those provided for in the current cost projections.

It is assumed that in the dental school clinic, the cost of the additional dental assistants required to work with SHP's dental students will be offset by the patient fees collected by the clinic.

The operating budget has not been allocated among each of the six professional programs. However, the cost by program could be equated roughly with the program-by-program allocation of the direct faculty costs. That allocation has been developed, and was shown earlier under the subheading of "Salary Costs." It should be cautioned that this kind of estimation loses its validity if any one or more of the six professional programs is "withdrawn," because the total educational cost of the remaining programs would not drop in precise proportion to the decrease in the enrollment. The specific effect on the total budget would depend upon the particular program and the number of students deleted.

§§ *OPERATING COSTS* - DEVELOPMENT STAGE

Introduction

As explained in the preceding chapter, the Development Stage begins as soon as a university commits itself to implementing a School of Health Professions. This commitment will have been based upon a conclusion that the School is educationally and financially feasible, and professionally acceptable. It would understandably be preliminary, insofar as all such major undertakings are subject to mid-stream cancellation or cutbacks caused by unforseen or altered circumstances.

The major activities and goals of the Development Stage were delineated in Chapter 11. To summarize, the Stage is projected to last 2-1/2 years. Those of its activities with the most direct and obvious financial implications are as follows:

- Short and long-range funding will be sought, and financial plans will be developed for the School and its clinical units;

- The faculty will be recruited and gradually brought on board;
- A major portion of the detailed curriculum (the modules and related evaluation and self-instructional materials) and the communications and student-support systems will be developed. (Curriculum development for those programs scheduled to open in the second and third year of the School's operation will continue into the Start-Up period.)*
- The identification and initial operation of clinical units and affiliated clinic resources will begin (see the time-table in Figure 2, Chapter 11);
- The student admissions system will be designed and put into operation; and
- A number of developmental projects concerned with testing, refining, and demonstration of various aspects of SHP's educational and care-delivery programs (both within and outside of the clinical units) will be conducted.

*Faculty hired during the latter part of the Development Stage will each spend about two months in the faculty-orientation program described in Chapter 3. Participation in developing the curriculum modules - in the course of which they will become familiar with the philosophy and workings of the SHP programs - constitutes a significant portion of new faculty members' training. This means that only a minor portion of the School's training program represents a "loss" in terms of productivity to the School. The principal source of any "unusual" costs connected with faculty training stems instead, from the time-commitment of the educational specialist faculty to improving the teaching ability of new (as well as continuing) faculty, and from a relatively extensive recruitment program (which may include not only interviews of each candidate at the School of Health Professions itself, but also travel by one or more SHP personnel to the candidate's current work location. However, the predominant amount of either one- or two-way travel related to recruitment will involve the primary-care provider faculty only; most of the required resource faculty are assumed to be already available locally.)

To adequately manage these major undertakings within 2-1/2 years presupposes that at least as much advance conceptualizing and planning has already taken place as that represented in this present study. If one started out with less matured ideas and/or less consensus as to the School's major goals and design, a considerably longer time would be required. (Naturally, quite apart from this consideration, the School's scheduled opening could be delayed by any number of other financial or political factors.)

Assuming a 2-1/2 year Development Stage, the first six months will be devoted almost entirely to (1) raising funds for the various developmental projects and to (2) identifying funding sources and securing pledges for longer-term financial support.

A total of 5 F.T.E. faculty - who would carry out some of the administrative as well as the educational work - plus one key administrator are projected for this initial six-month developmental period (which, on a UOP/PMC-implementation timetable would run from January through June, 1975). At the conclusion of the six months, the major emphasis will shift to full-scale faculty-recruitment, curriculum development and clinical unit development (as explained in Chapter 11); this will be the appropriate time to make certain that representatives of all of the professions for which the School is being planned, are added to the core faculty.*

As is true in the case of the School at full operational level, the costs for the Development Stage are influenced primarily by the faculty requirements. For each development year, the faculty salary cost will be the single largest expense item, and most of the other cost items (e.g., supplies and expenses) are either directly or indirectly dependent upon faculty F.T.E.

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*See the Afterward to this report for a commentary from the SHP planning staff on the desirability of ensuring that the planning group - and by logical extension - the Development Stage faculty and staff be multi-professional.

Faculty Needs

Introduction: Table 3 itemizes the faculty F.T.E. and number estimated for each of the years of the Development Stage. The projections are broken down by year and by the type of faculty, and the estimates are correlated with the projected opening dates for the six professional education programs. As shown in the Table, the full-time faculty complement will probably begin at 3, grow to 8 for the 1975 academic year, and expand to 11 for the 1976 academic year. For this final year of the Development Stage, it is necessary to have recruited and on board, "in training," nearly all of the faculty required for the first year of instruction (Start-Up Phase).*

Faculty Effort and Support: It is assumed that 100% of faculty effort - whether in curriculum development, clinical unit operations, or various other school-development activities - will be directly related to the School's educational program.

If faculty are able, during this period, to generate some income from patient-care or from research funding sources, this fact will not alter the School's total faculty and other F.T.E. requirements, which, for the Development Stage, are the F.T.E. for only those activities that are considered part of the educational program. However, with respect to numbers, such outside income would increase the number of people to be accommodated.** If the various developmental projects (concerning educational and care-delivery research rather than biomedical research) obtain funding from outside sources so that they can be conducted at their optimal level, they too, would produce personnel and

*An explanation of growth in faculty F.T.E. between the last year of the Development Stage and the first year of the Start-Up Phase is included in the presentation of the Start-Up budget later in the chapter.

**This factor was not built into the space estimates that are discussed in Section IV. However, part-time faculty - likely to be researchers or clinical specialists - will probably be able to support some or all of their additional space and equipment needs from the direct costs or overhead on their grants.

TABLE 3

DEVELOPMENT STAGE

FACULTY REQUIREMENTS

FOR A SCHOOL OF HEALTH PROFESSIONS[a]

TYPE OF FACULTY[b]	YEAR					YEAR IN WHICH PROFESSIONAL PROGRAM OPENS[c]
	Initial One-Half Year (January - June, 1975)[b]	First Full Year (1975)[c]		Second (Final) Full Year (1976)[c]		
	F.T.E.	No. of Individuals	F.T.E.	No. of Individuals	F.T.E.	
Physicians	not specified	5	3	9	5	1977
Dentists		3	3	5	3	1977
Health Care Coordinators		2	1	4	2	1978
Nurse Practitioners		1	1	2	2	1978
Social Workers		2	1	2	1	1979
Pharmacists		1	1	2	1	1979
Biomedical and Behavioral Scientists; Educational Design Specialists		2	1	4	3	N/A
TOTALS	5 F.T.E. (3 full-time; 2 part-time)	16 (approximately 8 full-time; 8 part-time)	11 F.T.E.	28 (approximately 11 full-time; 17 part-time)	17 F.T.E.	N/A

[a]Consultants are not included in this table; however provision for them appears in the Development Stage operating budget.

[b]The first six types of faculty and their required complements are categorized according to the program for which they are principally hired rather than by disciplinary background, though often they would be synonymous.

[c]Specific dates (expressed in academic years) refer to a School implemented at UAB/PNC.

space requirements in addition to those included in the Development Stage estimates discussed below.

The Development Stage Budget - Faculty and Other Costs

The complete operational budget for the Development Stage is in Table 4. Explanations of individual entries will be given only for those items for which the assumptions or explanations provided for the full-operational level budget (Table 2) are inadequate or inapplicable for the Development Stage. The costs for the entire 2 1/2-year Development Stage, including totals by year and by budget item, are delineated in Table 4.

Personnel: The average faculty salary used for Development Stage projections is $28,750, which is approximately 19% above the average full-operational level salary of $24,246. (Both salaries are quoted at 1974-dollar levels). The higher average salary is based upon the need to attract especially sophistocated and experienced faculty for this critical period in the School's educational and administrative development.

The clerical needs are based approximately upon one secretary for each faculty F.T.E. plus two higher level assistants for the entire faculty, representing a richer level of clerical and general assistance than that provided at the School's full operational level.

Supplies and Expenses: This item, heavily dependent upon the number of personnel, is calculated at 15% of direct salaries, compared with the 7% used in projecting this line item for full operational level. The higher rate is required to cover the additional material and travel expenses - especially related to faculty recruitment - incurred during the School's development years.

Faculty Recruitment: A small amount for the initial half-year of the Development Stage is included to cover extra expenses involved with recruitment, particularly of the high-calibre individuals needed to initiate the School. The Supplies and Expenses line item (at

TABLE 4

ANNUAL OPERATING EXPENSES[a]

DEVELOPMENT STAGE
(1974 dollars)

EXPENSE CATEGORY	INITIAL ONE-HALF YEAR (JANUARY-JUNE, 19[ ])[b]		FIRST FULL DEVELOPMENT YEAR (19[ ])[b]		SECOND FULL DEVELOPMENT YEAR (19[ ])[b]		TOTAL DEVELOPMENT STAGE COST (2½ Years)
	F.T.E.	Dollars	F.T.E.	Dollars	F.T.E.	Dollars	
DIRECT EXPENSE							
PERSONNEL							
Salaries							
Faculty @ $28,750[c]	5	71,875	11	316,250	17	488,750	876,875
Clerical/Administration Staff							
@ $ 8,800	5	22,000	8	70,400	17	149,600	242,000
@ $12,000	2	12,000	2	24,000	2	24,000	60,000
Subtotal Salaries		105,875		410,650		662,350	1,178,875
Fringe Benefits (@ 14.5% of Salaries)		15,352		59,544		96,040	170,932
Subtotal Personnel		121,227		470,194		758,390	1,349,812
SUPPLIES & EXPENSES (=15% of Salaries)		15,881		61,598		99,353	176,831
FACULTY RECRUITMENT		10,000		--		--	10,000
CONSULTANTS							
Funding		20,000		30,000		10,000	60,000
Academic		--		30,000		40,000	70,000
Subtotal Consultants		20,000		60,000		50,000	130,000
CENTRALIZED SUPPORT ACTIVITIES (Personnel and Materials)							
Library		--		20,000		59,715	79,715
Educational Resources		--		75,000		270,000	345,000
School Administration		30,000		100,000		200,000	330,000
Subtotal Centralized Support Activities		30,000		195,000		529,715	754,715
SUBTOTAL DIRECT EXPENSES		197,108		786,792		1,437,458	2,421,358
GENERAL OVERHEAD (@ 15% of Direct Expenses)[d]		29,566		118,019		215,619	363,204
REMODELLING		10,000		50,000		50,000	110,000
TOTAL COSTS PER YEAR	(½ Year)	236,674		954,811		1,703,077	(2½ Years) 2,894,562

[a] The amounts represent the full expenses of the Development Stage (i.e., relating to patient-care and research as well as educational activities), all of which are allocated to the SHP budget.

[b] Dates (expressed in academic years) in parentheses refer to the proposed timetable for a School implemented at UOP/FMC.

[c] The average salary is approximately 19% higher than the average salary at full operational level.

[d] Includes maintenance, utilities, space, purchasing costs, and central university administration.

15% of salaries) in the Table 4-budget is assumed adequate to encompass any such recruitment-related expenses incurred during the remaining two years of the Development Stage.

Consultants: Provision is made for consultants to assist in both fund-raising and academic activities. During the Development Stage especially, there will be certain kinds of tasks for which it is preferable to obtain assistance on a consultant, rather than on a full- or even part-time faculty basis - e.g., in the case of a particular individual with whom a long-term faculty commitment would be premature, or in the case of a type of activity in which the objectivity and perspective of a consultant would be preferable to that of faculty, who are more deeply immersed in the School's day-to-day activities.

Centralized Support Activities: The gradual increase in library expenses over the 2-1/2 years provides for the staff and inventory build-up that is necessary for the faculty's use in developing the curriculum and for general preparations for the arrival of students. A relatively large cost increase in the final Development Stage year provides, in addition, for the hiring of additional personnel for the specific task of cataloging the SHP curriculum (explained in Chapters 2, 6, and 8). As indicated below, the library's cost can be expected to drop in the first year of the School's operation. This is because the major one-time-only preparations should have been completed by the time the School opens.

The Development Stage Educational Resources estimates are intended to cover the costs of an expanding staff of computer programmers and support personnel and of increased needs for computer-programming time related to developing the curriculum and to the implementation of the evaluation and communication systems described in Chapters 7 and 8. The costs are approximately 25% in 1975, and 100% in 1976, of the annual educational resources amount in the full-operational level budget (exclusive of the portion thereof that covers students' use of computers in self-study activities).

The amount shown for School Administration is intended to accommodate the concentrated effort during the early part of the Development Stage on organizing the School and on obtaining financial support. The doubling of this line item amount from 1975 to 1976 is related primarily to the operation of student-recruitment and selection program.

Remodelling: The Remodelling costs are included in the operating budget only in the Development Stage. They are for minor remodelling of temporary quarters that will need to be rented until the School's permanent space is completed (see Section III. B, below). The rent will be covered from General Overhead.

§§§ *DETERMINATION OF OPERATING EXPENSES* - START-UP PHASE

Introduction

The Start-Up Phase covers the 5-year period from the time the school opens until it reaches a full enrollment of 360 students. The planned program-initiation and expansion schedule introduced in the preceding chapter is summarized at the top of Table 5. The bottom half of Table 5 delineates the annual educational program operating budget for the Start-Up Phase. For a School implemented at UOP/PMC, the Start-Up Phase runs from 1977 through 1981.

The Start-Up Phase forms a logical bridge between the major developmental effort of the Development Stage and the relatively stabilized instructional (and other activities) of the School at full-level operations. The major factors determining personnel and other needs for each of the five start-up years are: (1) the continuation, well into the early operational years of the School, of curriculum-, clinical unit-, and general school-development work; and (2) the gradual expansion of the instructional requirements as the number of programs and students increases. The amount of "developmental" work will taper off gradually over the Start-Up period until, by the time the School reaches full enrollment level in the sixth

TABLE 5

ANNUAL OPERATING EXPENSES

START-UP PHASE[a,b]

(1974 dollars)

STUDENT ENROLLMENT	Year 1 (1977)[c]	Year 2 (1978)[c]	Year 3 (1979)[c]	Year 4 (1980)[c]	Year 5 (1981)[c]		Year 6 and on Full Operat'l Level Annual Cost (1982)[c,d]
Medical	10	30	60	100	130	TOTAL START-UP PHASE COSTS (FIVE YEARS)	150
Dental	10	25	45	65	80		90
Health Care Coordinator	-	8	20	30	45		60
Nurse Practitioner	-	-	4	8	14		20
Social Work	-	-	4	8	14		20
Clinical Pharmacy	-	-	4	8	14		20
Total Enrollment	20	63	137	219	297	N/A	360
FACULTY F.T.E. (at 70% effort in education)	30	45	60	74	101	N/A	110.9
BUDGET							
DIRECT EXPENSES							
PERSONNEL							
Salaries							
Faculty[e]	560,086	801,942	1,018,339	1,255,951	1,714,204	5,305,522	1,852,250
Clerical Staff[f]	173,600	173,600	185,738	217,556	296,934	1,047,428	326,080
Technicians[f]	30,000	30,000	40,036	49,378	67,394	216,808	74,179
Subtotal Salaries	763,686	1,005,542	1,244,113	1,522,885	2,078,532	6,614,758	2,252,270
Fringe Benefits (@ 14.5% of salaries)	110,734	145,803	180,396	220,818	301,387	959,138	330,138
Subtotal Personnel	874,420	1,151,345	1,424,509	1,743,701	2,379,919	7,573,894	2,613,199
SUPPLIES & EXPENSES (@ 13% of salaries)	114,552	150,831	186,617	228,438	311,779	992,212	159,759
CENTRALIZED SUPPORT ACTIVITIES (Personnel & Materials)							
Library	30,000	30,000	40,000	70,000	70,000	240,000	103,000
Educational Resources	300,000	300,000	300,000	305,000	305,000	1,510,000	372,000
School Administration	200,000	200,000	225,000	250,000	300,000	1,175,000	350,000
Subtotal Centralized Support Activities	530,000	530,000	565,000	625,000	675,000	2,925,000	825,000
SUBTOTAL DIRECT EXPENSES	1,518,972	1,832,176	2,176,126	2,597,136	3,366,698	11,491,108	3,595,558
GENERAL OVERHEAD (@ 15% of Direct Expenses)	227,845	274,826	326,418	389,570	508,005	1,726,664	509,[illegible]
CLINICAL RESOURCES	50,000	100,000	200,000	300,000	375,000	1,025,000	503,[illegible]
TOTAL COSTS	1,796,818	2,207,002	2,702,544	3,286,706	4,249,703	14,242,773[g] (for five years)	4,608,3[illegible] (per year)

[a] That is, beginning with the School's first year of operation.

[b] Only that portion of expenses allocated to the educational budget is shown. With regard to personnel costs, this means 70% for faculty, 57% for clerical staff, and 100% for technicians, respectively.

The faculty and clerical F.T.E. from which the salary cost is derived, are assumed to be F.T.E. who will spend 70% and 57%, respectively, of their time on the School's educational program. In contrast, the technician F.T.E. on which the salary cost is based, represent only those individuals who will be fully involved (100%) in education. Technicians who are needed during the Start-Up Phase for the School's non-student-related patient-care or research activities would all be additional individuals to those subsumed in this F.T.E., and would need to be funded 100% from outside sources of income.

[c] All specific dates (expressed in academic years) refer to a School that would be implemented at UOP/PMC.

[d] Figures in this column, which are for the School's full-operational level, are not part of the Start-Up Phase. The column is included for purposes of comparison. The amounts are from the "Education Budget" column of the Full-level Operation Budget.

[e] The average annual faculty salary used is $26,671 (10% above the average full-operational level salary of $24,246) in the first year of Start-Up, and $25,458 (5% above the average) in the second year of Start-Up. Beginning with the third Start-Up year, the $24,246 average faculty salary is used.

[f] The average annual salaries used are $8,800 for clerical staff and $10,000 for technicians.

[g] Figures in this column were computed by adding across the five years for each line item. Due to rounding, the vertical total is off by one dollar from the horizontal total.

operational year, the proportion of personnel time budgeted for curriculum development (5% for faculty), supplemented by the 10% of faculty time budgeted for various committee and administrative tasks, will be adequate for SHP's ongoing developmental needs. The assumption regarding faculty effort and support for the Start-Up Phase is the same one that was used to estimate full-operational level staffing needs and operating expenses: faculty will spend, on the average, 70% of their time in activities related to the School's educational program and the remaining 30% in patient care and/or research not directly related to students; only 70% of their salaries will need to be covered by the School's budget.

Faculty Needs

The faculty requirements govern the operating budget for the start-up years, as they do through out the School's existence. The faculty F.T.E. shown at the top of Table 5 increases gradually from 30 in the School's first year of start-up to 101 in the final start-up year.* (The comparable faculty F.T.E. for full operational level is 110.9). Each F.T.E. is defined as one full-time faculty member (or the equivalent in part-timers) who works 70% of his time in education.

While the faculty F.T.E. increases absolutely over the five years of start-up, there is a gradual reduction of the F.T.E.-to-student ratio. However, the faculty F.T.E. for any given start-up year is always greater than that which would be required solely for the purposes of meeting students' instructional needs. Even in a new school with fewer innovative and extensive developmental and

*As shown in Table 5, Year One of the Start-Up Phase requires a total of 30 faculty F.T.E., (where each F.T.E. is defined as devoting 70% of effort to SHP's educational program) whereas the faculty F.T.E. for the final year of the Development Stage (where F.T.E. is defined as 100% of effort to education) was 17 (Table 3). Therefore, the increase in the educational program faculty strength between the final year of the Development Stage and the first year of the School's operation is from 17 F.T.E. to 21 F.T.E. (i.e., 70% of the 30 F.T.E. that shows in Table 5).

faculty-training requirements than SHP, it is normal, during the period of expanding enrollment, to have faculty employed for a full year ahead of the time that they are required for the instructional load. This permits faculty extra time for teaching preparation, and also enables them to play a strong role in defining the School's curriculum.*

The Start-Up Phase Budget - Faculty and Other Costs

The operating budget for the Start-Up Phase educational program is shown in Table 5. The annual operating budget for the School's full operational level (i.e., Year 6 and on of the School's operation) is presented in the extreme right-hand column of Table 5 for comparative purposes.

A discussion of key aspects concerning the development of the personnel and financial requirements for the SHP Start-Up Phase follows:

Faculty Effort and Salary: Average faculty salaries have been projected at 10% above the full-operational level average for the first Start-Up year, and at 5% above the average for the second Start-Up year - $26,671 and $25,458, respectively. The average salary of $24,246 is projected for all subsequent years.

Clerical Effort and Support: The clerical support for the School's educational program remains at the same level for the first two Start-Up years as during the last full year of development. However, there will be a greater number of clerical individuals, since the budget amounts shown for Start-Up (Table 5) apply to the

*During the Start-Up Phase, it is probable that the faculty will devote a greater amount of total time to their instructional activities than will be the case when the School is at full operational level. This is because the newly added members will be unaccustomed to some of the instructional modes emphasized by the School.

educational portion of clerical effort only, which is estimated at 57% (as in the case of full operating level); the remaining 43% of "clerical effort" is involved in the School's patient-care and research programs, and neither the cost nor (by implication) the F.T.E. for this portion is shown in Table 5.

While the absolute amount of clerical support for the educational program continues to increase from Year Three through Year Five of the Start-Up Phase, the estimated cost (in Table 5) is based on a gradual reduction in the amount of clerical support per faculty.

Technician Effort and Support: The technician F.T.E. subsumed by the costs in Table 5 respresents solely those technicians needed for the educational program. Additional F.T.E. as well as cost for technicians involved in research or patient care are not shown at all. One-hundred percent of these educational-program technicians' salaries are drawn from the School's budget during Start-up. Technicians for patient care or research would all be additional individuals to those who are involved solely in the educational program.*

As in the case of clerical staffing, the ratio of education- program technicians to faculty and to student F.T.E. decreases over the course of the Start-Up period, though the F.T.E. increases in absolute terms.

Supplies and Expenses: These are estimated each year at the level of 15% of total direct salaries (compared with 7% budgeted at full operational level).

Centralized Support Activities: The cost for each of the three major centralized support activities increases gradually over the five years of Start-Up. In the cases of educational resources and school

*The difference between the way of representing technician vs. faculty and clerical F.T.E. during the Start-Up Phase stems from the fact that any one individual technician is assumed to be fully involved in only one of the School's three major activities (education, patient-care, or research), whereas an individual faculty (and clerical staff) member is presumed to be partially involved in at least one of the latter two activities as well as in education.

administration, the expense estimates for the initial Start-Up year are already close to the annual estimate for Year 6 and on (full operational level) of the School's operation, since the major costs were incurred during the preceding Development Stage. The first start-up year costs for the library are lower than they were for the final year of the Development Stage, since, as mentioned previously, the major one-time-only preparations will have been completed before the School opens.

Clinical Resources: This item was explained in the discussion of the full-level operation budget. The gradual increase of the clinical resources cost from $50,000 to $375,000 over the five years of Start-Up is in rough proportion to the projected enrollment expansion.

§§§§ *DISCUSSION*

The final conclusions regarding the prospects of financing the operations of a School of Health Professions must take into account the entire budgetary picture - income as well as costs. Income projections are developed in the following major section of this chapter, and the final section, "Cash Flow and Conclusions," will draw together the implications of both the cost and income projections.

As concerns strictly the cost side, however, it is appropriate to observe here that the costs of the educational program - $4,638,342 per year for 360 students - for a School of Health Professions implemented under the conditions and assumptions outlined in this chapter, appear to be modest (though the School will certainly not be inexpensive), despite the School's heavy emphasis on small group and individualized (i.e., relatively expensive) modes of instruction. The relatively high start-up expenditures are related to the major curriculum-development and clinical-development activity required for the School. The chief factor offsetting these costly features is the School's comparative deemphasis upon expensive biomedical research and laboratory learning. The School's interprofessional aspect, which is fundamental to its educational program, turns out to be relatively insignificant in terms of cost. (See the explanation in the footnote on page

It must be reemphasized that the major assumption underlying all of the cost estimates was that wherever the School were implemented, the costs borne by the School would be only the incremental costs to existing programs and resources that are created by the presence of SHP students. Naturally, the operating expenses would be immensely different and greater for a School developed virtually de novo, so different that any comparisons with the cost projections developed in this study would be meaningless.

One way to put the SHP costs in perspective is to compare them with the cost of the WAMI (Washington, Alaska, Montana, and Idaho) regional medical education program, directed by the University of Washington. That program, which began in Summer 1971 with approximately 10 F.T.E. medical students, and has grown to an annual level of 60 student F.T.E., will have amounted to a total incremental cost to the University of $6,000,000 (Bennett, R., 1974).

2. Capital Costs - Educational Space and Funding Requirements

Projections of captial costs are derived from estimates of the School's space requirements at full operational level. Estimates have been made for space at the School itself and at its various clinical sites (i.e., hospitals and the three clinical units). The estimates include only the major spaces required, based on experience in planning a large number of health professional schools. For both the School and its clinical sites, only the cost of additional space required for educational (i.e., instructional, instruction-related, and instructional support) purposes is indicated.

As mentioned under Section II, a major assumption is that SHP will be located in an existing academic health center that includes such resources as a hospital with in- and outpatient services, a health sciences library, an auditorium or large lecture rooms, a dental school, general university administration space, and maintenance space, all of which represent core space to which the additional space required by SHP can be added. Another important cost-related assumption (similar

to that underlying projections of the School's operating expenses) is that the School will bear only the incremental costs of creating the additional space required for purposes of SHP, rather than a prorated portion of the total cost based on some arbitrary factor such as student enrollment.

Regardless of its location, the intent of the plans for a School of Health Professions includes minimizing the need for the construction of new facilities through the effective use of already existing ones - whether through remodelling or through use of presently under-utilized but satisfactorily designed space.

Though it is assumed that most potential sites for a School of Health Professions will have some utilizable space available, the capital projections for this study were not developed with any specific site consistently in mind, and they do not include any estimated allowance for existing and underutilized space that would be freely available to SHP; in this regard, the space requirements can be considered to be more generous than necessary. Furthermore, all capital costs developed in this chapter are based totally upon new construction; if space for remodelling is available, it will reduce the costs requirements developed in this study.*

The capital cost and space requirements for the School's fully operational educational program are summarized in Table 6 on the following page. (The detailed standards and computations for these requirements are shown in Appendix 16-B.) Space and cost estimates are presented in terms of ranges, in anticipation of modifications in program specifications that might occur during the course of further planning and development and in order to reflect an expected variation in circumstances pertaining to alternative locations for the School.

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*For example, if SHP is located at UOP/PMC, conversion of some of the truss space at Presbyterian Hospital into instructional areas (as a substitute for building equivalent space de novo) might be possible, and it would represent some reduction in costs.

TABLE 6

SUMMARY OF CAPITAL COSTS AND SPACE REQUIREMENTS FOR A SCHOOL OF HEALTH PROFESSIONS AT FULL OPERATIONAL LEVEL[a]

KIND OF SPACE	SPACE REQUIREMENTS Educational Areas[c] (in net square feet)		CAPITAL COSTS	
	Minimum	Maximum	Minimum[b]	Maximum[b]
SPACE AT SCHOOL				
Instructional Areas[c]	18,000	22,000		
Dental School Clinic[d]	3,000	5,000		
Faculty Space (Offices and Labs)[e]	40,000	60,000		
Animals	5,000	8,000	N/A	N/A
Educational Support Space	6,000	8,000		
Library[e]	5,000	7,000		
Administration	2,000	5,000		
General Support and Maintenance Space	12,000	18,000		
Subtotal Space at School	91,000	133,000	$17,450,000[b]	$25,323,000[b]
SPACE AT CLINICAL SITES (Educational Space Only)				
Hospital[e]	2,000	3,000	N/A	N/A
Clinical Units[e] - Central, Rural, and Urban	14,000	19,000		
Subtotal Space at Clinical Sites	16,000	22,000	$ 2,507,000[b]	$ 3,372,000[b]
TOTALS	107,000 net sq. ft.	155,000 net sq. ft.	$19,850,000[b]	$28,695,000[b]

[a] Derivation of all figures is found in Appendix 16-B.

[b] In mid-1974 dollar-levels. These costs are from Appendix 16-B, Table 1, which did not itemize costs for each of the kinds of space comprising the total space at the School and at the Clinical Sites.

[c] "Educational" refers to instructional, instructional-support, or instructionally related space.

[d] The space shown for the Dental School Clinic would not be needed if the School were implemented at UOP/PMC, where a dental school clinic already exists; one assumption concerning the implementation of SHP at UOP/PMC is that the UOP dental school's enrollment would be reduced by a number equal to the enrollment in SHP's dental program, thereby freeing adequate space for SHP dental students' dental clinic learning activities. (The same comment applies to the dental technique lab. space, which is part of the Instructional Areas item; See Appendix 16-B).

[e] Space requirements for these items are itemized in Appendix 16-B, Table 1.

The space estimates in Table 6 reflect several key features of the School's educational program and philosophy. One example is the distinctive nature of SHP's clinical education program. Ordinarily, a new health professions school must place its emphasis upon acquiring - either directly or by affiliation - inpatient hospital facilities and a requisite number of beds, and it need not concern itself as extensively with the development of sizeable outpatient facilities. In contrast, SHP's explicit emphasis on primary care reverses these emphases, resulting in a far greater need for ambulatory-care facility space than for hospital beds.

The research space portion of the "Faculty Space" requirement that is shown in Table 6 is illustrative of the fact that the School's major emphasis is on education and patient care rather than research; the estimates cover only that amount of research space necessary to support the amount and kinds of research assumed necessary to the SHP faculty's maintenance of its academic competence and position and to the School's capability to attract new faculty.

The School's emphasis on primary care will automatically reduce the requirements for highly specialized research laboratories associated with sophisticated biomedical research. (It is assumed that any additional or more expensive research space or equipment than those subsumed in the cost projections are not part of the educational program, and that they would have to be supported from separate sources, usually research grants.)

Finally, in comparison with more traditional Schools, the "Instructional Areas" space shown in Table 6 (broken down in Appendix 16-B) includes relatively low requirements for special learning facilities such as laboratories, and relatively high requirements for the kinds of facilities (e.g., carrels) needed for self-learning activities.

Table 6 shows an estimated range of 107,000 to 155,000 net square feet of educational space; the corresponding estimate of capital costs (in 1974-dollar levels) is approximately $20,000,000 to $28,000,000.

An estimated five-year schedule of a total capital investment of $23,000,000, beginning with the first year of the School's Development Stage, is presented in Table 7. The schedule is presented in both 1974 prices and at prices inflated by 8% per year. Presentation of capital costs in terms of the cost anticipated at the actual time of expenditure (the right-hand colum of the Table) is useful for protraying capital requirements in terms of construction grants, bonds, or private money. The investment timetable is related to the assumptions presented in this and the preceding chapter concerning the pace of growth of the School and of its clinical facilities.

As was indicated in Section II of this chapter, the School's operating cost projections have been based on the assumption that the School will not bear the costs of setting up the patient-care (as opposed to the educational) programs of its clinical units. The projections of the School's capital costs are based on the similar assumption that the School's budget will not have to bear the construction costs of the strictly patient-care space required for the overall program, either in the case of a hospital or of the clinical units. On the assumption that the School's major affiliated hospital includes outpatient clinical facilities from which the SHP central clinical unit can be developed (see Chapter II), only the incremental space requirements for SHP's educational needs at the central unit have been included in the cost estimates for the clinical units. (See Appendix 16-B for greater details on the development of space and construction requirements.)*

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*The cost of the patient-care space for the overall program would vary widely from site to site, depending upon the availability of already existing patient-care resources. If all necessary patient-care facilities had to be constructed de novo, the cost range for the construction of all three kinds of clinical units and of a hospital of 250 beds (the approximate number required for SHP educational program at full operational level) and of the required SHP clinical units would be approximately as follows:

Hospital	$30,000,000	$40,000,000
Clinical Units	2,000,000	4,000,000

TABLE 7

ESTIMATED SCHEDULE OF CAPITAL EXPENDITURES FOR A SCHOOL OF HEALTH PROFESSIONS

(Amounts rounded to nearest thousand)

YEAR	DOLLAR AMOUNTS	
	At 1974 Prices	At 8%/Year Inflated Prices
Year 1[a] (1975)[b]	750,000	810,000
Year 2 (1976)	4,000,000	4,666,000
Year 3 (1977)	6,000,000	7,558,000
Year 4 (1978)	6,000,000	8,163,000
Year 5 (1979)	6,250,000	9,183,000
	23,000,000	30,380,000

[a] Corresponding approximately with the first full year of the Development Stage described in Chapter 11.

[b] All specific calendar dates, expressed in academic years, refer to a School that would be implemented at UOP/PMC.

IV. INCOME FOR THE SCHOOL OF HEALTH PROFESSIONS

This section of the chapter covers three major tonics in the following order: historic funding trends for health professions education (HPE); the way which income was estimated for the School of Health Professions; and the projections themselves. Income for capital as well as for operating expenses is considered but operating income is covered more thoroughly.

A. Background: Historic Trends in Support for Health Professions Education

1. Federal Support: The funding of health professions education (HPE) in this country is now largely dependent upon federal and state appropriations. The following brief review, which includes several legislative landmarks, suggests some of the trends in HPE support that were taken into consideration in developing the specific SHP income projections that will be presented below.

Federal aid for HPE began in the mid-1940's with large federal investments in the biomedical sciences authorized in amendments to the Public Health Service Act. These amendments authorized the Department of Health, Education, and Welfare, through the National Institutes of Health, to conduct extensive biomedical research in programs established throughout the country, particularly in medical schools. Research grants constituted the main federal investment in health professional schools for the two decades of the 1950's and the 1960's, and as the flow of federal research funds increased, schools responded by expanding their faculty and programs.

The proportion of medical school income related to federal research rose from 11% in 1947 to 42% in 1968, and by 1968, approximately 33% of the total faculty salary budget for the nation's medical schools was supported by the federal government's research and research training grants (I.O.M., Pts. I and II, 1974, p. 1). This emphasis on biomedical research led to increased pressure for specialization by the faculty of medical schools; such pressure was probably one of the principal factors

contributing to the decision of a majority of the nation's medical school graduates to enter specialty training and practice.

The momentum in research continued well beyond the time that federal legislation began to provide explicit support for the educational (in contrast to the research) component of medical and other health professions schools. The first major development in this latter direction was the Health Professions Educational Assistance Act of 1963 (Public Law 88-129) and related legislation, which authorized matching grants for the construction of health professions schools, and loans for students in several of the health professions.

Shortly thereafter, Congress enlarged the nation's commitment to HPE in response to predictions of a health manpower shortage. The Health Professions Educational Assistance Amendments of 1965 (P.L., 89-290) and related legislation offered grants to five categories of schools on the basis of the schools' agreeing to increase enrollments, and guaranteed loans for low-income students who would be unable to complete their professional education without financial assistance.

The Health Manpower Training Act of 1968 (P.L. 90-490) essentially extended the provisions of the 1965 law to include the eight professions of medicine, osteopathy, dentistry, nursing, optometry, pharmacy, podiatry, and veterinary medicine, and to provide scholarships as well as loans to students with financial need.

This legislative emphasis was continued in the two major health manpower laws of 1971: the Comprehensive Health Manpower Training Act (P.L. 92-157), and its companion Nurse Training Act (P.L. 92-158), which introduced federal "capitation" grants - i.e., operating (non-capital) grants made to schools training the aforementioned eight categories of health professionals. The size of an individual school's grant was based principally upon the size and expansion of its student enrollment, hence the term "capitation."

The 1971 laws expired on June 30, 1974, but, as of January 1975, its provisions are still in effect under a continuing resolution of the Congress. Several major health manpower bills were given extensive consideration during 1974, but the current (i.e., the 99th) Session of Congress ended without passing new legislation. It is highly likely that the successor legislation to the 1971 laws will retain capitation provisions for the several kinds of health professions (with the possible exception of pharmacy), and probably extend capitation to allied health and "physician-extender" professions as well. However, on the basis of the major legislative alternatives considered in 1974, it is probable that the next legislation will change the nature of the current conditions and incentives for a school's receipt of capitation money. Eligibility is expected to involve a school's contributions toward correcting publicly perceived problems in health-care delivery and education, especially geographic and specialty maldistribution (including the insufficient number of primary-care providers). Restrictions on student-selection and/or on the location or type of graduates' practice, the development of interdisciplinary and remote-site training programs, and strict stipulations concerning supplemental support for health professions educational programs from non-governmental (e.g., university) sources, are the principal kinds of conditions included in the 1974 bills.

The federal health manpower and education laws of the late 1960's also initiated support, through HEW for "special projects" -- short-term research, demonstration, or training projects related to innovative health professions programs, and administered through the Bureau of Health Resources Administration. Similar funding authority is expected to be continued in new federal health professions manpower legislation. A significant portion of the activities that will be conducted in the School of Health Professions is of this nature.

Recent federal actions indicate that, with specific exceptions, biomedical research expenditure - once so influential for medical schools' financial picture - has reached a plateau (with potential for a decline

due to inflation). Research funding has moved toward the investigation of categorical problems, administered in the form of contracts (rather than in the form of grant support for individual research projects, which can be better used than contracts, as general faculty support). The National Institutes of Health continue to be the major supporters of biomedical research in this country, and it is anticipated that the School of Health Professions will, over the years, attract their support for specific biomedical research programs.*

Federal involvement in patient care also has had major implications for the financing of HPE. The advent of Medicare and Medicaid in the mid-1960's provided medical school faculty and practitioners with reimbursements for the care of patients from whom they had previously received little or no payment. Subsequently, income from patient care has been used by many health professional schools to support portions of their educational programs. Federal funds for patient care have continued to increase, but constraints have been placed on their use; while federal monies and patient-care funds furnished by individuals and insurance companies can now be used to support the patient-care activities of the faculty, in the near future they will no longer be able to serve as direct support for the School's educational programs.

It is impossible at this point in time, to predict the impact of national health insurance on the budgets of health professions and educational institutions, but it is likely to be a significant one and to further restrict the activities that health-care dollars can support.

Federal health professions legislation for the last decade has supported, for the major health professions, the construction of educational-purpose buildings, including faculty space for research considered essential to sustain high quality education. The provision of low-interest loans (as opposed to direct grants) is likely to

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*This support would contribute to the research portion of the total part of SHP's operating expenses that is attributed to the patient-care and research budget.

continue, if any support at all is provided; the loan route has been gaining increasing interest from federal officials. Some of the legislation proposed in 1974 included support for educational buildings.

Federal support for construction of facilities for general research was almost totally discontinued several years ago, although certain categorical areas are still eligible.

While the Hill-Burton law expired in 1974, the major reduction that has occurred in the average patient stay in hospitals has left most communities with an excess of hospital beds, and has consequently reduced the pressure for federal support for the construction of inpatient facilities.*

2. State Support: There is growing pressure for state support of private health professions schools - especially medical schools. Legislators are keenly aware that there are many areas in dire need of health professionals, that most training programs have many more qualified applicants than available places, and that private schools have some difficulty in attracting students because of the state schools' lower (subsidized) tuition rates. Some states (New York, California, Wisconsin, Pennsylvania, Ohio, Illinois) have attempted to subsidize private medical schools in order to maintain or increase student numbers without building new public health professions schools. Both the publication of the Carnegie Commission on Higher Education's 1970 report, Higher Education and the Nation's Health, and the emergence of the Veterans Administration into medical education have prompted state legislatures to give increasing attention to health professions education. It is expected that an expanding and increasingly mobile population coupled with the continued maldistribution of physicians, will continue to influence state legislators to subsidize private schools, particularly those emphasizing primary-care as a cost-effective measure.

In California, the "Grunsky Bill," enacted in 1973 (Senate Bill No. 576, Chapter 1112), appropriated money for the State to enter into contracts with the State's three existing private medical schools to expand their enrollments. Through application of a formula that includes

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*In fact, legislation enacted as this report is being completed provides federal money for the construction of free-standing outpatient facilities, especially in areas of need.

consideration of the level of federal capitation, more than $10,000 per year per student has been granted for much of the recent enrollment-expansion in the State's private schools.

3. Private Foundations: Foundations have long been the principal source of "risk capital" for the development of new schools and educational programs. The provisions of The Federal Tax Reform Act of 1969, especially its "continuing payout" provision,* have helped stimulate foundation support. The second largest foundation in the world, The Robert Wood Johnson Foundation (Princeton, New Jersey), has made sizeable grants for the development of primary health-care programs, generally ones associated with universities.

Future changes in the Tax Reform Act will probably have the result of encouraging foundations to maintain a diversity of programming, including support for innovative educational programs. Such foundations as the Bruner, Spencer, Macy, and Milbank Foundations have already shifted program activities toward innovative programs of health professions education and health care delivery. The Commonwealth Fund, the Fleishman Foundation, and the Kellogg Foundation also maintain a continuing major interest in health-care delivery programs through grants sizeable enough to be of considerable value to developing schools. Thus, a conservative approach for the School of Health Professions to take must include the development of proposals to these institutions where a pattern of giving has emerged that would indicate support for creative ideas in the educational process. Foundation support is usually for study or development purposes only and should not be considered as ongoing support.

However, private charitable foundations, have been increasingly hard hit by increasing applications and decreasing resources. Although current tax statutes require continued expenditure of funds (e.g., the continued payout provision), the economic picture of 1974-75 has sharply reduced actual dollars available from most foundations.

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*The "continuing pay-out" provision specifies a certain percentage of funds per year that private foundations must distribute for programs (as opposed to investing those funds). Under the Tax Reform Act of 1969, that percentage has increased annually from 1969 through 1975.

On the other hand, one potentially important facet of private foundation giving to HPE that is not evident in the preceding discussion of historical trends concerns the "planned liquidation" of many currently operating charitable foundations. This refers to a scheme whereby a foundation's founders determine it to be socially desirable ("maximum mileage" for dollars), to "abandon" all of their funds for final distribution to charitable causes, within a predetermined time period. There are several large foundations that have stipulations of this type that will be coming to maturity in the late 1970's. One example is the Fleishman Foundation, located in Nevada, which was incorporated in the 1930's and stipulated the liquidation of its "instrument" by 1980.

4. Trends in other Sources of Support: There are several other important sources of support whose background will be discussed later along with the explanation of the specific assumptions used in making the income projections for SHP, or which have already been sufficiently covered in preceding portions of this chapter. They include patient-care income, sponsored educational research and demonstration projects, corporations, private donations, and student tuition.

In focusing on federal, state, and private foundation sources of support for HPE, the preceding sketch of historical trends has covered the three sources that have the greatest direct bearing on the School's financial feasibility and, that, at the same time, are controllable or easily predictable by the School.*

The net outcome of the trends described above is that health professions education has come to rely increasingly upon a combination of federal and state support, in private as well as in public schools. A reasonable forecast for the future insofar as operating expenses are concerned is that (1) All schools will need to rely

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*In contrast, student tuition, while also monetarily of great significance, is at least partially directly controllable by the School (though still highly dependent upon the level of direct support to the School and on the availability of loans and scholarships for its students).

increasingly on state support, (2) that new schools will need to find significant amounts of private donor and foundation support, and (3) that federal support will be tied to increased programmatic and cost-sharing requirements. The prospects for state and foundation support to SHP are difficult to predict, but on the whole, appear favorable notwithstanding the current poor state of the economy.

B. Development of Income Projections for SHP

This section begins with a discussion of the scope and context of the income projections made for SHP and concludes with a detailed presentation of those projections, including a discussion of the explicit assumptions used in their derivation. The projections for the School's non-capital income are presented in Table 8.

1. Context, Scope of SHP Income Projections: The discussion and presentation of the income projections in this chapter relate primarily to income for the School's operating educational expenses, rather than to its capital fund requirements, or its patient-care or research expenses. Specific yearly estimates have been generated for the School's educational operating budget needs, broken down into the Development Stage, the Start-Up Phase, and Full Operational Level, for easy comparison with the cost projections presented earlier under these same groupings.

The income projections can only be interpreted in the context of the immediate future and of specifically designated calendar years rather than - as was possible for the cost projections - in terms of relative, non-specified years (i.e., Year 1,2,3, etc.). This is due to the quickly changing and highly unpredictable state of financing for HPE (as suggested by the trends outlined above), which makes it imperative to base income projections upon the assumptions considered valid for a particular period of time. All income projections for operating expenses are expressed in 1974-level dollars.

Even within the above limits, reliable and valid projections of income are exceedingly difficult to make. This is true for existing schools, but it is particularly so for a new school and for a new kind of school. With these observations in mind, the SHP

TABLE 8

PROJECTED INCOME - NON-CAPITAL ITEMS
FOR A SCHOOL OF HEALTH PROFESSIONS
(1974 dollars, in thousands, rounded to nearest thousand)

YEAR[b]	PER CAPITA INCOME				SPONSORED EDUCATIONAL PROJECTS[c]					BASIC OPERATING SUPPORT				GRAND TOTAL, PROJECTED INCOME
	1	2	3	4	5	6	7	8	9	10	11	12	13	
	Tuition	Federal Capitation	State Capitation	Total Per Capita Income (1+2+3)	Federally Supported	State-Supported	Private Foundation-Supported	Total Sponsored Educational Project Income (5+6+7)	Federal ("Start-Up" Funds)	State Planning Grant	From Private Foundations	From Private Donations (Unrestricted)	Total Basic Operating Support Income (9+10+11+12)	(4+8+13)
1975					62	--	75	137	--	50	--		50	187
1976					310	--	38	348	200	50	--		250	598
Subtotal DEVELOPMENT STAGE[d] (1975, 1976)					372	--	113	485	200	100	--		300	785
1977	130	40	80	250	434	25	75	534	260	--	50	50	360	1,144
1978	386	110	240	736	434	25	38	497	190	--	50	50	290	1,523
1979	803	210	480	1,493	289	25	38	352	--	--	50	50	100	1,945
1980	1,278	330	800	2,408	289	25	38	352	--	--	50	50	100	2,860
1981	1,698	420	1,040	3,158	289	25	38	352	--	--	50	50	100	3,610
Subtotal START-UP PHASE (1977-1981)	4,295	1,110	2,640	8,045	1,735	125	227	2,037	450	--	250	250	950	11,082
1982 and on (Full-Operation Level)	2,020	480	1,200	3,700	240	5	25	287	--	--	50	50	100	4,078

[a] The assumptions and basis of calculation for each of the individual entries in this Table are explained in the text of this chapter.

[b] The specific dates (expressed in academic years) refer to the timetable for implementing the School of Health Professions at UOP/TMC. However, regardless of the implementation site, the income figures in this table are only valid in terms of the precise calendar years for which they are presented.

[c] All figures for sponsored educational projects are restricted to only that portion of the total amounts granted that can be considered as support for the School's regular operating programs and costs. See the text of this chapter and Appendix 10-C, Table 1, for details of the way in which the appropriate portion was calculated in specific cases.

[d] Excludes the initial one-half year (January 1975 - July 1975) that was included as part of the Development Stage in the generation and presentation of the School of Health Professions annual operating expenses (displayed in Tables 2, 4, and 5).

planning staff decided to keep all non-capital income projections on the conservative side. No effort has been made to arbitrarily balance the School's operating budget. All assumptions about public funding are based upon laws, priorities, and precedents that now exist or (as in the case of prospective federal legislation) are judged likely to exist. Any interpretation required to relate existing legislation to the unique circumstances of SHP has been made conservatively and cautiously, including as much verification as possible with knowledgeable health professions educators and public officials.

Furthermore, the probability of SHP's attracting significant amounts of unrestricted state, federal, and private donor support, at levels far beyond those considered realistic in terms of existing laws may well be high, once a definite decision to go ahead and implement a School of Health Professions is reached. This is especially so since the School's educational and patient-care philosophy seem congruent with current public priorities. Nonetheless, no income of this kind has been included in the SHP cost projections.

Estimates regarding private individual and foundation giving for unrestricted use* - the least predictable - have also been kept exceedingly conservative. Such possible "bonanzas" as suggested by the "planned liquidation" features of certain large, charitable foundations (described above), have not been taken into account.

The non-capital income estimates do not include any contributions from corporations. Business has contributed to HPE. However, its contributions have been principally in the forms of student scholarships and loans and grants for constructing libraries and laboratories, rather than in the form of direct operating support to schools. (There is reason to assume that corporations will continue to make similar kinds of contributions, a fact that is relevant to consideration of financing SHP's capital funding program,

*In contrast with specific sponsored projects, as explained later.

and to SHP's ability to attract economically disadvantaged students, but not to the development of projections for the School's non-capital income.)

For practical reasons, all assumptions related to state sources of support are based upon one state only - California.

It should be pointed out again that one fundamental assumption underlying the projections of income, as of costs for the School of Health Professions is that the Patient-care and research activities connected with the School but not directly a part of its educational programs, will be self-supporting. (For example, it has been assumed that 30% of the School's faculty salary cost - the largest single component of the School's operating budget - will be supported from income that is generated specifically by or for those activities. If actual experience shows this to be an erroneous assumption, then the financial situation of the School will be altered significantly from that shown in these estimates. (Personal Communication, Roger Bennett, University of Washington, January, 1975).

2. Income Projections for SHP: The SHP income projections for the SHP operating (non-capital) budget are presented in Table 8, in which income is categorized by type or source of support, under the following headings.

- Per-Capita-based funds:
  - Tuition
  - Capitation
- Sponsored Educational Projects
  - From Federal sources
  - From State (California) sources
  - From Private Foundations
- Basic Operating Support
  - From Federal Sources
  - From State (California)
  - From Private Foundations
  - From Private Donors

Table 8 breaks the estimated income down by year, starting with academic year 1975. Subtotals for the Development Stage, for the Start-Up Phase, and for each of the Full Operation (full-enrollment)

years (i.e., 1982 and on) are shown. In the income (as opposed to cost) projections, the Development Stage covers only the two full years of that Stage - i.e., beginning with academic year 1975, without specifying a source for the approximately $237,000 needed for the initial one-half year of development, (January - July, 1975) (See Table 4). Otherwise, the cost and the income estimate tables (Tables 2, 4 and 5 for costs, and Table 8 for income) are constructed on an identical framework.

As shown in Table 8, the total projected non-capital income for the Development Stage (final two years only) is $785,000, and for the five Start-Up years (1977-1981), it is $11,082,000; at full operational (full-enrollment) level, the annual projected income is $4,078,000. (All amounts are in 1974-dollars). It should be reemphasized that these figures are wedded to the specific time period of 1975 - 1982.

An explanation of the specific assumptions and bases from which the income projections in Table 8 were derived follows:

- Student Tuition:

  - Background: In both professional and general higher education, present tuition levels are far below the costs of education, and in state schools, tuition may cover less than ten percent of the total costs. As the financial difficulties of higher education increase, both public and private institutions are raising their tuition, especially for high-cost programs and for programs in high-earning-capacity professions such as medicine and dentistry.

  - Assumptions for SHP: Annual tuition rates will be set as follows (1974-dollar levels):

Primary-Care Physician	$6,500
Primary-Care Dentist	$6,500
Health Care Coordinator	$3,500
Nurse Practitioner	$4,500
Social Worker	$4,000
Pharmacist	$4,000

These levels are considered to be reasonable, especially if SHP is

part of a private university. The tuition at some private liberal arts colleges already exceeds some of the tuition projected for some of the SHP programs. As a point of reference, the I.O.M.'s annual net education expenditure (which is less than the full resource cost) of $9,700 per student for undergraduate medical education programs (I.O.M., Pts. I and II, 1974, p. 90).*

For purposes of projecting income, certain assumptions regarding the assessment of tuition charges had to be made in light of the time-variable nature of the School's curricula. The assumptions were that tuition would be based on the 11-month estimated average length of SHP students' academic year. For each year, the total tuition amounts were computed by multiplying the number of students by the appropriate rate. No allowance was made for rebating a portion of tuition to students who complete a "curricular year" in less than eleven months or for an incremental charge to those who require longer than eleven months. (In actual fact, it would probably be the School's policy to collect additional tuition from students who exceed the eleven months, but not to refund tuition to students who complete their curricular year early. Thus, the amounts calculated may underestimate the total potential income from student tuition.)

- Federal Capitation:
  - Background: Amounts are based on the best possible prediction as to the provisions in new legislation, and on the assumption that SHP would meet all required conditions of eligibility.**
  - Assumptions for SHP: Capitation will be available for the physician and dental programs only (not for pharmacy), at the annual rate of $2,000/student, starting with the first year

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*An explanation of the I.O.M. study, including a definition of net educational expenditure, is found in Section II of this chapter.

**This is a fairly safe assumption, since most of the likely conditions for federal capitation - e.g., primary-care educational programs, remote-site clinical training, and the improvement of geographic maldistribution of prospective students and graduates - are already integral parts of the School's proposed educational and student-selection programs.

of operation.

- State Capitation:

  - Background: The current relevant legislation is the Grunsky Bill, explained under Section IV.A, above. Its provisions directly concern already existing private medical schools; but since its purpose is to encourage medical school enrollment-expansion, it is assumed that either by extrapolation of the Bill's provisions to SHP or by separate enabling legislation, state "capitation" funds would be available to SHP.

  - Assumptions for SHP: $8,000 per medical student per year beginning with Start-Up, and continuing through Full-Operational Level.*

- Sponsored Educational Projects:

  - Background: These refer to short-term, limited-purpose educational development and demonstration grants, of which the developmental projects listed in Chapter 11 are primary examples.

The principal supporters of these kinds of projects will probably continue to be the federal government under its various categorical grant programs, and private foundations.

The relationship of these kinds of outside-supported activities to the levels of effort and expenditure built into the School's operating budget was previewed briefly in Chapter 11, and will be explained more thoroughly here. The only projects of this kind that have been specifically identified for SHP are the eight listed in Table 1 of Chapter 11, all of which would be concluded by 1979.

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*This assumption is probably the least conservative of those made in this study because technically, the Grunsky Bill provides funds for only that number of medical students who are in addition to the previous year's enrollment. The assumption made for SHP was that funds would be awarded on the basis of the total medical student enrollment in each year. (One offsetting factor, however, is that the estimated annual rate of $8,000 per student is below the maximum authorized level.)

However, it has been assumed for purposes of projecting income of this kind, that a number of beneficial projects will continue to be designed and funded throughout the School's existence. Their total income, relative to the rest of the School's income, would probably peak in the early start-up years (when many experimental and testing activities will be required), and then level off to a fairly stable annual level.

- Assumptions for SHP: The projects from which the Table 8 - income projections were derived included the eight developmental projects (Chapter 11) covering the years 1975 through 1978 (plus a small amount of estimated funds in support of family-practice physician training programs, as authorized under California's Song-Brown Act - Senate Bill No. 1224, Chapter 1176). Estimates of total sponsored educational projects income were made for each of the years 1979 through 1982; these estimates are considered to be minimum, especially as regards the annual projections at full operational level.

To compute the portion of the total income from sponsored sources that could be attributed to the School's budget, an assumption was made that each project represented approximately double the amount of effort for similar activities that would occur within the bounds of the School's regular operating programs and costs. Therefore, income from the sponsored projects is considered as offsetting the School's operational expenses in a given year to an amount equal to one-half of the projects' combined total direct costs, with the remaining half of the income representing a self-paying add-on to the School's regular ongoing educational activities. In addition, for those projects assumed to be federally sponsored, 100% of the indirect cost income (figured on top of the total costs) was counted as an offset to the operating expenses of the School's educational program. The indirect costs were calculated at 32.5% of the total direct project cost.

As shown in Table 8, the total sponsored-project income has been assigned to federal, state, and private foundation sources. The

state portion includes, for 1977, 1978, and 1979, funding assumed to be available under the Song-Brown Family Practice Physician Training Program Act; the very modest amounts shown for 1980 and on are not related to specific laws or categorical funding programs, but based on an assumption that California will continue its interest in furthering innovative approaches to health professions education.

The allocation of the remaining major portion of sponsored-project income between federal and private foundation sponsors was based on a project-by-project decision as to the more probable of these two funding sources. This detail is acknowledged to be somewhat arbitrary, but the planning staff found such specificity necessary to developing reality-based income estimates. In any event, the amount of income projected should not be significantly affected by the changes that will obviously occur in the specifics of project-design and/or sponsorship when the School is actually implemented.

The sponsored-project income included in Table 8 is only that portion "available to SHP" - i.e., that portion that can be legitimately considered as an offset to the operating budget. (A slightly elaborated version of Table 8 appears in Appendix 16-C: that table shows the actual calculations used to develop the "available-to-SHP portion.")

- Basic Operating Support - Background and Assumptions Concerning SHP Income Projections:

The income categorized under this major heading is not tied to specific projects, but is available for support of the School's regular operating programs. The background and assumptions on which projections of this type of income were made are discussed below:

- Federal: The federal source of basic operating support in Table 8 consists of "Start-Up" funds, or their equivalent. "Start-Up" grants, authorized by the 1971 Comprehensive Health Manpower Training Act (which expired in 1974

but is technically still in effect under a continuing resolution of Congress) provided basic support to new medical and dental schools. Grants are available for a maximum of four years, beginning with the year preceding the School's opening, and running through its third year of operation. The size of grants is based upon a formula that is tied to student enrollment and to a decreasing per-student rate over the four-year period.

It is assumed that new health manpower legislation will include some form of Start-up or equivalent funds for one or more kinds of new health professions schools.

However, in light of the unpredictability of such provisions, the federal "start-up" income estimates used for SHP were developed in a general way rather than being computed according to any assumed enrollment-based formula. Income from this source was projected as lasting through only the second operational year of the medical and dental programs. The projected amounts, by year are: 1976 - $200,000; 1977 - $260,000; 1978 - $190,000.

- State: There is currently no state legislation in California providing general operating support for health professions education schools (other than the Grunsky Bill support to private medical schools, income from which has been categorized under "Per Capita" forms of funding). Therefore, only a minimum amount of general state support has been projected: $100,000 assumed to be used for general planning purposes and classified in Table 8 under "State Planning Grant" (1975 - 1976). There are precedents in California for the passage of special legislation to provide planning grants to developing schools.

- Private Foundations: Private Foundations do occasionally make general, non-restricted grants to cover general educational programs, including those in health, and especially to new enterprises; but their support is more frequently in the form of specific sponsored projects, as discussed above. A conservative estimate of $50,000 per year from private foundations, beginning in the School's opening year (1977), has been included in the SHP non-capital income projections.

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- Private Donations: Finally, estimates have been made of unrestricted non-capital income from private donors. Traditionally, medical schools have attracted the interest of philanthropists because of the impact that medicine and medical education have on the health and well-being of the nation.

It is hoped that mechanisms will be developed to illustrate the merit of the SHP's advanced educational ideas well enough to attract gifts from private individuals (for capital as well as for developmental, ongoing operating expenditures). Prospects for such support appear high in the San Francisco Bay area, for example, which has a long tradition of support for medicine and education. However, in keeping with the conservative approach to SHP income projections, only $50,000 per year, beginning in the School's opening year, has been estimated for private donations. (Private donors are usually more interested in funding construction projects than supporting ongoing educational programs.)

Grouping of Income by "Degree of Certainty" - In light of the high degree of contingency related to income forecasts, the kinds of income projected in Table 8 have been reclassified according to the assumed degree of probability of their receipt by the School of Health Professions. Table 2 in Appendix 16-C shows the detailed reclassification of the total Table 8-income, by year into three major subheadings: I. Assured; II. Likely Additional Income; and III. Possible Additional Income. The figures presented on the next page, summarized from the Appendix 16-C table, show the impact of this "probability" grouping upon the total income projections.

Since the "Maximum" income estimates from Table 8 are judged to be conservative to begin with, it is considered very likely that SHP will in fact obtain at least as much income as shown in Table 8 (though obviously not from precisely those sources that were used in order to develop the estimates). Therefore, the "probability-of-receipt" classification should be regarded as a "prudent-man" approach - a preparation for the worst possible contingency.

Time Period	Assured Income	Likely Addt'l Income	Possible Addt'l Income	Max. Projected Income (from Table 8)
Development Stage (1975, 1976)	0	372,000	413,000	785,000
Start-Up Phase (1977-1981)	4,295,000	2,845,000	3,942,000	11,082,000
Full Operation (Full-enrollment) Level (1982...)	2,020,000	728,000	1,330,000	4,078,000

In producing the "probability-of-receipt" analysis summarized above, income from Table 8 was assigned as follows:

I. Assured Income: Tuition only

II. Likely Additional Income
- Federal Capitation
- Federally Sponsored Educational Projects*
- Indirect Cost Recovery from Federally Sponsored Projects (explained above)

III. Possible Additional Income
- Federal Start-Up Monies
- State-Sponsored Educational Projects*
- State Planning Grant
- State Capitation
- Foundation Support for Operations
- Foundation-Sponsored Educational Projects*
- Private Donations (unrestricted)

In producing, this particular grouping, no changes were made to the assumptions about specific levels of income from any source or

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*i.e., that portion (50%) of total grant that is considered as an offset to the School's operating expenses.

type.

The sources of capital funds for educational space construction needs have not been investigated extensively. It is likely that most of the financing will be in the form of conventional or public (especially federal) loans. A wide variety of methods for financing the School's captial funding needs is possible. One distinct possibility is that the School of Health Professions will be able to attract sizeable contributions toward the construction of specific buildings from private donors with a particular interest in the SHP's unique educational goals.

V. CASH FLOW AND CONCLUSIONS

This concluding section ties together the projected costs and income for a School of Health Professions and discusses several of the factors that could substantially alter these projections in the next several years.

A comparison of the annual operating costs and income appears in Table 9. Table 10 provides a cash flow forecast for the School's capital funding requirements.

A. Comparison of Costs and Income

As shown in Table 9, there is a projected operating deficit of approximately $2,000,000 for the 2 1/2-year Development Stage, and a deficit for the 5-year Start-Up Phase of approximately $3,000,000. At full operational level, there is a $560,000 annual deficit.

The School's capital funding needs, computed with costs at a compounded 8% annual rate, is for a total of $30,380,000 over a 5-year period. (The same capital projection totals $23,000,000 when all annual amounts are kept at steady, mid-1974 dollar prices; see Table 7.)

B. Discussion

In the judgment of the SHP planning staff, the projected operating deficits do not impose severe obstacles to the implementation of a School of Health Professions.

It should be reemphasized that (1) cost and income projections were developed independent of one another, (2) the income projections were purposely kept conservative, and (3) cost projections were developed from specifications that incorporated all components of the optimum SHP educational plan, without program cutbacks or compromises that might well have brought the operating budget into balance.

The Chapter has been as explicit as possible about the assumptions and methods used to develop the School's budget projections. However, development of assumptions was sometimes difficult, and in the case of income, frequently based on expert guesses. In view of the contingent nature of all budget forecasting, it is appropriate to point out and evaluate a number of major factors that might, over the

TABLE 9

COMPARISON OF ANNUAL OPERATING EXPENSES AND INCOME, BY YEAR[a,b]
(in 1974 dollars, rounded to nearest thousand)

	Estimated EXPENSES	Estimated INCOME	Estimated DEFICIT
DEVELOPMENT STAGE			
(January-July, 1975)	237,000	-- [d]	237,000
1975[c]	955,000	187,000	768,000
1976	1,703,000	598,000	1,105,000
Subtotal	2,895,000	785,000[d]	2,110,000
START-UP PHASE			
1977	1,797,000	1,444,000	653,000
1978	2,207,000	1,523,000	684,000
1979	2,703,000	1,945,000	758,000
1980	3,287,000	2,860,000	427,000
1981	4,250,000	3,610,000	640,000
Subtotal	14,244,000	11,082,000	3,162,000
FULL OPERATIONAL LEVEL			
1982 and on (full enrollment)	4,638,000 per year	4,078,000 per year	560,000 per year

[a]The amounts in the "Expenses" column are from Tables 2, 4, and 5. The amounts in the "Income" column are from Table 8.

[b]This is essentially, but not strictly, a cash flow statement for the following reason: It is assumed that both cost and income inflation will keep roughly apace of one another. However, due to the varying speed with which the effect of each kind of inflation will be realized, it is probable that the School's receipt of income will lag behind its payment for expenses for any given time period.

[c]All full years refer to the academic year beginning in July, and relate to the timetable for implementation of the School of Health Professions at UOP/PMC.

[d]The specific source of income has not been identified; it can be assumed that amounts equaling the projected expenses for this one-half year can be found.

TABLE 10

ESTIMATED CAPITAL FINANCING NEEDS
FOR A SCHOOL OF HEALTH PROFESSIONS,
BY YEAR
(Amounts rounded to nearest thousand)

All entries are expressed at levels inflated by an estimated 8% per-year rate of inflation.

YEAR	CAPITAL NEEDS[c]
Year 1[a] (1975)[b]	810,000
Year 2 (1976)	4,666,000
Year 3 (1977)	7,558,000
Year 4 (1978)	8,163,000
Year 5 (1979)	9,183,000
	30,380,000

[a] Corresponding approximately with the first full year of the Development Stage described in Chapter 11.

[b] All specific calendar dates, expressed in academic years, refer to a School that would be implemented at UOP/PMC.

[c] This column corresponds precisely with the right-hand column of Table 7 of this chapter ("Estimated Schedule of Capital Expenditures for a School of Health Professions").

next several years, significantly alter the SHP budget picture that has been developed in this report. Some of the considerations have been mentioned in previous parts of this chapter; others are being introduced here for the first time. The factors are grouped according to whether their anticipated impact upon the financial prospects of SHP is negative, unpredictable (or neutral), or positive. Naturally, no conclusions can be drawn concerning those factors whose impact is currently unpredictable; however, in the staff's judgment, the potentially positive factors outweigh the negative ones. A discussion of these several factors follows:

1. Potentially negative factors: There are at least two significant factors that could have negative effects upon the projected SHP budget. Both would affect all health professions schools, or at least all new or proposed ones, and not simply the School of Health Professions.

The first factor is the conditions that may be attached to federal support for health professions education (HPE). Even assuming that federal funding continues at approximately the levels forecast for the SHP income projections in this study, it is probable (as indicated in Section IV) that there will be an increase in the scope and number of conditions placed on school receipt or use of those funds. Some schools may interpret these conditions as programmatically or financially restricting and therefore not accept the available funds; in other cases, the federal officials who dispense the funds may find institutions to be ineligible.

This consideration is most immediately relevant to the future of federal capitation (as discussed in Section IV), but it applies to other forms of pending federal support for HPE as well.

The second major factor with a potentially negative effect upon the budgets of health professions schools, including SHP, is the current declining and unpredictable state of higher education in general. The increasing financial predicament of liberal arts colleges has implications for the availability of support for HPE since both general and professional higher education programs frequently compete for the same dollars.

The competition for educational support from the federal and state governments, foundations, and individual donors is very strong. The potential support for almost any new educational venture is therefore uncertain; quite apart from the merit of individual programs, the total amounts of available dollars is simply not keeping apace with the demand for their use.

2. Unpredictable Factors: There are two potentially significant factors in the HPE picture whose implications are currently uncertain or unpredictable. These need to be kept in mind so that the financial projections developed in this chapter can be reexamined as their implications do become clear.

First is the general future of public support for the educational, patient-care, and research programs that are carried out in academic health centers. Since health professions education has come to rely increasingly upon federal and (more recently) state governments for its support, any major funding cutbacks in these sources will force schools to substantially curtail their current programs unless they can find offsetting funds from other sources.

The nature of federal (and also state) support for HPE is presently undergoing basic changes, with implications that are far from clear. Thus, it is therefore virtually impossible to predict the overall net effect that will result from prospective changes in the nature of public support for HPE. But it is unquestionable that the impact of probable changes will be immense.

The second potentially important but unpredictable factor is closely related to the one above. This is the "correctness" of the basic assumption that the non-instructional research and patient-care activities of the School of Health Professions will be self-supporting, and that the School will need to find funds for its educational programs only. Since the federal government, through countless mechanisms, plays a major role in financing all three of the major activities conducted in academic health centers, the validity of this fundamental assumption used in developing the SHP budget is highly dependent upon future trends in federal support.

This issue has two facets. The first is the total level of the combined funding available (form all sources) for all three kinds of

activities. The second is the degree to which funds assigned or appropriated to any one of these activities can or may actually be used for any other. For example, medical and dental schools have often used income from patient care and research to subsidize their educational budgets; however, the decline in federal biomedical research dollars, and anticipated increased restrictions on the use of patient-care income for educational purposes can be expected to make it difficult for SHP to subsidize its educational program from either of these two sources (and, in the most pessimistic case, could mean a curtailment in the School's patient-care and/or research activities). However, patient-care income may still end up being indirectly contributed toward a school's educational-program expenses via a well-designed and "profitable" faculty service plan, whereby faculty return a certain percentage of their professional service fees to the School.*

3. Potentially Positive Factors: There are two broad considerations that suggest that the financial prospects for a School of Health Professions might be much greater than they appear to be from the projections developed at this time.

The first concerns the general conservatism used in developing the School's budget needs. A conservative approach was applied not only to the income projections, but to the cost projections as well. Not only was the operating budget based on the ideal SHP educational program; it also included costs for several items that health professions schools very frequently do not have to pay. Two significant ones that were included in the SHP budget are clinical resource payments and full compensation of all faculty (i.e., no volunteer faculty). These two items constitute a significant portion of the School's annual operating expenses: it is estimated that the use of volunteer faculty could reduce the School's annual budget by as much as 5 to 10%; and the clinical resource cost (at full-operational level) constitutes approximately 10% of the total annual operating budget. (The omission of any allowance

* This possible source of income for SHP's educational budget was not taken into account in the income projections developed in this report. Faculty service plans are referred to again in the final chapter of this report (Chapter 13 - "Summation - Remaining Tasks"), in connection with a discussion concerning the financing of the School's clinical units.

for volunteer faculty was intentional, because it was felt that volunteers could not reasonably be expected to have the kind of time and commitment to SHP that is required for effective implementation of the special SHP educational program.)

The second major favorable prospect for the School's financial picture is the fact that the School's priorities are similar to those of the public, as expressed by both consumers and public officials. These priorities are: primary care; improved patient-access to health services; improved organization of health-care delivery; increased utilization of allied health professionals and "physician-extenders"; a broadening of health-related research to include investigations into the provision of care (in addition to solely biomedical research); and the elimination of lock-step curricular programs that make it difficult for either financially disadvantaged or educationally independent students to pursue careers in the health professions.

If the salient and distinctive features of the School can be clearly conveyed, it seems highly probable that the School can win proponents who will not only value its philosophy but who can also provide sufficient financial support to make its implementation a reality.

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CHAPTER 13

SUMMATION: REMAINING TASKS

CHAPTER SUMMARY

Significant aspects of the School of Health Professions that require additional consideration, clarification or testing are discussed. These include: further considerations of curricular details; the development and implementation of continuing education programs; testing of the student-selection process; implementation of an affirmative action program; careful design of a student services program; systematic analysis and prediction of student flow and scheduling; and further detailed planning concerning the education, patient-care, and financial aspects of the proposed SHP clinical units.

CHAPTER 13

SUMMATION: REMAINING TASKS

I. INTRODUCTION

The present report reflects the results of a two-and-one-half-year examination of the concept and implementation of a School of Health Professions. The School's key educational features and financial requirements have been identified, described, and evaluated.

However, the work is not finished; a number of significant aspects of the School require more consideration, clarification, or testing than was possible or appropriate in the context of the study that is now drawing to its conclusion. Some of these remaining tasks have clearly been suggested in preceding chapters of this report (especially with regard to the developmental projects discussed in Chapter 11). The purpose of this chapter is to take inventory of some of the most significant items that remain in need of further specification or resolution and to suggest the means by which they should be approached.

It is hoped that this chapter will also provide an accurate and useful perspective from which to view the accomplishments of the present study, and that it can provide a point of departure for those who are interested in pursuing the implementation of the concepts and plans that are presented in this report.

II. SOME REMAINING CONSIDERATIONS

A. Development of Curriculum for Nurse Practitioner, Social Worker, and Clinical Pharmacist Students

Delineation of a sample curriculum for these three health professionals was not included in the BHRD-contract scope of work; the three sample module study guides on diabetes mellitus, hypertension, and obesity (included as Appendix 1), include health care coordinator, medical and dental students only. The curriculum for the remaining three kinds of students will be based on an identical modular approach,

and these three categories of students can easily be incorporated into the modules and study guides in the manner described in Chapter 8.

A second aspect of curriculum development for these professions includes a re-examination of the initial list of high-priority patient problems and diagnoses presented in Chapter 2. The re-evaluation will determine whether the list of patient problems developed in this current study omitted any problems or diagnoses that members of these professions frequently confront, but that were not identified because they are not strictly "medical" or "dental" problems. This determination should not be made until faculty for the nurse practitioner, social work, and pharmacy programs have joined the faculty during the Development Stage. The same re-examination process is, of course, equally applicable to the further development of the medical, dental, and health care coordinator curricula.

B. The Health Care Coordinator

The functions of the health care coordinator, a new category of health-care provider, are less clearly defined than those of the other professionals proposed for initial education by the School of Health Professions.

Some of the difficulty in defining the health care coordinator's functions stems from the planning staff's reticence, on the one hand, to ascribe to any one individual the full range of coordination functions that are required (e.g., various clerical, administrative, and interpersonal functions), along with an equal reticence to assign these functions to more than one person, since any further proliferation of the number and kinds of providers potentially magnifies the problems of coordination.

Further specification of the responsibilities of the health care coordinator will be determined by (1) examining the problems and successes of existing providers who have similar patient-care responsibilities (e.g., the Family Health Workers at the Dr. Martin Luther King Jr., Health Center in New York; the Patient-Representatives recently introduced in the Outpatient Clinics at Pacific Medical Center), and (2) insights gained through experience in the School's health-care delivery settings, including the specific developmental projects discussed in Chapter 11.

Experimentation will avoid the pitfalls of a purely "theoretical" approach to determining the role of the health care coordinator. First, without reference to experience within an actual health-care delivery setting, it is easy to lose perspective and to (inappropriately) ascribe to the health care coordinator (and to the health care coordinator curriculum) all those functions required for the team-delivery of health care that are not performed by one of the other kinds of professionals represented in the student body.

Secondly, the optimal list of a health care coordinator's duties vis-à-vis patients and co-providers is highly dependent upon the specific staffing, patients, services, and organization of the given clinical setting. This fact increases the need to address this issue through experimentation in a specific health-care delivery system.

C. The Curricular Stages

A description of the curricular stages concept developed for the medical, dental and health care coordinator programs was presented in Chapter 2.

The concept of curricular stages arose in response to a number of closely interrelated needs. These included visualizing the content of each of the professional curricula; estimating the probable duration of each curriculum; planning the flow of students and patients through the curriculum and the clinical units; quantifying instructional and facility requirements in sufficient detail to determine costs; and determining educationally desirable sequence restrictions in the curriculum.

The delineation of these stages helps - in fact, may be required - to proceed with detailed educational and financial planning. However, the implications of the concept of stages for the SHP principles of self-pacing and self-sequencing have not yet been fully clarified. Further theoretical and practical considerations of the meaning and the usefulness of the curricular stage concept will be required in developing the School's educational programs. The applicability of the curricular stage concept to the nurse practitioner, social work, and pharmacy programs should also be examined.

D. Development and Implementation of the Continuum-of-Education Concept

This continuum refers both to the availability of the SHP curriculum for use in continuing education programs for practicing health-care providers and to the use of information from practitioners' practices in updating the SHP curriculum.

The increasing attention to recertification, relicensure, and professional standards review is expanding the demand for continuing education programs, and immediate consideration should be given to implementing the continuum-of-education component of the School of Health Professions.

The module self-instruction and self-assessment features of the SHP curriculum lend themselves to easy adaptation to continuing education. The curricular materials should be directly utilizable by practitioners, facilitating the economical use of the School's resources. Thus, the addition of the continuing education component should have a minimal effect on the other programmatic and financial aspects of the School that have been examined and presented in this report.

Utilization and peer review will be a likely means through which the experience of the health professionals, in the form of patient records and other practice data, can be obtained by SHP for use in curriculum revisions. This information, along with comparable data obtained from SHP's graduates, will insure that the School's curriculum is responsive to changing health care needs.

E. Student Selection Criteria and Processes

The principles guiding formulation of student-selection criteria and processes congruent with SHP objectives were presented in Chapter 4. However, the specific criteria and procedures for their application need to be established by the School's initial faculty and administrators.

The fundamental challenge vis-à-vis student selection will be to develop and apply standards that can successfully identify students who are most likely to become competent practitioners with a commitment to team-oriented, humanistic patient care. Particular attention will also need to be given to developing methods for assessing an applicant's capability to handle the SHP curriculum, and to assessing those factors, such as judgment, motivation, communication and pertinent experience, upon which final selection should be based.

F. Affirmative Action Program (Students and Faculty)

Further development of educational and student support services is necessary to ensure SHP's commitment to providing employment and educational opportunities to capable individuals from all socio-economic groups.

Attainment of this goal requires modifications in the traditional methods of recruitment of both faculty and students, in order to attract a sufficiently large pool of qualified applicants from varied backgrounds.

Many features of the proposed School of Health Professions appear to be particularly appropriate to the needs of educationally disadvantaged students. These include the emphasis on self-pacing, self-evaluation, and small-group, individualized instruction and advising, as well as an intentional reduction in the high-pressure and competitive atmosphere that pervades the student environment in many health professions schools.

The unstructured nature of the curriculum may be disconcerting to students who are faced with the challenge and responsibility of an individualized program at the same time that they are trying to master its content. The resolution of this paradox probably rests in the provision of plentiful tutorial and advising time. This is costly, and it therefore requires that a firm priority be placed on its provision.

In addition to educational support, significant amounts of social and financial support are required to help students from educationally and/or socio-economically disadvantaged backgrounds. These support mechanisms must be available from the outset.

G. Student Services

It is probable that the unique academic program and structure of the School of Health Professions will create distinctive social, physical and psychological impacts on students. The effects of self-directed and self-instructional learning, of heavily interprofessional learning, and of individualized educational programs cannot be fully predicted prior to implementation. In theory one would anticipate that student administrative and personal services would need to be more sensitive, extensive, and far-reaching than those customarily provided in more traditional health professions educational settings.

A broad range of non-academic support services, including counselling (career, financial, psychological), campus and clinical-site housing, academic scheduling, student health services, financial assistance, transportation, and child care must be provided to support the distinctive learning environment of the School of Health Professions.

Student services are often seen as being of secondary importance to strictly academic functions. However, in the School of Health Professions they will be an integral part of the School's educational program. Student's participation in the on-going evaluation of the School should help assure that the support services are adequate to their perceived needs.

The initial delineation and design of student services should occur during the Development Stage so that adequate and appropriate services are in effect by the time the initial students arrive. Thereafter, the scope and effectiveness of the various services should be continually reexamined as experience during the School's early operational years begins to indicate the full-range non-academic ramifications of the School's innovative educational environment.

H. Student Flow and Scheduling

Both the interrelatedness of the many components of the SHP educational plan and the School's determination to avoid predetermined sequencing - of either clinical or non-clinical learning experiences - may lead to complex logistical problems. A total absence of predictable

student flow in and out of the clinical units and in and among the various modes of learning experiences is administratively and financially impossible and, where the provision of patient care is concerned, intolerable. Therefore, some restriction on sequencing of learning will be required.

It is impossible to visualize completely the outer boundaries of students' flexibility in moving through the curriculum without actually implementing portions of the curriculum. Sophisticated methods of flow simulation may be required to identify any logistical restrictions on students' flexibility.

Theoretically, it is anticipated that the achievement of satisfactory flow patterns will not require numerous restrictions that conflict with the SHP curricular principles of self-pacing and self-sequencing. It seems likely that certain learning patterns or progressions will - because of their internal logic - begin to be followed with enough regularity by enough students to be used as basis for predicting and accommodating student flow. Moreover, it will become easier to predict student flow once students reach the point of assuming major responsibilities for patient-care in the clinical units.

I. SHP Clinical Units - Development, Staffing, Financing, and Student Utilization

As discussed in Chapter 11, development and organization of model clinical units will constitute a major activity of the School's development and early operational Stages. The following discussion relates some important concerns regarding the development of these units and their relationship to the School's educational programs.

1. Urban and Rural (Remote-Site) Clinical Units: To date, clinical unit planning has concentrated on the proposed central clinical unit; the characteristics of the urban and rural units and their contributions to SHP curricular objectives have been only broadly defined (see Appendix 3).

Ideally, the planning, design, and development of the three kinds of units should occur in parallel fashion to avoid distortion in the balance of the experiences that each provides for SHP students.

Immediate attention should, therefore, be given to bringing specifications and plans for the urban and rural units to a comparable level with those for the central clinical unit.

2. Facilities Development: The sites for the various clinical units need to be identified, and the specific plans for remodelling or constructing must be developed and implemented.

As more and more components of the School of Health Professions begin to fall into place in the course of the School's operation, it will become possible to determine the numbers of urban and rural clinical units that will be needed. As discussed in Chapter 11, initially, affiliations with a variety of ambulatory primary-care oriented health-delivery sites in rural and urban areas may be used until the School's urban and rural clinical units are adequately developed.

3. Staffing: The initial staffing of the clinical units by SHP faculty was discussed in Chapter 11. Staffing by the additional kinds of providers, including house staff, as well as by students, now needs to be formulated.

Preliminary patterns must be designated as a point of departure for beginning the operation of the SHP clinical units. However, the optimal patterns will only emerge as a result of the experience gained in the developmental and early operational years of the School, in response to the School's educational programs and to the needs of the communities being served.

The staffing plan outlined in the "Report of the Task Force for Consideration of a School of Health Professions" (included as Appendix 13) is a preliminary attempt to develop a partial staffing pattern for the School's central clinical unit only.

The establishment of staffing patterns should not overlook the need to schedule into clinic operations a sufficient amount of time reserved exclusively for conferences among the various providers involved in the treatment of individual patients. Failure to make such time available results in ad hoc and fragmentary communications among the providers, a situation that is detrimental to genuine, comprehensive, team-care delivery.

4. Team-Delivery of Primary Health Care: There is no one model health-care delivery team. The composition of the team and the distribution of functions among its members will vary according to the general setting or specific situation.

The several categories of health professionals that have been selected for SHP will be able to form workable teams in the clinical unit settings envisioned for the School, though they might not constitute the total team. Experimentation with team care in SHP clinical units should produce patterns of delivery that are optimal for each of those units, but it will not necessarily provide a prescription for the optimal manner of care-delivery in other primary-care delivery settings. It will be critical to stipulate, at the outset, a set of specific criteria by which a particular team composition and its functioning can be systematically evaluated, as a basis for instituting needed improvements.

Because graduates of SHP will be working in a wide variety of settings and with a variety of kinds of health professionals, the SHP curriculum for each of the professions will emphasize the acquisition of competencies in interprofessional communication and organizational skills, so that graduates will be able to determine the team approach that is optimum for a given setting or patient.

5. Interplay of Education and Care-Delivery: The planning of clinical units needs to take into account the fact that the participation by students in any health-care delivery system necessarily alters the general nature and delivery patterns of that system. As a consequence, the environment in which the student is observing and learning can only be a model of care-delivery in an academic setting.

This observation has particular implications for the School of Health Professions with its heavy reliance upon ambulatory-care clinical training (especially in the central clinical unit), because the degree of distortion from a "real world" model of ambulatory health care increases in proportion to the numbers and kinds of students in the delivery system.

In integrating the instructional and the patient-care objectives of the clinical units, considerable sophistication will be required to assure that this distortion is clearly recognized and minimized.

Inadequate recognition and accommodation of this effect could easily result in confusion to both students and patients. One way to minimize the problem will be to make certain that clinical units are operating smoothly before students are introduced and that students are introduced gradually. As indicated in Chapter 12, projections of student learning experiences include some clinical experience in ambulatory-care settings other than the SHP clinical units. Such opportunities, which will allow students to observe and participate in care delivery in settings that are not primarily educational, will be a valuable complement to their experiences in the School's clinical units.

6. Financing: The front-end and operating costs for the various clinical units have not been developed. As will be indicated in Chapter 12, it is assumed that their patient-care operations will be self-supporting (covered principally by patient income, directly or through third-party payers) and will not require subsidization from the School's educational budget. The validity of this assumption will depend heavily upon a number of unpredictable factors, including the future of national legislation regarding national health insurance and health maintenance organization funding, private foundation subsidies for innovative care-delivery practices, the impact of faculty service plans,* and so forth.

The eventual goal is for each clinical unit to become administratively and financially capable of offering comprehensive health care services (similar to health maintenance organizations) to an enrolled group of patients on a prepayment (rather than fee-for service) basis, probably in conjunction with one or more teaching hospitals - Presbyterian Hospital for a School implemented at UOP/PMC - or

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*In the most optimistic case, a properly designed faculty service plan could generate a surplus beyond that required to finance the clinical units' patient services and which could be donated to the School as additional income to offset the School's (i.e., the education) budget. However, because of the economics of health care, faculty service plans are much more likely to result in surpluses for the School in a situation where specialty and in-patient care, rather than primary and ambulatory care, predominates.

hospitalization plans. The development of viable health maintenance organizations is difficult - an accomplishment that frequently requires public or private subsidization. The inclusion of extensive undergraduate teaching activity and large numbers of students in a health maintenance organization - especially one emphasizing primary care - may well burden the unit's budget by increasing the per-visit expenditures and by decreasing the amount of professional services income that can be generated per unit time.*

Individuals with experience in the design, financing, and operation of health maintenance-type programs and with insight into the relationships between education and patient care will be engaged immediately. They will be able to assist the School's initial faculty and administrators in designing and financing the clinical units and in exploring and supplementing methods of creating appropriate clinical experiences for SHP students.

*A concise discussion of these budgetary effects (and of a comparison of the relatively greater marginal costs of adding teaching into an ambulatory-care setting than into an inpatient setting) is on pages 34 and 35 of Federal Manpower Legislation and The Academic Health Centers: An Interim Report, by Grace M. Carter, et al, April, 1974 (prepared by Rand for HEW).

AFTERWORD

from The Planning Staff

The process of planning a School of Health Professions was not without difficulties. In this Afterword we want to personally relate some of the problems that we encountered, and - where hindsight permits - indicate how we might have avoided or resolved these problems in the early stages of planning. Hopefully, this brief discussion will be useful to those who become, or are already, involved in similar undertakings.

* Clarity of Charge

Some confusion resulted from the scope of work of the BHRD-supported feasibility study contract. The confusion centered around contractual requirements to develop both a general (prototypical) model of an SHP and a specific "UOP" model - one which could be implemented through the University of the Pacific at Pacific Medical Center. Both the granting agency and the planning staff found it difficult to assess the relative priority that should be accorded to each model, and the planning staff found it conceptually difficult to develop both models simultaneously. More clearly defined objectives would have been advantageous for both the supporting agency and those involved in conducting the feasibility study.

* Planning Without Assured Funding and Without a Commitment to Implement the School

Implementation of a School was not inherent in the charge with which the present examination of a new kind of School of Health Professions was undertaken. Federal contract funds and local UOP/PMC support were for purposes of study and planning only, not for demonstration. Further commitments were clearly contingent upon the outcome of the project.

This situation had negative implications that became increasingly apparent as our initial design of the School neared completion and as more and more individuals - locally and nationally - became interested in the implementation of the SHP concept. One major realization was

that specific areas of the SHP educational plan (e.g., the design of the clinical units, the faculty training program) required testing and demonstration in order to be adequately evaluated and effectively blended into the total structure of the School. With neither a continuous source of funding nor a commitment from a university to implement the School, it was difficult to evaluate such features and, therefore, in our opinion, to enhance the usefulness of the project. The combination of being unable to move from theory to action and of being concerned over the uncertain future of the School interferred with the momentum of our planning through siphoning off both emotional energy and time that had to be spent in seeking funding to expand and continue our work.

The difficulty of obtaining continued funding and an institutional commitment to implement are closely interrelated. Several attempts were made to solicit funds for purposes of demonstration or implementation of the School of Health Professions. These efforts have turned out to be a classic "Catch 22" situation: without a reasonable certainty of financial support, a small private university (such as the University of the Pacific), is unlikely to commit itself to implementing a School of Health Professions in fear of jeopardizing its existing programs. Yet, unless and until the university makes such an initial commitment, foundations, government agencies, and various private sources of funding are understandably cautious about promoting any further developmental work. Though our only direct experience has been in the context of one particular university, a similar financial dilemma would probably pertain in the case of any potential SHP implementation site and sponsor, even though the specific source of the caution would vary widely from institution to institution (with some common considerations affecting most private versus public universities, most small versus large ones, and so forth).

The caution underlying this predicament is very understandable, and was, in this stage of the development of the SHP concept, probably unavoidable. We were, after all, experimenting - attempting to break new ground. But we hope that the completion of our work, as represented by this report, will now make it possible for the School of Health Professions to obtain both the funding and the institutional sponsorship -

whether at UOP/PMC or elsewhere - needed to become an operating reality.

* Constitution of the Planning Staff

The clinical backgrounds of the members of the senior planning staff are medical. This fact tended to create a definite, albeit recognized, disproportionate planning emphasis on the physician-training aspects of the School's proposed educational plan. To counter this tendency, we attempted to involve non-physician health professionals as much as possible, either on a consulting or a volunteer basis, especially in the selection of initial professions to be trained in the School and in the development of the sample curriculum. As effective as such involvement was in our case, such intermittant involvement is generally not satisfactory, because it tends to limit those involved to reacting to ideas that have already been shaped and developed rather than permitting them to participate in their initial formulation.

It would have been very valuable, once the initial categories of professionals to be educated by SHP were selected, for representatives of each of the selected professions to have been employed as full-time members of the planning group. In this way, their attitudes, knowledge, and backgrounds would have influenced more directly the form of the School and helped to assure a consistently interprofessional focus to the course and content of the planning.

* Team-Development

From the outset, we made a conscious decision to try to develop into a planning team that would function with rotating leadership and make all important decisions on a group basis. The commitment to organize ourselves in this manner was an attempt to investigate the potential strengths and weaknesses of an organizational model in which decision-making responsibilities are broadly distributed. It was hoped that our insights into this process would be useful in formulating the organizational model for the School of Health Professions.

The immediate result of this investment in team-building was an extensive sharing of information and feelings among ourselves; with the

consequence that communications with one another were probably better than in similarly assembled groups. However, as in any group, philosophic and stylistic differences did exist among individual members, and these at times interfered with effective team-building, despite conscientious efforts to reach our common goal.

Retrospectively, we feel that our difficulties could have been minimized and our positive results maximized, if we had, early in the study, retained a consultant skilled in group process and team-development.

Such a consultant, who would have continued to relate intermittantly to the planning staff, throughout the course of the study, could have brought the objectivity, investment of time, and the single-purposiveness which the planning team members - themselves heavily immersed in planning the School - could not provide, but which would have helped us to accomplish our team goals more fully.

ACKNOWLEDGMENTS

This document reflects the combined efforts of many people. We would like to express our special gratitude to the following people, and to all those who contributed their thoughts and ideas to this study.

This study began with the generosity and support of Clifford Schwarberg, Jr., and the ideas of William Anderson, Gary Arsham, LeRoy Cagnone, August Colenbrander, John Gamble, James Halcomb, Howard Myers, Fred Ramsay, Bruce Spivey, and George Z. Williams.

Active part-time members of the planning staff included August Colenbrander, Sandra Hellman, and Howard Myers. Each was an important resource for the plan.

Roger Bennett provided continual help before and during the study as a financial consultant - and much more. Other consultants included Paul Brucker, Donald Fink, Edward Flynn, Eleanor Gilpatrick, Teresita Hernandez, Itzhak Jacoby, H. Paul Jolly, Harold Levine, Christine McGuire, Robert Parks, Gerald Perlmutter, Evert Reerink, Ruth Roemer, Terry Rogers, Shelden Rovin, Laura Sheppard, Steven Weiner, and Avrum Yedidia.

Consultants for the development of the module study guides were: Keith Cohn, R. Lewis Eversole, Jonathan Feinberg, Robert Massad, Robert Middleton, Linda Nave, Robert Rakel, George Robson, and Alva Wheatley.

Many people in the University of the Pacific and Pacific Medical Center were invaluable. We should like to single out Clifford Schwarberg, Jr., for continued support, and Martin Brotman, Alistair McCrone, Lynn Fontaine, John Gamble, James Pride, Carleton Mathewson, and George Z. Williams for their particularly active interest in the project. The Ad Hoc Committee of the University of the Pacific Board of Regents, organized to consider implementation of a School of Health Professions, helped us clarify our thinking. Many of the University's administrators devoted considerable time and interest to our efforts; we wish to thank especially Stanley E. McCaffrey, President, and Clifford L. Dochterman, Clifford Hand, and Robert R. Winterberg.

Members of the SHP Task Force composed of University of the Pacific and Pacific Medical Center personnel and of others from the San Francisco Bay Area deserve a special acknowledgment for their time and

energy spent in numerous sessions with the planners. Members and alternates not already mentioned include: Roger Burgess, Allison Leak, Eva Maas, John Niebauer, John Osborn, Byron Pevehouse, Marianna Pieck, Betty Gillespie Pollack, Ivan Rowland, David Schutes, and Lois Scully.

To Alice Ring, Milton Kelly, James King, and Mildred Snyder our thanks for clarifying our thoughts and generally offering support, and our thanks also to Irv Rubin for generously sharing his materials on health-team development.

Several schools and institutions were visited during the course of the study. Among these people who helped us by providing successful examples of some of the concepts proposed in this report were Daniel Bloomfield, William Sorlie, Thomas Gamble, and others at the University of the Illinois/Urbana, and James Griesen, Robert Folk, Robert Beran, and Gregory Trzebiatowski at Ohio State. Richardson Noback and others at the University of Missouri/Kansas City likewise helped in this regard.

Our appreciation is extended to all those who graciously welcomed us to various clinical sites in San Francisco and in the East - especially to Linda Clever at St. Mary's (San Francisco), Jo Boufford at the Institute for Health Team Development (New York City), Thomas del Banco and Tony Komaroff at Beth Israel Hospital (Boston), and Archie Golden at the Johns Hopkins School of Health Services (Baltimore).

Our gratitude is warmly extended to George E. Miller, whose presence and influence were felt throughout the study.

Our special thanks go to Mary S. Burkhart, Lynne Peek, and Jenny Cornwell who provided stenographic and moral support and general assistance throughout, to Nancy Jackson who kept the affairs of the group in order, and to Frank Cameron, who provided editorial assistance.

SITES VISITED

In conducting this study, visits were made to the following educational institutions and patient-care facilities:

- Beth Israel Ambulatory Care Center
  Boston, Massachusetts
- Institute for Health Team Development
  Bronx, New York
- The Johns Hopkins University
  School of Health Services
  Baltimore, Maryland
- McMaster University
  Ontario, Canada
- Dr. Martin Luther King, Jr., Health Center
  Bronx, New York
- Ohio State University
  School of Medicine
  Independent Study Program
  Columbus, Ohio
- University of Illinois
  College of Medicine
  School of Basic Medical Sciences
  Champaign - Urbana, Illinois
- University of British Columbia
  Vancouver, British Columbia
  Canada
- University of Missouri
  School of Medicine
  Kansas City, Missouri

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