The Graduate Education of Physicians

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Preface

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A principal motive for the founding of the American Medical Association was a concern for the character and standards of medical education and thus for the qualifications of the future members of the profession. Twice in the twentieth century the Association has requested an external examination of the state of medical education and has sought recommendations for changes to ensure an increasing excellence. In the first decade of the century the Association took advantage of the interest in education for the learned professions of Mr. Henry Pritchett, President of the Carnegie Foundation for the Advancement of Teaching, to obtain a study of the medical schools of the nation. The report of this study, known universally as the Flexner Report, was wholeheartedly supported in its implementation by the American Medical Association. It had profound effect upon the development of American medical education and, therefore, upon the medical care of our citizens.

In the seventh decade the Association has again expressed its continuing concern by requesting an external examination of the internship and the residency, the constituent parts of graduate medical education. In the five and a half decades which have passed since the Flexner Report, the system of graduate medical education has become established and now constitutes the larger half of the formal education of the physician. In this develop-

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ment a process of specialization and consequent fragmentation has occurred so that responsibility is diffused and authority divided. Once again, the American Medical Association sought external examination and asked for the formation of the Citizens Commission on Graduate Medical Education to make recommendations for the improvement of this phase of medical education. In requesting this study, as in supporting the Flexner study, the American Medical Association has demonstrated its deep concern not only for the profession which it represents, but also for the public good.

For any learned profession there are but two alternatives for establishing standards of practice and education. Responsibility can be assumed by society as a whole, operating through government, or can be assumed by the organized profession through a voluntarily accepted selfdiscipline. There are no other alternatives, for, if the profession does not take responsibility, society will surely demand that the vacuum be filled and the government assume the responsibility. It is the conviction of the Commission that the profession of medicine should assume the responsibility for its standards of education and should have a mechanism adequate to the full discharge of these responsibilities. The recommendations of the Commission set forth in the following pages are designed to provide such a mechanism. The mechanism, we believe, is capable of assuming clearly and effectively the necessary responsibilities, and is of such independence that it can be free of special interests and serve both the interests of the profession and the public welfare.

The Citizens Commission on Graduate Medical Education has operated as a committee of the whole and has not employed a staff. Data, opinions, and relevant evidence have been presented to the entire Commission. Thus, the ensuing report represents the conclusions formed by the members. It is not a staff report in which a committee has concurred. In its attempt to understand the changes which have occurred in medical education, the Commission has endeavored to delineate the forces which are operating at present and to take account of those which may operate in the foreseeable future. The recommendations, we believe, will make it possible for graduate medical education to enjoy an orderly adaptation to the changes required by a burgeoning science and an evolving society.

Special thanks must be given to Dr. Dael Wolfle, the Commission member who served as draftsman of the report. Credit for the lucid presentation of the report belongs to him. The Commission is grateful for the constant interest and helpful counsel of Dr. Walter S. Wiggins, who served as consultant. Further, the Commission is grateful to the many people representing all parts of medical education and practice who shared their knowledge and experience with us.

John S. Millis, Chairman

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1 August 1966

CITIZENS COMMISSION ON

GRADUATE MEDICAL EDUCATION

Sponsored by American Medical Association

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AREA CODE 312 527-1500

August 8, 1966

August 5, 1966

Dr. Wesley W. Hall, Chairman Board of Trustees American Medical Association 535 North Dearborn Street Chicago, Illinois 60610

Dear Doctor Hall:

I am pleased to inform you that the Citizens Commission on Graduate Medical Education has finished its assigned task.

In studying the problems in the internship and residency years of medical education, my colleagues and I have found many occasions to recognize and value the freedom which we were granted from the outset to pursue this study in the manner which seemed most appropriate to us.

All of us have found this assignment an intriguing and richly rewarding experience. We are grateful for the opportunity afforded us by the Board of Trustees to serve the cause of medicine in its faithful endeavor to do all possible to assure the public of continuing improvements in the graduate training of young physicians. It is our most earnest wish that the report of our findings and recommendations will contribute directly to this end.

Sincerely yours, hundchort the

John S. Millis, Ph.D. Chairman Dr. John S. Millis, Chairman Citizens Commission on Graduate Medical Education Western Reserve University 2109 Adelbert Road Cleveland, Ohio 44106

Dear Doctor Millis:

With the work of the Citizens Commission completed, I know the Board of Trustees of the AMA would like to record its gratitude and respect for the initiative and industry with which you and your colleagues undertook the study of internship and residency training.

We are aware that this distinguished group of citizens devoted many weeks of their busy schedules over the past three years to a conscientious and statesmanlike probing of problems in this important phase of medical education. As medicine now gives attention to the report of your findings and recommendations, you may be sure that we shall give it the consideration that its eminent authorship and historic nature demand.

Sincerely yours,

Terly A. Lalf ms.

Wesley W. Hall, M.D. Chairman AMA Board of Trustees

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Chapter 1

Introduction

Medical education and the practice for which it gives preparation face problems quite different in kind but nearly as profound as those which concerned Abraham Flexner half a century ago. When Flexner wrote¹, medical education and practice were suffering from the lack of a solid, scientific base. Now, the scientific base not only exists but has grown so explosively that it has outrun much of medical practice. Then, medical education suffered from the lack of effective standards. A problem of today is the complexity, the fragmentation, and the inflexibility of standards for graduate medical education. When Flexner conducted his inquiry into medical education, the public was little concerned. Now the public is deeply concerned.

The informed public knows of the revolutionary developments in medical knowledge, of dramatic advances in surgical skill, and of new vaccines and "miracle" drugs. Knowing all this, society expresses its grateful appreciation by spending much more on medical services and by generously supporting research that is confidently expected to lead to still greater medical achievements.

The informed public also knows, however, that a wide gap exists between the best that medicine can offer and

the lesser services actually available to many patients. Medical practice has changed greatly. Yet the judgment is widely expressed, in and out of medicine, that the changes have not been profound enough to keep pace with the growth of medical knowledge and the rise in society's expectations and demands. The current problems of medicine are in large measure problems created by its own success.

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In earlier years, when medical knowledge was growing more slowly, it was easier for medical practice to keep up with advancing knowledge. The techniques that a young physician learned in school or in his internship—or that even earlier physicians learned in an apprenticeship—remained useful for a fair portion of his professional life, or changed so slowly that reading and an occasional postgraduate course enabled him to keep up with the advances in his field. Practice kept pace with knowledge. The art of medicine grew along with the science of medicine.

In more recent years, support of biomedical research by private foundations and much larger support by the Federal Government brought sweeping and fundamental advances in scientific knowledge which, in turn, led to medical developments of great public benefit. But these changes also brought complexities which have required the individual physician to concentrate upon a particular field of medical knowledge and its related skills. Concurrently, the medical armamentarium has been broadened and strengthened, and the hospital, rather than the home or office, has become the preferred and frequently the only practical place of treatment and diagnosis.

Research must of course be continued. The emphasis we give to medical education indicates no lack of appreciation for research achievements. Our task, however, concerns education. What we wish to do is to stimulate improvements in medical education which will lead to a new and accelerated rate of growth in the art of medicine so that practice will again be able to keep pace with advances in knowledge.

At its best, the practice of medicine has matched these advances, but too often the average practice does not equal the best. The average is based on two groups of physicians, the pre-World War II M.D.'s, a minority of whom had graduate education as we know it today, and the post-World War II group, the majority of whom have had the advantage of the present system of medical education. Although excellent physicians have been developed under the present system, and although some of its elements are as fine as one could ask, neither the system nor the results are as good as they might be.

Some of the older generation of physicians have kept up with the scientific developments in medicine, but many have not. This is particularly true among general practitioners, as the widely quoted study of medical practice in North Carolina² revealed. This study, jointly conducted by the Rockefeller Foundation and the University of North Carolina, found about 15 percent of a group of general practitioners to be uniformly poor in the quality of medicine they practiced, 25 percent to be only a little better, 30 percent to be reasonably satisfactory, 20 percent to be quite good, and 10 percent to be outstanding. Many of the faults found, such as inadequate examination and history taking, were of a rudimentary character. Some physicians contend that the sample was not typical of the country as a whole, but others have commented to the effect that "things are probably not much better in my state." In any event, the North Carolina study demonstrates a real need for upgrading medical practice in those . areas in which the public is not receiving the quality of

medical care to which it is entitled.

The gap between knowledge and practice, between expectation and performance, shows up in varied ways. Physicians devote long, hard hours to their work and have many more assistants and much more elaborate and versatile equipment than their forebears dreamed of. Developments in pharmacology daily add to the list of available medicines. Yet many patients complain that they cannot find physicians who are interested in them as human beings—instead of in their organs or diseases—or who appear to be willing to make available comprehensive, continuing medical service.

Medical knowledge has been growing so rapidly that no practitioner can safely rely on what he learned as a student, or consider his own resources as adequate for optimal patient care. It is now widely agreed that for a physician to remain highly competent his education must not terminate at the end of a formal residency, but must continue as long as he practices. Yet many physicians isolate themselves from the kind of continuing education that comes from daily contact with other physicians, and far too many fail to take adequate advantage of available refresher courses.

The period of formal medical education and training now deemed necessary for practice has been lengthened to an average of more than eight years. But the total period has not been planned as an articulated whole, and the procedures by which the separate stages are planned and evaluated have become so rigidly fragmented as to constitute a serious barrier to improvement.

These deficiencies, and related problems, have been high on the agenda of leaders of medical thought. Studies requested by the House of Delegates of the American Medical Association; the studies popularly known by the

names of their chief authors as the Bane Report³ and the Bayne-Jones Report⁴; the more recent study prepared by Dr. Coggeshall for the Association of American Medical Colleges⁵; and the report of the President's Commission on Heart Disease, Cancer and Stroke⁶ all provide evidence of widespread concern over the future of medicine.

Any informed consideration of the future of medicine must be based upon an analysis of current programs of medical education and of the means by which it might be improved. These are the concerns of the Citizens Commission on Graduate Medical Education. Upon recommendation of the Council on Medical Education, the Board of Trustees of the American Medical Association authorized the establishment of the Commission and . called it a *Citizens* Commission because they were convinced that the time had come—as it had in Flexner's day —for a searching, *external* examination conducted objectively in the public interest. Accordingly, they selected a majority of the Commission members from outside the field of medicine.

The general objectives of the Commission's study were described in these terms:

"1. A determination of the various kinds of professional medical careers necessary to provide . . . society with medical services of a quality limited only by available knowledge. To the extent it is feasible, this should include an estimation of the quantitative distribution of the differing medical talents within the medical profession as a whole.

"2. A definition of the general and specific characteristics of educational programs beyond medical school which will most effectively provide medical school graduates with the competencies necessary for these professional careers. This should present the ideal design

of graduate educational programs in medicine.

"3. A proposal for modifying or otherwise altering existing programs so that they may approach or attain the 'ideal' as quickly as possible."

The following quotations from the internal memorandum that led to the establishment of the Commission help to indicate the broad terms of reference under which the above objectives were stated:

"Serious questions have been raised as to whether the rotating internship is not an unnecessary duplication of the clerkship experience. Similarly, questions are raised as to whether the straight internship is not an unnecessary year of residency training under another name."

"There has been an almost uniform trend for increasing numbers of graduates to enter residency training in one of the medical specialties so that currently the large majority of young physicians are identified with a specialty and fewer and fewer are available as family physicians. . . . As yet no serious effort has been made to determine, even in general terms, the distribution of physicians within the differing fields of medical practice which would be optimal for the provision of superior medical service."

"There exists no satisfactory identification of the proper relationships of the three components—education, training, and service—to each other. This lack is most clearly evident in the wide range of emphasis given to these components in internship and residency programs. It seems likely that this is a major factor in the undesirably large spread which exists between the best and worst of approved programs at both the internship and residency levels."

"Perhaps one of the most significant concerns is related to the preponderance of the narrow specialty viewpoint in decisions affecting the pattern of graduate education."

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"The general nature of current graduate medical education is based largely on the same fundamental concepts that determined the essential characteristics of graduate training programs as initially devised more than thirty years ago:"

One further item of the Commission's instructions should be made explicit. This report is to go to the American Medical Association through its Board of Trustees, but simultaneously and in exactly the same form, it is intended for and is available to "universities, medical schools, and hospitals" and also to "the many other organizations and individuals who share with the medical profession a responsibility for maintaining educational standards at a level which will assure the public of a quality of medical care that is limited only by the boundaries of existing knowledge." In short, the report is intended for hospital boards of trustees, for legislators, and for other laymen, as well as for the medical profession itself.

These have been the charges to the Commission. We have not been able to meet them all, but have chosen to concentrate on matters of primary significance to graduate medical education. The provision of medical services and the quantitative distribution of physicians among the specialties need careful study, but this Commission is not the proper body to conduct those studies.

On graduate medical education, we have set forth in the following chapters a number of specific recommendations that we believe can go far to reduce the intensity of some of the problems that led to the Commission's establishment. Chapter 2

The Organization and Control of Medical Education

The medical student's first four years are spent in medical school, an institution that has education as its primary goal. Successful completion results in receipt of the M.D. This degree used to mark the end of formal medical education, but now it comes about halfway along the road. Following its receipt, the typical young physician now spends a year as an intern, three, four, or even more years as a resident, and perhaps a year or two in sponsored practice before his colleagues, particularly of the specialty boards, consider his medical education to be complete.

The graduate years are spent in an approved teaching hospital, an institution that has the care of patients as its primary goal, and these years are divided into two stages: the internship and the residency.

If eight years, more or less, is the proper period for medical education, those eight years should constitute a progressive and articulated continuum. The fact is different; the three stages are independently planned and separately organized and controlled. Often they overlap

in content and sometimes they leave unfortunate gaps. Much of the fault is due to division of responsibility and diffuseness of control.

Once upon a time, the medical schools had the opportunity to assume responsibility for graduate medical education, and for a time, when the internship was required for the degree, some schools did so. Had they continued to do so as residency training came to be regarded as necessary, we might by now have achieved a more closely knit continuum of medical education. But the schools of medicine chose not to assume this responsibility; no alternative method of centralized control was ever established; and the consequence is the present organization—some call it disorganization—of graduate medical education. Despite many adaptations and accommodations, the system has not been able to keep up with the forces and trends affecting medical practice and shaping the demand for health care.

The three stages—medical school, internship, and residency—largely go their separate ways because each is the product of its own history. The system as a whole is the victim of the fact that those histories have been separate. Many subtleties and exceptions must be glossed over in a brief account, but, briefly, the three stages now have the following organizational characteristics.

SCHOOLS OF MEDICINE

Undergraduate medical education is given in 85 schools of medicine and in three schools of basic medical sciences that offer only the first half of the four-year program. The schools of medicine differ in organization, points of emphasis, size, and quality. But overriding their differences is an essential agreement in plan, in purpose, and in organization, for all are subject to more or less continuous examination, criticism, and change. Since the Flexner report of half a century ago, all have come to emphasize basic education in medical science, leaving most of the practical, hospital experience for the graduate period. With a range of student quality extending from good to excellent (the competition for admission eliminates candidates of indifferent quality), all schools of medicine seek to turn out graduates who have the basic preparation necessary for specialized training in any branch of medicine.

Most schools of medicine are parts of universities. All, in the main, share the intellectual values and academic standards, the emphasis on education and research, and the established patterns of corporate responsibility that characterize a university. Similarity and agreement in these basic characteristics is maintained through the coordinating influence of the Association of American Medical Colleges and the American Medical Association's Council on Medical Education.

INTERNSHIPS

From the comparative uniformity of medical schools to the great diversity of internship programs is a huge jump, both for the young physician and in terms of organization and control. Where undergraduate medical education is concentrated in fewer than 100 schools of medicine, internships are offered in almost 800 approved teaching hospitals. Where medical school curricula are the corporate responsibilities of faculties, internship programs are often devised by single services or single in-

dividuals.

When the internship first became an established part of medical education, its purpose was straightforward and uniform: a year of hospital training, with nearly equal portions devoted to medicine, surgery, and obstetricsgynecology, provided the first extended clinical experience and the first supervised responsibility for the welfare of living patients. These experiences were deemed necessary, and usually sufficient, to complete the preparation of a young physician for independent practice.

The purpose of an internship is no longer clear and it is far from uniform. The internship no longer provides the student's first practical experience with problems of diagnosis and treatment; that function is now served by undergraduate clinical clerkships. Nor is it sufficient to provide the final educational experience preceding independent practice; the additional training of a residency is generally considered necessary to fulfill that purpose.

Because nearly all students now go on from an internship to a residency, the nature of the internship has changed. The original, or rotating, form provides from 12 to 24 months of experience in medicine, surgery, pediatrics, and obstetrics-gynecology. More recently two other forms have come into use: mixed internships—which resemble rotating internships in providing training in two or three fields, but differ by requiring that from six to eight months be spent in one field; and straight internships—which are devoted entirely to single areas, such as medicine, surgery, or pediatrics.

When a student progresses from medical school to an internship, he leaves an institution devoted primarily to education and enters one devoted primarily to medical care. Hospital experience is essential, but unless the internship is truly educational, it fails of its principal purpose. Within the context of the Essentials of an Approved Internship (published annually in the Directory of Approved Internships and Residencies), the responsible staff members of a teaching hospital determine their own educational processes and standards, and decide how an intern's time and responsibility are divided between education and service.

The responsibility for reviewing internship programs in an attempt to make certain that they meet minimum acceptable standards has been assumed by the Council on Medical Education of the American Medical Association. In deciding whether to approve or disapprove a particular internship program, the Council relies heavily on the advice of the Internship Review Committee, which consists of representatives of the Council on Medical Education, the Association of American Medical Colleges, the American Hospital Association, the Federation of State Medical Boards, and the field of general practice.

The hospitals in which internships are offered are also subject to review and approval by several other bodies. The American Hospital Association accredits hospitals on the basis of such criteria as the number of beds and the types of services offered, but does not examine the efficiency or efficacy of these services. The state health departments approve hospitals on the basis of sanitation, safety, and similar criteria. The Joint Commission on Accreditation of Hospitals accredits in terms of the quality of medical service rendered, but not in terms of educational criteria. Thus, a hospital that offers internship training is subject to periodic examination by several different reviewing bodies. But only one of these bodies, the Internship Review Committee, bases its decisions on the quality of education being offered.

To complicate the system further, the educational

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quality of a straight internship is usually not the responsibility of the hospital as a whole, but of an individual service—surgery, medicine, pathology, or another—or of the head of that service. Rotating and mixed internships are usually the successive and unrelated responsibility of several independent services. Unlike a school of medicine in which the faculty takes corporate responsibility for the educational program, a hospital is more likely to consist of a federation of separate services in which each is responsible for its own standards and policies, with relatively little help, counsel, or criticism from other services. 1.1.22

An inevitable result of such highly individualistic and fragmented responsibility is that internship programs vary widely in the extent to which they duplicate the experience already gained in the clinical clerkship, in the amount of routine and sometimes menial service required, and in their educational quality.

RESIDENCIES

After the internship comes the residency. The typical medical school graduate now follows his internship with three or more years of residency training. In 1965, residencies were offered by more than 1300 American hospitals, of which approximately half offered residencies but not internships, and half offered both.

The function of residency training has changed greatly since its start half a century ago. At that time the internship normally marked the completion of preparation for medical practice; a residency was something extra, a special period of added clinical education for a few particularly promising and scholarly young physicians who wished to become the teachers or leaders in advancing the science and art of medicine. Even as late as 1927, when a list of approved residencies was first published, the number was only a third as great as the number of internships. Now the ratio is exactly reversed; there are three times as many residents as interns. Residency training has become standard for the rank and file of physicians, and is no longer exclusively for a few selected individuals.

The expansion of residency training has largely resulted from the growing desirability and importance of specialization and certification by a specialty board. Most young physicians aspire to certification and most of them succeed, if not on the first attempt, on the second or third. In 1945, the specialty boards certified 1308 candidates as specialists. In the year 1955, the number was 3843. And in 1965 it was 5386, a number equivalent to approximately 80 percent of the medical school graduates six years earlier.

The rise in specialization has been accompanied by an alarming decline in the number of physicians who devote themselves to continuing and comprehensive care of the whole individual.

Although in theory teaching hospitals are free to determine the nature and duration of their residency programs, in actual practice their freedom is limited by the powerful influence of the specialty boards, for completion of an approved residency is one of the requirements for certification.

As previously observed, internship programs are usually treated as the independent responsibilities of individual services rather than as the corporate responsibility of the hospital. This division of responsibility is even more common in residency programs, for residency training is always specialized—in one or another of the 25 recognized specialties and subspecialties. Accordingly, responsibility for reviewing and approving residency programs is divided

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among 19 independent residency review committees. Each residency review committee includes some members appointed by the Council on Medical Education and some appointed by the appropriate specialty board. Some of the committees also include members appointed by the association or society of the particular specialty. In general, however, each review committee owes its fealty to the corresponding specialty board, and these specialty boards are autonomous.

The review and approval of residency training programs is, therefore, quite unlike the review and approval of schools of medicine or internship programs. All schools of medicine are reviewed by one body and all internship programs by another. In contrast, responsibility for the approval of residency programs is greatly fragmented, and neither the Council on Medical Education nor any other organization has insisted upon agreement and consistency among the several residency review committees.

Emphasis in this description has been on the great diffusion of responsibility for offering, directing, appraising, and approving programs of graduate medical education and on the fact that the two stages of graduate medical education, the internship and the residency, are separate from each other in planning and control, and separate also from undergraduate medical education.

Lawyers, ministers, engineers, physicists, historians, and other professionals are educated in a system under which the whole course of education, undergraduate and graduate, is a continuing responsibility of educational institutions, in which each department functions not only as a unit but also as an integral part of the whole university whose institutional standards and policies must be satisfied, and which, in turn, must meet external standards of review and accreditation.

Medical education differs from other professional education in the extent to which the young physician must have many opportunities to observe and work upon living patients who are suffering from a variety of afflictions. So great is this difference that it may not be possible or even desirable to organize and structure graduate education in medicine in the same pattern as in other fields. However that may be, it must be emphasized that graduate medical education is unique among the fields of graduate and professional education in being a responsibility of institutions which have service rather than education as their primary function. It is unusual, in that responsibility is divided among more than a thousand hospitals instead of among a few score universities or medical schools. It is in a class by itself in the extent to which responsibility reposes in individuals rather than in faculties.

These characteristics of graduate medical education have given rise to a number of problems that will be examined in later chapters.

Chapter 3

Major Trends in Medical Education and Practice

Medicine exists to serve society. In common with other socially useful professions, it must ever be responsive to the needs of the society it serves. Edward Kuhn, president of the American Bar Association, was speaking to lawyers, but he might just as well have been addressing physicians, when he said, "If you don't serve the public as it needs to be served, the public will force some kind of change in the profession."

Medicine must be responsive to society's demands, but physicians are the persons who best know the limitations, the possibilities, and the expected directions of change in medical practice, and this fact imposes upon them the obligation of deciding how the health needs of society can best be met. The health and medical aspirations of the nation, like other national goals, are largely determined outside of medicine, but it is within medicine that the means of achieving them must be created.

There is nothing new in all of this, nor anything unique to medicine. The same statements could be made

of any enlightened and socially oriented profession. Nor is there any implication that medicine has not changed. It has. Moreover, it is continuing to change, and so is the society it serves. The details of medical practice are out of our province. It is necessary, however, to call attention to some of the major trends in and affecting medical practice, for they must be taken into account in determining the educational needs of young physicians. Because a fuller treatment of these trends is available in Dr. Coggeshall's recent report to the Association of American Medical Colleges, *Planning for Medical Progress through Education*¹, our review can be briefer than would otherwise have been necessary. We present them under four headings:

1. Increasing knowledge and the resulting increase of specialization

2. Rising expectations and demands for medical and health care

3. The changing geographic distribution of the population

4. The increasing institutionalization of medical practice

INCREASING KNOWLEDGE

Dramatic advances in biomedical knowledge, increasing surgical skill, and the development of new techniques, materials, and medicines have changed former impossibilities into today's routine. Consider the antibiotics, the corticosteroids, radioisotopes, the widespread adoption of immunization programs, plastic and metal implants, artificial organs, blood and tissue banks, and the successes

in cardiac and other forms of surgery. These are but a few examples from a long, long list of developments that have lowered morbidity, extended the life span, greatly reduced the average period of hospitalization, and granted more normal lives to the victims of formerly disabling diseases.

There is every reason to expect that a high rate of improvement will continue. The surgeon, aided by new materials and by advances in electronics and biochemistry, may master new techniques for repairing or replacing failing organs. The Commission on the Cost of Medical Care reports that the "introduction of new products has been so dynamic that 7 out of 10 products now on the market were not available a decade ago."² That pace is not likely suddenly to halt. Nor is the pace of advance in the underlying sciences. The understanding of cellular processes resulting from research in molecular biology has brought us to the threshold of what is likely to be remembered as the golden age of embryology and the understanding of tissue growth and malgrowth. It would be idle to belabor the point that biological knowledge and clinical skills continue to leap forward, for the evidence is so affirmative and abundant.

In the past, the response of medicine to advancing knowledge has been a two-fold one. The practice of medicine has become more specialized, and the period of formal training has been extended. When there was little to learn, comparative ignorance was at least widely shared. Now that there is so much to learn, specialization is essential, for no physician can comprehend the whole, even with the eight or more years of medical education and training that have now become standard.

The present methods of adapting to increases in knowledge have about run their course. The greatest demand

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now is not for a larger number of types of specialists but for better ways of adapting medical education and practice to the trends described in this chapter. And the period of formal training is already stretched about as long as can be tolerated—indeed it is open to question whether it has not already been extended so far as to diminish the number of students willing to undertake the long period of preparation. -37

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Knowledge will continue to increase. No alternative assumption is reasonable as a basis for planning medical education. Future accommodation to increasing knowledge should not require a longer period of formal training but should involve better use of the years of undergraduate and graduate medical education and the development of more effective methods of continuing education for physicians in practice.

RISING EXPECTATIONS AND DEMANDS

Although relatively few citizens have the knowledge to enable them to make valid distinctions between good medical care and services of lower quality, the demand for what is thought to be "the best" is growing, and so is the ability to pay for it. Popular magazines, television programs, and the daily press inform the public of each new medical triumph and continue to raise the popular expectation of what medicine can accomplish.

Six percent of the gross national product is spent for health services, and the percentage continues to rise. Moreover, it becomes easier to demand the best health services and less painful to pay their cost as prepayment and insurance programs continue to grow in popularity. Over three fourths of the nation's population is now covered by some form of insurance to pay hospital expenses; the percentage carrying insurance to cover surgical expenses follows close behind; and the percentage with insurance to help cover other medical expenses is climbing steadily. There are major gaps, however. For example, emphasis on payment of costs incurred while hospitalized means that milder conditions and early symptoms are often neglected until they become serious. Nevertheless, voluntary plans, company and union plans, group-practice insurance, and government plans are growing rapidly. Most patients will enjoy a substantial amount of medical expense insurance before students now entering medical school will start their practice.

The need for health care is increased and in some ways changed in nature by the changing age composition of the population. Persons over age 65, who now account for almost 10 percent of the total population and who will account for more in the future, need more medical care than do younger persons. In the 1957-60 period, they averaged 6.8 physician visits a year in comparison with 4.0 a year for persons in the 5- to 24-year-old age range, and when hospitalized their average stay was 15 days, compared with 5 or 6 days for young adults.

For older persons, continuing and comprehensive care becomes increasingly important, as do early diagnosis and a good knowledge of the patient's medical history and general status.

Despite the rising expectations and rising usage of medical services, there are unrecognized and unmet needs. Preventive care is neither as widely sought nor as widely practiced as it might and should be. Rural residents, persons with little means, members of some ethnic groups, and some of the institutionalized patients receive less medical care than do more fortunate citizens.

Leaders of medicine share with other leaders of the country a vision of greater future possibilities, of more widespread and more effective preventive care, of health protection as well as the cure of disease. The goal of medicine and of society is the high one of eradicating those diseases that can be eradicated, of preventing those that can be prevented, and of providing as effective treatment and as good care as possible for those diseases that remain intractable. The continuing rise in expectations and demands must surely affect the educational needs of future physicians.

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URBANIZATION AND MOBILITY

Farms, rural villages, and the horse and buggy have given way to cities, urban complexes, a vast network of paved highways, the automobile, and even the helicopter as links between a patient and his physician. With the farm population down to 6 percent of the total, and with only a small percentage of the population not having easy access to good highways, it is no longer reasonable to educate physicians on the assumption that they must or will work in isolation. In structuring the education of future physicians, it must be expected that most of them will practice in close proximity to other physicians and that transportation facilities will permit quick patient access to hospitals and to specialized diagnostic and therapeutic centers.

INSTITUTIONALIZED PRACTICE

The completely independent practice of medicine is no

longer possible, and even the maintenance of an individual office is steadily declining as more and more physicians seize the advantages of hospital, clinic, and group practice. Younger physicians, much more than their older colleagues, are practicing under group or partnership arrangements in which two or more-sometimes several score-physicians share common facilities and services, supplement each other's special knowledge and skills, and provide their patients with better medical care than they could if each were practicing independently. This trend will almost certainly continue. The explosion of medical knowledge has been so great that no physician can master more than a fraction of the total. If the whole relevant range of knowledge and skill are to be combined to help a patient, division of labor is essential. Specialists in the different branches can cooperate most effectively if both in spirit and in space they are working closely together. In recognition of this fact, nearly two out of three medical students in a recent study said they hoped to practice in a group or a partnership.³

Institutionalized practice, in a hospital, a clinic, or some form of group practice, permits a higher quality of total service than the relatively independent practitioner can offer. A variety of skills, specialized knowledge in different areas, a more competent corps of paramedical aides, and expensive equipment that the solo practitioner can rarely afford are all brought together for the benefit of the patient who takes his medical problems to physicians based in a hospital or a group practice clinic.

There are also advantages for the physician. A group or clinic organization makes more effective use of a variety of medical talents and serves the physician's need for the continuing education and intellectual stimulation that result from frequent discussions with professional col-

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leagues. Intimate contact with other physicians makes it easier to confirm a diagnosis or to select the procedure that seems likely to be most efficacious. Each member of the group can make more effective and economical use of paramedical personnel and of office and laboratory equipment; management, secretarial, and related costs can be shared; confidence that other skilled physicians are ready to assume temporary responsibility for his patients makes it easier for a member of a group or hospital practice to attend a medical conference or postgraduate institute, or to take time off for needed rest and recreation and to enjoy his family and cultural interests.

When a mode of practice is advantageous both to the patient and the physician, it is bound to grow in popularity. Future physicians should be educated on the assumption that they will practice in close affiiliation with other physicians, not in isolation.

PATIENTS MUST ADAPT

Patients, too, must recognize these trends and adapt to them. Greater knowledge and the resulting rise in specialization, the increasing institutionalization of medical practice and its greater concentration in urban centers, and greater reliance upon diagnostic tests and equipment and upon skilled aides all permit higher quality of medical service to a larger number of patients. Patients must recognize that the benefits of these changes far outweigh the loss of the greater amount of personal attention, the more frequent house call, and the more leisurely pace of medical practice a generation ago. Chapter 4

Evolving Goals

The general goal of medical education is the same now as it was a decade or a century ago: to educate physicians who will have the desire and the qualifications to offer excellent health care to their patients.

The more detailed goals, those that help to determine the characteristics of good training programs, are not so timeless, and periodically must be revised. The demands, expectations, and the resources of society change, and so do medical capabilities and the concept of what constitutes excellent health care.

At the detailed level, the periodic revision of the goals of medical education is the responsibility of the faculty of each medical school and the staff of each teaching hospital. Many of the efforts to meet this responsibility have lacked clarity, precision, and specificity. Again and again, in discussions of medical education, one finds such expressions as "graded patient responsibility," "increased clinical competence," "integration of basic concepts," "the careful collection of information and the critical analysis of data," or "the kind of experience that will make him wish to continue his own education for the rest of his life." The trouble with such statements is not that they are wrong. It is that they are nonspecific—mere generalized platitudes. The same words are used to state the

goals of the clerkship, the internship, and the residency, without indicating the expected level of competence or showing any relation to what went before or what will come later.

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There would probably be no disagreement with the statement that the ability to take accurate and detailed case histories is essential for any physician. When should the student begin systematically to develop this skill? What kind of supervised experiences are most helpful in mastering it? How and how often should histories taken by the student be studied and criticized by his teachers and compared with those taken by more experienced clinicians? What levels of completeness and accuracy are acceptable at different stages in the student's progress? After he has achieved acceptable standards, is he thereafter to be on his own, or, throughout his training, should there be periodic examinations or rechecks of his competence?

It is necessary to get to this level of detail, not only in history taking but also in a variety of other skills, in order to make certain that the clerkship-internship-residency sequence is a true progression of increasing depth and scope, and before one can have a solid basis for deciding at what stage to require achievement of a particular goal.

It is necessary to get to this level of detail to make educational plans with confidence, to decide what measures of competence under supervision should precede freedom to perform a particular procedure without supervision, and to answer some of the troublesome questions about what is educational experience and what is service on the part of a house officer.

Progress in the improvement of graduate medical education would be greatly aided by a sharper differentiation of the goals of the clinical clerkship, the first year of graduate medical education, and the later years.

Learning to practice medicine competently is a highly complex process, and not enough is known about the learning process to justify any hope for easy answers. Medicine is based on science, so there is much science to learn. The science is applied to specific health problems, so there is much to learn of the skillful, judicious, and ethical application of science. The scientific basis is incomplete, so there is much empirical knowledge to master. Confidence, skill in interpersonal relationships, judgment -even concerning one's own limitations-are also to be developed. The student must be free to make decisions, for learning seems to require this freedom. But he also needs competent guidance and supervision, so that mistakes will be few in number and minimal in seriousness, and will be promptly rectified to protect the patient. He needs enough supervised practice to develop skills and enough success to acquire self-assurance.

Medical students and house officers are mature men and women who must accept a large measure of responsibility for educating themselves. Our emphasis on the explicit statement of goals is not intended to mean that the student should be led by the hand over the whole route or that the route should always be the same. But periodically —and now—the trails need to be resurveyed and more clearly marked.

Because educational programs properly differ from one institution to another, we recommend that each medical school faculty and each teaching hospital staff, acting as a corporate body, explicitly formulate, and periodically revise, their own educational goals and curricula. To do so would be a healthy exer-

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cise for medical educators and a fundamental step toward the solution of many of their educational problems.

GENERAL GOALS THAT NEED EMPHASIS NOW

Between the timeless goal of educating good physicians and the detailed goals that should guide the planning of specific educational programs there is an intermediate level of generality. At this level it is possible to state a number of goals of medical education that may change but that at any particular time can be widely accepted. An historically famous example was the objective stated by Abraham Flexner of basing medical education upon a more solid foundation of biological and biochemical knowledge.

At the present time, and in light of the trends described in the preceding chapter, the overriding objective should be the better adaptation of medical education and practice to the specialization made necessary by greater knowledge and skill. Specialization, with all of its advantages, has led to fragmentation, an insufficiency of physicians who are competent and willing to offer comprehensive and continuing care, difficulties in coordination among the specialties, and the development of serious barriers to the changes in graduate medical education that might overcome these faults.

At the present time, the following changes are recommended to the governing boards of universities, medical schools, hospitals, and medical organizations.

EDUCATIONAL GOALS

1. Medical schools and teaching hospitals should pre-

pare many more physicians than now exist who will have the desire and the qualifications to render comprehensive, continuing health services, including preventive measures, early diagnosis, rehabilitation, and supportive therapy, as well as the diagnosis and treatment of acute or episodic disease states.

2. No physician, by himself, has all of the knowledge and skills necessary to provide all of his patients with optimal health care. Specialization implies division of responsibility. But the patient is undivided. Programs of graduate medical education should therefore give greater emphasis to the training of physicians for cooperative effort—among medical specialists and with members of other health professions—in order that each patient may be provided with the combination of skills and knowledge best adapted to his particular needs.

ORGANIZATIONAL GOALS

Graduate medical education must be considered not only in terms of curricula and teaching programs, but also in terms of its governing structure for designing and conducting those programs, for establishing standards, and for assessing the quality of the graduates. Concerning the governing structure of graduate medical education, there are two goals to be stressed.

3. Stronger, more centralized, and better coordinated procedures and agencies than now exist are needed for systematic, continuing review and improvement of graduate medical education.

4. In the determination of educational policies and the establishment of programs and standards, the amount of attention given to the needs of medicine as an integrated

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scientific and professional whole should be greatly increased.

Chapters 5, 6, 7, and 8 will propose means of achieving the educational goals. Chapter 9 will recommend changes to accomplish the organizational goals. Chapter 5

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Comprehensive Health Care

The general practitioner of revered memory knew his patients, did whatever he could to cure or ease their varied ailments, and provided continuing care through the course of minor ailments and major emergencies. His deficiencies —and they were many—were partly offset by intimate knowledge of his patients, the support he gave them, and the trust and confidence his services engendered.

Now he is vanishing. Time has changed both him and his patients. Patients now have access to a richer variety of medical services, and many of them have insurance to help pay for hospital and specialist services. In medicine, the major advances, the major triumphs of biomedical research, have not dealt with man as a whole but with his individual bodily systems or organs. As the science and art of medicine devoted to understanding and treating individual organs and systems have outrun the science and art of understanding and treating the whole man, specialty practice has become more necessary and more attractive.

There are no satisfactory statistics on the number of physicians in general practice. Some physicians who started

. 32 as general practitioners now limit their practice, wholly or partially, to a specialty, and some with specialty training engage in general practice. There is no doubt, however, that the number and the percentage in general practice are declining. In 1931, 84 percent of all physicians in private practice reported themselves to be general practitioners. In 1960, the corresponding percentage was 45; and in 1965, 37. The percentage is sure to decline further, for of all general practitioners in private practice in 1965, 18 percent were over 65 years of age¹, a proportion of oldsters much higher than in any other area of practice, and in recent classes of medical school graduates, only some 15 percent have planned to enter general practice.

The general practitioner leaves behind him a vacuum that organized medicine has not decided how to fill.

One result of this vacuum has been that the patient becomes his own diagnostician, and decides which kind of specialist he should approach. Or he seeks the advice of a pharmacist or a friend, or follows his own ideas of what constitutes proper treatment. Other patients—in increasing numbers—take their problems to the hospital emergency room. It is always open; all are received; and good medical care and facilities are there available, at least for emergencies. This solution, however, offers little continuity, and the relationship is less than satisfactory either to the patient or the hospital staff.

In the meantime, discussions of "general practice," or "family medicine," or "personal physicians" go on. Some physicians recommend a two- or three-year graduate program as a means of improving and perpetuating the general practitioner. Specialists, in contrast, often think of the general practitioner as being chiefly useful as a "referral service or a clearinghouse for important medical problems the G.P. can't handle."² A few medical schools and teaching hospitals have offered programs in family medicine, but most of these programs have been halfway measures that proved to be less than halfway successful.

There are, of course, some excellent general practitioners, and there are some specialists who administer continuing and comprehensive care of high quality. But there are not enough such men, and there is not enough of the service they offer—as most patients, physicians, and legislators agree. The patients give their evidence by waiting in line at hospital emergency rooms. The House of Delegates of the American Medical Association has attempted to reverse the trend away from family medicine. And the medical legislation adopted by the 89th Congress differs from earlier federal legislation, which was designed to stimulate and improve medical research, by placing great emphasis upon improving medical care.

Many leaders of medical thought have proclaimed the desirability of training physicians able and willing to offer comprehensive medical care of a quality far higher than that provided by the typical general practitioner of the past. The physician they conceive of is knowledgeable as are other physicians—about organs, systems, and techniques, but he focuses not upon individual organs and systems but upon the whole man, who lives in a complex social setting, and he knows that diagnosis or treatment of a part often overlooks major causative factors and therapeutic opportunities.

One of his qualifications must be a thorough knowledge of and access to the whole range of medical services of the community. Thus he is able to call upon the special skills of others when they can help his patient. If the full range of medical competence is to be made effectively and efficiently available, it is mandatory that means to be found to increase the supply of physicians willing and properly

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trained to serve in this comprehensive role.

What is wanted is comprehensive and continuing health care, including not only the diagnosis and treatment of illness but also its prevention and the supportive and rehabilitative care that helps a person to maintain, or to return to, as high a level of physical and mental health and well being as he can attain. Few hospitals and few existing specialists consider comprehensive and continuing medical care to be their responsibility and within their range of competence; and not many of the present general practitioners are qualified to fill this role. A different kind of physician is called for.

There is an annoying semantic problem in talking about this kind of physician. What should he be called? The title general practitioner has lost its once honored status. Dr. Russell Lee suggests that we "Build a monument to him and . . . start now with a new concept of the personal physician."

But *personal physician* also presents difficulties. The relation of physician to patient should never be impersonal. Surgeons and psychiatrists and obstetricians and dermatologists are all personal physicians to their patients, whether the relationship is temporary or sustained.

First-contact physician has been suggested, but here again there are difficulties. There is always a first contact, and the choice depends upon the patient. It may be an internist, an obstetrician, a pediatrician, or a surgeon. The title merely indicates a temporal relationship and sometimes a temporal accident, not a definitive kind of medical service.

Family physician is an often-suggested title, and there are some advantages in having the same physician serve all members of a family. But the family relationship is by no means necessary, and although the term sounds appropriate for informal and individual use ("Dr. Jones is our family physician"), it does not describe the qualifications that should be involved.

Comprehensive care probably best indicates the nature of the medical and health service involved. But comprehensive-care physician is an awkward title.

We suggest that he be called a primary physician. He should usually be primary in the first-contact sense. He will serve as the primary medical resource and counselor to an individual or a family. When a patient needs hospitalization, the services of other medical specialists, or other medical or paramedical assistance, the primary physician will see that the necessary arrangements are made, giving such responsibility to others as is appropriate, and retaining his own continuing and comprehensive responsibility.

Perhaps a better name will emerge as the function which is the truly important element—becomes more generally recognized and more widely available. In the meantime, and for the purposes of this report, we will use the title *primary physician*.

Medical literature is full of articles lamenting the failure to develop a substantial corps of well-trained primary physicians. Why, then, are there so few of them?

We find three major reasons:

1. General practice, once the mainstay of medicine, has gradually lost prestige as the specialties have risen in honor and accomplishments. In deciding upon his own career, the young physician may never see excellent examples of comprehensive, continuing care or highly qualified and prestigious primary physicians. He is certain, however, to see a variety of specialists and to observe that they usually enjoy higher prestige, greater hospital privileges, and more favorable working conditions than do

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general practitioners.

2. Educational opportunities that would serve to interest students in family practice and provide interns and residents with appropriate training are few in number and often poorer in quality than the programs leading to the specialties.

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3. The conditions of practice for a general practitioner or a physician interested in family practice are thought to be less attractive than the conditions and privileges enjoyed by a specialist.

All three of these difficulties can be overcome, but heroic work will be required. It is time for a revolution, not a few patchwork adaptations.

THE POSITION OF COMPREHENSIVE MEDICINE IN THE MEDICAL HIERARCHY

The first necessity is for organized medicine to recognize—not merely in a formal sense, but sincerely—that comprehensive health care is a high calling, different from specialization in thoracic surgery or hematology or something else, but not inferior—not inferior in training, in rewards, or in position within the house of medicine.

The lip service routinely paid to the importance of comprehensive, continuing health care does little to offset the powerful inducements to specialization. Family or personal physicians are said to be important. The House of Delegates has repeatedly emphasized the need for more of them. But in defining their functions and their relations with other physicians, the family or personal physician not infrequently is described in such condescending terms as these: "He provides medical care within the limits of his competence," "He refers to other physicians those patients who have problems beyond his competence," or "His practice gives emphasis to the frequent and commonplace ailments."

The attitude conveyed by such statements is more likely to repel than to attract able and ambitious students to careers in comprehensive family practice.

There is a kind of arrogance in specialized medicine that runs deeper than such attitudes do in other fields. The president of a company often defers to his comptroller on fiscal matters and to his legal counsel on legal matters. He utilizes their specialized knowledge without anyone talking about "referring problems beyond his competence." On the contrary, he is regarded as the epitome of over-all competence. Or, as another analogy, if the quarterback holds the ball for a place-kick specialist or calls upon the fullback to make a needed final yard, he is commended for utilizing effectively the talents of different members of the team. No one makes derogatory remarks about problems "beyond his competence." The practice of law, like the practice of medicine, now requires specialization. But in a modern law office it is a generalist rather than a narrow specialist who takes the leading role and earns at least equal prestige.

The analogies are relevant because the patient wants, and should have, someone of high competence and good judgment to take charge of the total situation, someone who can serve as coordinator of all of the medical resources that can help to solve his problem. He wants a company president who will make proper use of the skills and knowledge of more specialized members of the firm. He wants a quarterback who will diagnose the constantly changing situation, coordinate the whole team, and call on each member for the particular contributions that he is best able to make to the team effort.

In contrast, the words used in medical discussions often

seem to assign to the family practitioner the inferior status of a routing clerk rather than that of an important member of the team.

In these attitudes, medicine has adopted and perhaps exaggerated the values of the scientific specialist. In the academic world, it is customary to put a greater premium on depth of knowledge in a specialized area than on more comprehensive wisdom covering a larger field. Within their own guilds, the most highly respected mathematicians, physicists, or economists are those who have penetrated most deeply into specialized and restricted domains. Perhaps these attitudes are proper among scientists or in the university, where the men most honored are the ones who are extending the frontiers of knowledge. But medicine, although intimately based upon science, is not science. It is an application of science.

What happens to the patient is the measure of success in medical practice. He brings the physician a problem, often a complex one. The factors that contribute to it may be physiological, anatomical, psychological, social, economic, genetic, or describable in still other terms. Sometimes he needs many kinds of help. At other times the proper remedy is as specific as the contents of a single bottle from the pharmacy. In either case, the problem of diagnosing the situation, weighing the several factors, and determining the appropriate course of action is a complex one that calls for breadth of view. One ulcer patient may properly be sent to surgery, a second to a psychiatrist, and a third treated by medicine. All three patients should be able to feel confident that they get first attention from a physician who is aware that there may be several alternatives, not from a physician who knows only one.

Harvey Brooks, dean of engineering and applied physics at Harvard, has described the similar dilemmas of engineering and medicine as they have come to be more and more firmly based on science:

"... in both medicine and engineering the importance of the underlying sciences has become so great that medical and engineering faculties are increasingly populated with basic scientists who do research or teaching in sciences which are relevant to but by no means identical with the practice of medicine or engineering. The old form of teaching primarily by practicing physicians or engineers was found wanting because practical knowledge was too rapidly being made obsolete by new scientific developments which could not be fully absorbed or appreciated by the mature practitioner. Yet in the process something of the spirit and attitude of the skilled practitioner was lost, particularly his willingness to deal with problems whole rather than in terms of the individual contributing disciplines."³

The Flexner report gave medical education a timely and healthy push in the biological and biochemical direction. Growing scientific knowledge furthered the trend: And the availability of large funds for biomedical research accelerated it. Medicine has been greatly strengthened by these developments. They should be supported and continued. The problem is not that these aspects of medicine have grown too rapidly. The problem now is to add a new dimension to the practice of medicine that will help to utilize this growth and to bring the practice of medicine up to its high potential. The needed new dimension is continuing and comprehensive care of high quality. Medical education must produce competent and broadly trained physicians to give that care.

We have already made a start. The House of Delegates, the Academy of General Practice, the College of Physicians, and many individual leaders of medical thought-

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albeit with differences in the particular remedies and approaches they recommend—have all agreed upon the urgency of greater and more widespread provision of comprehensive medical services. Of course there are difficulties, but the change is necessary for the welfare of patients and for the future standing and respect, including self-respect, of the profession. It is time for decisive action to increase greatly the number of physicians who will devote their professional careers to the highly competent provision of comprehensive and continuing medical services. If organized medicine does not take the leadership in meeting this problem, others will.

EDUCATION FOR COMPREHENSIVE MEDICAL CARE

Medical schools and teaching hospitals are generally organized along disciplinary and specialty lines. There are departments of anatomy and physiology and other disciplines; there are pediatric and surgical and other services; but there are few services or clinics of comprehensive medicine. If students are to see comprehensive medicine practiced at its best, major changes in curricula and a major addition to teaching facilities must be made, starting in the medical school. It is in the medical school that the student first begins to make realistic comparisons between different kinds of medical careers, and it is there that he finds the first models upon which he patterns his own career aspirations. At present, medical schools provide excellent models of the scientist-research scholar and the hospital-based specialist, but rarely if ever do they provide models of comprehensive health care or of physicians who are successful and highly regarded for providing that kind of medical service. Worse, some faculty

members tend to denigrate the role of such physicians.

There are exceptions, but in the typical medical school hospital, the student does not see a normal range of patients, but a highly selected and specialized sample. In practice, patients seek help for a wide range of ailments, from the merely inconvenient to the crippling and fatal. In the typical medical school hospital, most cases are on referral because of acute conditions that require specialized or round-the-clock attention. In practice, contact may continue over many years, allowing a full, rewarding experience of successful management of health problems over a considerable period of time. In the hospital, contact is likely to be restricted to a few days.

The university hospital type of medical service is essential, and every student should be acquainted with it. But if this is the only type he sees, if only the hospitalbased, acute, disease-oriented kind of practice is held before him as a model, it is little wonder that the interest in comprehensive medicine many students bring to medical school gets blunted and forgotten by the time they are ready to seek internships and residencies.

True enough, preceptorship programs give a few students realistic opportunities to observe family practice, and practically all medical schools devote the major part of a year (usually the senior year) to teaching in the outpatient clinics on ambulatory patients, but this teaching program is given less emphasis than are others. The low status accorded the outpatient clinic naturally leads the student to the belief that ambulatory medicine is relatively unimportant.

To inspire young physicians to enter the practice of comprehensive medicine and to educate them appropriately will require major changes in faculty, facilities, and attitudes. Merely adding a service of comprehensive medicine

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will not be enough, for everyone else would then relax and there would be little if any improvement over the present outpatient clinics.

A much more sweeping change is necessary. Continuing, comprehensive care should be a central focus of medical school organization, planning, and clinical teaching. Right at the beginning of the student's introduction to clinical medicine he should begin to realize, and his teachers should emphasize, that illness is usually not an isolated event in a localized part of the body, but is a change in a complex, integrated human being who lives and works in a particular social and family setting, who has a biological-psychological-social history. In this complex history are to be found the interacting factors that determine the nature of his illness, and in his future the effects of the illness are likely to continue to be manifest. Of course the student will not understand all of the subtleties involved -no one does-but this kind of emphasis at this early stage will start to demonstrate how essential in patient care are the concepts of continuity and comprehensiveness. Early emphasis on these concepts will help put into proper perspective the relation of specialized services and particular illnesses to the patient's continuing welfare.

The word *clinic* is inadequate for the program we have in mind, for *clinic* is sometimes used to indicate a medical facility that serves only outpatients. Similarly, *service* may be misinterpreted, for that term is sometimes restricted to the medical services rendered to hospitalized patients. We mean both. The program we recommend as a central focus for the education of primary physicians will serve outpatients—and thus be a *clinic*—and when necessary will take those same patients into the hospital—and thus be a *service*. In the following discussion we will call it a *program* or a *service*. Either term will mean the kind of combined clinic and service just described.

The new service will have to have budget, staff, quarters, outpatient facilities, and hospital beds. At its head should be a physician whose central interest is in comprehensive medical care, and on the staff should be other clinical professors and physicians of like interests. Collectively they will assume much of the responsibility for planning, management, patient care, and education.

But responsibility should not rest exclusively with the new service. Its central educational importance requires corporate faculty or staff responsibility, endorsement, and support in developing the teaching program and in maintaining effective integration with other hospital services. Specialists from other services will be required as consultants and part-time participants in the comprehensive program. When necessary, members of the staff will admit patients to the hospital just as do physicians on other services. The hospital beds available to the comprehensive service should not, however, be isolated or distinct from the beds used by other services. The staff members of the comprehensive service will be fully qualified to handle the problems that require hospitalization for some of their patients. In other cases, the services of surgeons, pediatricians, psychiatrists, or other specialists will be required. In either situation, the primary physician and the residents involved should be able to follow the patient throughout the period of hospitalization, even though major responsibility is, for a time, transferred to some other specialist. Continuity before, during, and after hospitalization is part of the responsibility of the primary physician and an essential part of the education of the resident. The achievement of these conditions may require modifications in the customs of some teaching hospitals, and will certainly require the hospital staff as a corporate whole to

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accept a considerable measure of responsibility for the comprehensive service.

A diverse patient population will be necessary. Patients should not be restricted to those who come by referral, but must include those who come voluntarily, for the educational program will require a patient population that covers the whole age range and a wide range of socioeconomic and educational levels. In the course of time, such patients will display the whole gamut of problems from the common and minor to the most unusual and complicated.

Such services would provide the very best setting in which to introduce the medical school student to the practice of medicine. A clerkship served in this setting would give him opportunities to see a variety of patients with a variety of problems, to follow patients over a considerable period of time, to see comprehensive medicine practiced at a high level of excellence, to observe the work of the different specialists, and to see how their specialized talents can be brought together to contribute to the welfare of the patient.

At the graduate level, students who aspire to careers as primary physicians would find in these programs excellent opportunities for a portion of their residency training. Moreover, the hospitals that establish these programs will present an example of one staff working regularly, continuously, and cooperatively with the staffs of other services. This example should be a good opening wedge in bringing about a greater amount of consultation and a greater degree of corporate responsibility for educational planning. Graduate medical education generally would profit from such a change.

We know of no medical school or teaching hospital that now offers a comprehensive care service of as high quality as we recommend, or one that constitutes as central and important a part of the teaching program. Such services should be established as quickly as possible. It should be recognized from the outset that they are to provide model, exemplary medical services for educational purposes. In size, they should be no larger than is necessary to fulfill these demonstration and educational functions.

We have been warned that some local physicians and medical societies would oppose the establishment of comprehensive-care services, because medical centers would be in direct competition with private physicians. To an extent they would and must be. Yet we think the difficulties can be diminished by careful planning and advance "selling" of the ways in which these services will improve the education of primary physicians. Moreover, effective teaching will usually require the collaboration of some local physicians who are willing and qualified to devote a part of their time to education.

Adjustments will also be necessary on the part of faculty and staff members, for both in university medical centers and in other teaching hospitals many private patients are not used for educational purposes. We believe they should be, and discuss this point more fully in Chapter 7.

Clearly there will be problems and economic questions to consider. They must be anticipated and—insofar as possible—resolved in advance, for the establishment of model programs offering comprehensive care to a patient population diverse in kind, but limited to the size needed for teaching purposes, is an essential step towards interesting students in this kind of practice and towards giving them an opportunity to experience its problems and its satisfactions. If we provide students with models of high quality, we can expect a reasonable number of them to set

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their own sights on this type of practice. This urgent educational need is of such importance as to outweigh any minor infringement upon private practice.

These model programs will probably take diverse forms. Initially all will be educational experiments. They should be closely watched and carefully reported, as are any good experiments, so that medical schools and teaching hospitals will be helped to adopt those forms of organization and methods of education that work most effectively.

GRADUATE PROGRAMS FOR PRIMARY PHYSICIANS

The primary content of graduate education for comprehensive care should consist of medicine, psychiatry, pediatrics, medical gynecology, and preventive medicine. The Commission has five recommendations to make.

First, simple rotation among several services, in the manner of the classical rotating internship—even though extending over a longer period of time—will not be sufficient. Knowledge and skill in the several areas are essential, but the teaching should stress continuing and comprehensive patient responsibility rather than the episodic handling of acute conditions in the several areas.

Accomplishment of this objective will require joint planning by representatives of the several services, supervision under the direction of senior staff members whose responsibilities and authority cover the entire area rather than individual services, and comprehensive planning through the entire period of graduate medical education.

The method of organization, the time order of different

parts of the educational program, and other details will surely vary, but several general principles will have to be observed.

Part of the graduate period should be spent in other specialized services, particularly internal medicine. This experience will provide essential education in the concepts and techniques of areas of medicine in which he must be soundly educated if he is to fulfill his responsibilities as a primary physician and is to earn and merit the respect of physicians in other specialties. Moreover, experience in the specialized services will foster collaboration, as a resident and later, with members of those specialties.

Part of the period of graduate education should be spent in a comprehensive and continuing care service of the kind described earlier. Experience in this service will allow the resident to work with a variety of patients over extended periods of time, to get an overall knowledge of patients' health rather than of short periods of illness, to follow the same patients into and out of the hospital, to integrate and apply knowledge and concepts learned during portions of his graduate period spent in the specialized medical services, and to assume gradually increasing responsibility for the medical welfare of his patients.

Although previous experience with preceptorships has usually been unsatisfactory, we believe that it may be possible and practical in some cases to arrange for a portion of the graduate period to be spent in a well-supervised preceptorship in a group practice. This arrangement, however, would provide the young physician with realistic and valuable experience only if the group were willing and qualified to assume serious educational responsibilities. Such an arrangement may never become a frequent one, for private groups are normally not organized for educational purposes. Nevertheless, some so situated as to be

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able to collaborate effectively with a school of medicine or teaching hospital may wish to participate in the education of primary physicians. Good opportunities of this kind should be seized, and a variety of experimental programs should be tried.

If the residency is to be spent partly in specialized medical services, partly in the comprehensive care service, and perhaps partly in a preceptorship in a group practice, collaborative planning and supervision of the program will be essential. Corporate responsibility will be necessary to ensure that residents have continuing responsibility during a patient's outpatient and hospitalized periods, that the specialized services make their portion of the residency maximally effective in contributing to the resident's education, and that the portions of the residency program spent in different settings be properly articulated. Again, this means that the institution must accept responsibility. Failure of the program can be guaranteed if responsibility is turned over entirely to a new and segregated service that is merely added to the present organization.

Second, some experience in the handling of emergency cases and knowledge of the specialized care required before and following surgery should be included.

The amount and nature of surgical experience is probably the most contentious question in the training of a primary physician. Some general practitioners who hope their area and traditions will develop into a higher form of comprehensive medical care wish to include at least enough training in surgery to enable management of real surgical emergencies. In an emergency, any physician will do what he feels is required, and if that means surgery, he will do the best he can. But under ordinary circumstances, with the primary physician working as a member of a group, he will not need to act as a surgeon. If as a student and during his graduate years he has had appropriate experience in the operating room and with surgical patients, he will have learned much about preoperative and postoperative care and the emergency handling of trauma. He will have a sophisticated knowledge of many conditions that require consultation with a surgeon and that may call for surgical treatment. But he will not be trained as a surgeon and should not expect to act as one.

Third, there should be taught a new body of knowledge in addition to the medical special-

ties that constitute the bulk of the program.

It is difficult to define this body of knowledge, for it is not yet adequately developed. By analogy with biology, it would include the medical counterparts of ecology, evolution, and fundamental theory rather than the specifics of molecular biology, virology, or the physiology of individual organs.

The young physician preparing himself to offer continuing, comprehensive care needs to know people as well as their tissues and organs, medical histories and relationships as well as individual disease states, medical ecology as well as symptomatology. Work in psychiatry would give him some of this background, and so would some materials from sociology and public health—for example, information on the interrelations of families and illness. But it is not possible to be specific about content, organization, or degree of emphasis, for there has not been sufficient experience with the teaching of the medical applications of these topics, nor is there agreement upon the degrees of relevance of all of the things that might be included.

Much can be learned from patients through working with them on a variety of problems over a period of time.

The good primary physicians now in practice have acquired much of their skill and wisdom from experience, or from intuition. What is needed—and what the medical schools and teaching hospitals must try to develop—is a body of information and general principles concerning man as a whole and man in society that will provide an intellectual framework into which the lessons of practical experience can be fitted. This background will be partly biological, but partly it will be social and humanistic, for it will deal with man as a total, complex, integrated, social being.

This background is not now well developed. Clearly, there must be a considerable amount of experimentation on the part of schools of medicine and teaching hospitals in efforts to arrive at the most satisfactory subject matter and methods of teaching. The immediately important thing is to have a clear and definite resolve to impart this new body of knowledge. The rest will follow. Moreover, there will be opportunities that should be grasped to compare the students who are attracted to comprehensive medicine and do well in it with the students who prefer and excel in the other specialties. It is quite possible that comprehensive medicine will have greater appeal to the more humanistically inclined students and those who prefer the behavioral sciences, while those who find greater satisfaction as undergraduates in physics, chemistry, or biology are more likely to want to enter the traditional specialties. If some such difference should be found to be significant, the implications for admissions policy would be obvious.

Fourth, there should be opportunities for individual variations in the graduate program.

The concept of comprehensive, continuing care leaves room for a variety of shadings of interest and special com-

petence; the graduates of these programs are not to be stereotyped duplicates of each other. Although all primary physicians will be qualified to render continuing and comprehensive care, the dividing lines separating the problems and patients for which a given physician will retain full responsibility from those he will refer to a colleague will vary substantially. If one primary physician has a greater than usual interest in psychosomatic and social problems and another in renal physiology and pathology, the development of those interests will be assets to the groups or clinics in which they collaborate.

Medical educators who are interested in comprehensive care will find many opportunities to experiment on methods of education for this kind of practice and on the means by which comprehensive medical service can best be organized and provided. There are opportunities for research, and for the benefits to patients, students, and faculty that derive from research, in comprehensive medicine just as there are in other specialties.

Fifth, the level of training should be on a par with that of other specialties. A two-year graduate program is insufficient.

It follows that there should be a specialty board, certification examinations, and diplomate status for physicians highly qualified in comprehensive care. In terms of responsibility, length of training, and position in the medical hierarchy, the examinations, privileges, and accouterments of specialization are indicated.

A new board might be established to certify primary physicians. One of the existing boards might assume this responsibility. Or perhaps a different arrangement would be superior to either of these possibilities. The primary physician will be a functional specialist rather than a subject-matter or technique specialist. It may therefore seem

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desirable that he be given recognition by joint action of several existing boards or by an agency different from the traditional boards. Instead of trying to solve this problem now, we leave it to the Commission on Graduate Medical Education described in Chapter 9. 21

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The result of these educational changes should be a growing corps of physicians who qualitatively are the peers of their classmates who chose surgery or some other specialty. The difference will be in the form rather than the level of practice and responsibility. Having a greater breadth of medical interest, they will normally be the first professional contact for a new patient and the continuing point of contact for an old one. To a greater extent than their more narrowly specialized colleagues, they will be diagnosticians and medical coordinators, to whom the primary question will not be, "What can I personally do to be of most help to this patient?" but, "What can I do and what need I arrange to have done by others that will be of most help to this patient?"

It should be clearly recognized that a major, costly, national effort will be needed to educate primary physicians of the quality and in the number needed to provide comprehensive and continuing care to a population reaching up toward 300 million by the time any substantial number can be prepared for practice. The changes in medical attitudes and the changes in schools of medicine and teaching hospitals will require radical breaks with past traditions. To make these breaks precipitously is too much to expect of many hospitals and schools of medicine, but others have already demonstrated their interest. We wish to encourage some medical schools and teaching hospitals to pioneer. Others will follow. Success can be achieved if the faculties and staffs unite in the thoughtful development and support of the necessary educational programs, and if they enlist the cooperation of the ablest practitioners of medicine in carrying them out.

THE PRACTICE OF COMPREHENSIVE HEALTH CARE

If the number of physicians preparing themselves for comprehensive medicine is to increase markedly, obviously there must be opportunities for esteemed and rewarding practice. This problem, however, will not be a serious one if the changes considered in the preceding sections can be made, for the demand for such physicians is great.

The ideal place for a primary physician is in group practice. Practice within a group will encourage the use of specialized colleagues for help in diagnosis or treatment. Group practice will give the patient the advantages of continuing contact with a physician who knows him and his medical history, combined with the advantages of access to a wider array of skills and facilities whenever they are needed.

There is no reason to expect that all primary physicians will be identical in training or interest. Those who feel so inclined can provide comprehensive care to their own patients and offer more specialized services to others. Thus, one physician might be the group's expert on gastrointestinal problems and another be the expert on virology. Depending upon the size of the group and the interests of its members, there will be room for a reasonable range of variation among those rendering comprehensive care.

Group practice will also benefit the primary physician himself. He will have the intellectual stimulation of working daily with other physicians with knowledge and interests that complement his own. Like his colleagues,

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he will benefit from the quality control exercised by able peers. And he will have greater opportunity to take leave for vacations or for special or refresher courses, while his patients are cared for by other members of the group.

Primary physicians would be fully qualified to admit to hospital medical services and should have the same kind of admitting privileges as do present-day specialists. Moreover, through membership on hospital review committees (such as the tissue committee, the medical audit committee, or the hospital utilization committee), they should have a particularly valuable influence in helping to bring about better coordination among the hospital's medical and surgical services.

Men of this stamp are of such value in group practice that there should be no difficulty in convincing students that rewarding opportunities lie ahead for any who wish to prepare themselves for careers as primary physicians.

COMBINED ACTION

The three difficulties that have stood in the way of the more widespread practice of comprehensive medicine low status, lack of an appropriate educational concept and accordingly of educational opportunities, and conditions of practice—have reinforced each other.

These have been real barriers to entrance upon a career of comprehensive medical service, but surely they can be overcome. To a large extent they have developed because of the specialization and fragmentation of practice brought about by greatly increased knowledge and the mastery of new skills and new techniques. Now, in order to bring medicine's enhanced diagnostic and therapeutic powers fully to the benefit of society, it is necessary to have many physicians who can put medicine together again. Chapter 6

Improving Residency Training

The basic soundness of the residency system deserves a strong vote of confidence. Responsible, supervised, and varied hospital experience gives a resident progressively increasing responsibility, opportunity to observe and work with accomplished senior men, experience in solving problems, and practice in using the facilities of a hospital and the special competence of other physicians. A good residency offers opportunities for gaining in technical skill, for acquiring the kind of vocational training that is a necessary and proper part of medical education, and for combining that training with the more abstract aspects of a scientific-medical education. At its best, a residency program permits of much flexibility to adjust to the different interests and skills of different residents and the different facilities and problems of different hospitals and types of practice.

Any basically sound system may, however, have troubles, and this one has its share. The hospitals that offer residencies differ widely in quality, size, opportunity for diverse and progressive responsibility, and in commitment to educational objectives. In some teaching hospitals too

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few of the attending physicians are interested in teaching. In some there is little if any full-time staff. In some the resident's educational experiences and practice are poorly supervised and coordinated. In others the senior staff members are too involved in research to have adequate time for treating patients or for teaching residents. Many hospitals have difficulty in finding patients adequate in number and variety who can be assigned to the residents as their responsibilities.

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A basic problem is the confusion, and sometimes the direct conflict, between the hospital's goal of education and its goal of service to patients. A hospital—any hospital—exists for the primary purpose of housing and providing for people who need medical care. It is organized, equipped, and staffed for these purposes, and must always be judged on the quality of its medical services.

Some hospitals have assumed the additional function of training young physicians. One reason for the spread of residency training to more and more hospitals seems clearly to have been the desire to secure junior staff members to help carry the patient load. A conflict between service and educational goals has inevitably resulted, and this conflict cannot be resolved by contending that service and education are identical, for they are not. The service a house officer renders may be useful to the hospital and its patients, but it will not be maximally useful to him unless it is truly educational, and this it cannot be unless it is consistently planned and thought of as part of his graduate medical education. The governing board and staff of any hospital that assumes responsibility for interns or residents thereby become obligated to offer graduate education of high quality.

House officers may not always be impartial judges of how effectively their time has been spent, but it is perti-

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nent to consider their comparisons of what they have learned with the amount of service they have rendered. In a study conducted by the Bureau of Applied Social Research of Columbia University, only a small minority of the interns and residents felt they were being exploited, yet only about a quarter of them considered what they were learning to be very much worth the time spent providing services for the hospital.¹

There will always be qualitative differences among hospitals and the training programs they offer. Individual shortcomings may never be eliminated. But there are more general faults to consider. One concerns the way in which the residency program is considered by the staff members responsible for its planning and direction. Typically it is planned, monitored, and appraised only by members of one individual medical service; it is treated as the responsibility of an individual service rather than of the hospital as a whole. And sometimes responsibility seems to be centered almost entirely in the single individual who serves as chief of the service.

There may have been a time, when the body of medical knowledge was smaller, when a young apprentice could learn all he needed to know from one older master. Now, no master knows enough; the intellectual content is too great; apprenticeship is no longer satisfactory. The house officer learns from several seasoned physicians, from his fellows, from patients, the library, the laboratory, the journal club, visiting lecturers, and other sources.

Half a century ago it came to be generally recognized that the proprietary, apprenticeship system of training physicians in the vocational skills that were then recognized as necessary could no longer be tolerated. Rather quickly, the requirements for admission to medical schools were elevated, substantial courses in the biomedical sciences were developed, and responsibility for planning and conducting medical education was assumed by medical school faculties instead of by practicing physicians acting individually or in small groups.

It is now time for comparable changes in graduate medical education. After a young physician graduates from medical school, he still has much to learn—much theory, principle, scientific knowledge, as well as much art and skill. No one physician can teach him all he needs to learn. No amount of practice will suffice. Even the best imaginable apprenticeship would be insufficient. He needs a planned, progressive, integrated educational program that benefits from the contributions of a variety of able and imaginative medical scientists and practitioners. This need leads directly to the changes that are recommended in the remainder of this chapter.

CORPORATE RESPONSIBILITY

A first principle to insist upon is that every teaching hospital demonstrate, through its plans and actions, that it understands and has accepted the obligations and responsibilities of an institution giving graduate medical education. The board of trustees, the administrator, and the senior professional staff must recognize that they are assuming a serious and costly obligation above the costs of patient care itself. They must be prepared to devote a reasonable portion of the hospital's resources to the proper discharge of this obligation. Unless a hospital offers a truly educational program, it is not a good place for interns or residents.

We recommend that each teaching hospital organize its staff, through an educational coun-

cil, a committee on graduate education, or some similar means, so as to make its programs of graduate medical education a corporate responsibility rather than the individual responsibilities of particular medical or surgical services or heads of services.

CONTINUITY OF GRADUATE MEDICAL EDUCATION

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A second principle to establish is that any program of graduate medical education should be planned as a unified, progressive sequence. It is not so today. Instead it is two separate stages—an internship and a residency and the connection between the stages is too loose.

Specialty boards require an applicant for certification to have served an approved internship and an approved residency. With one or two exceptions, however, the nature of the internship is not specified. Any internship that continues for a sufficient number of months meets the requirement. The Board of Neurological Surgery requires a surgical internship. A few boards prefer a straight or rotating internship. But with these exceptions, any internship—straight, mixed or rotating—meets the requirement. The specialty boards seem to have agreed that the internship provides a useful year of hospital experience, but that the particular nature of that experience is not important. The residency, in contrast, must meet the specific requirements of a particular specialty board.

The internship was originally devised to give the medical school graduate supervised opportunity to practice applying the knowledge and theories he learned in school. It gave him some, though limited, progressive personal

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responsibility for real patients with real medical problems. This experience was expected to transform him from a student into a physician. In older, simpler years it was accepted as enough, but it no longer is. Initiation into hospital work now begins in the clinical clerkship, which is an integral part of the medical school program. After the internship, in order to obtain the progressive experience in patient care now considered necessary to develop mature competency, residency training is required. The internship, therefore, has come to occupy an intermediate position, overlapping in some respects the clinical clerkship and in others the first year of a residency.

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As a consequence, there has been much change in the way the internship year is used. The classical rotating internship is losing ground to mixed and straight internships, especially the latter, which are, in effect, the first year of a specialized residency.

The question therefore arises: is it necessary or desirable to continue the internship as a separate, freestanding part of medical education?

We recommend that the internship, as a separate and distinct portion of medical education, be abandoned, and that the internship and residency years be combined into a single period of graduate medical education called a residency and planned as a unified whole.

Because state licensure acts usually require service of an internship and in some cases specify its nature, and because certification requirements also include service of an internship, there will be a period of transition during which the name "internship" will have to be retained. Even during this period of transition, however, there can be rapid progress toward unifying graduate medical education into the new kinds of residencies that will span the entire period of graduate medical education.

We recommend that state licensure acts and statements of certification requirements be amended to eliminate the requirement of a separate internship and to substitute therefor an appropriately described period of graduate medical education.

GENERAL AND SPECIALIZED STAGES OF MEDICAL EDUCATION

Abandonment of the separate internship will help to clarify the allocation of responsibility for the general and the specialized stages of medical education.

Medical schools operate on the assumption that a graduate will be qualified to enter any internship, rotating, mixed, or straight, and that his medical school experience has been sufficiently broad, basic, and nonspecialized to prepare him to enter whatever graduate program he considers most attractive.

Some medical educators have advocated the prolongation of undifferentiated education into the graduate period. For example, some would require a rotating internship or an internship in internal medicine for all young physicians, regardless of their later specialties.

As a countertrend, some differentiation is found among schools of medicine and among students in the same school. Large amounts of money for research have led some medical schools to place heavy emphasis upon research and specialization, and this emphasis has become a major reason for the lack of interest among students in preparing themselves for general or family practice and the increasing tendency to prepare for specialized prac-

tice. Thus, so to speak, specialization has already been started during the medical school years. Some students already know the directions they will want to follow later. By the selection of elective courses, clerkships, and topics for individual study, they begin early to prepare for later specialization.

Thus, there is no point that uniformly marks the transition from general to specialized medical education. Many medical school graduates start specialized training immediately after graduation with a straight or mixed internship, and some have begun even earlier to prepare for specialty training. Others, who take rotating internships, defer specialized training for a year or more after graduation.

Intimately involved in this general problem is the length of the whole process. Lengthening of the period of education for physicians has gone as far as it should go. From kindergarten to completion of residency spans 25 years of education. This is long enough, or too long. Future accommodations to advances in knowledge and future efforts to establish higher standards must not require a still longer period of formal education. Two other means should be used. One is to improve continuing education for men in practice so that it will become more systematic, more prevalent, and more effective. If better and more widespread opportunities for further learning are provided to mature practitioners, there will be less pressure for lengthening the period of formal education.

The other improvement is to achieve greater knowledge and higher competence by the time of completion of medical school. There is a strong trend in education to teach topics earlier than formerly. This trend, supported by intensive efforts to improve the education offered at elementary, secondary, and collegiate levels will mean

that students entering schools of medicine can be expected to be better educated than were students of earlier years. By building upon this better preparation, taking advantage of improved methods of instruction, and giving students greater opportunities and encouragement to learn on their own, schools of medicine should continue to complete in not more than four years the general medical education that precedes specialization. The general period should include not only education in basic medical knowledge but also, largely through the clinical clerkship, a supervised introduction to the application of this knowledge to the practice of medicine.

We therefore recommend that graduation from medical school be recognized as the end of general medical education, and that specialized training begin with the start of graduate medical education.

Agreement upon this division of responsibility will make it easier to plan for the future of both undergraduate and graduate medical education.

The statement above that schools of medicine should continue to complete general medical education in not more than four years and the recommendation that graduation from medical school be recognized as the end of the general or undifferentiated period do not mean that we attribute any magical qualities to the number "four" or that we think that the continuous processes of education can or should be completely separated into two utterly distinct stages. Several schools of medicine are experimenting with programs that allow some students to complete their collegiate and medical school work in less than the traditional eight years. Some medical educators have proposed a shortening of the medical school curriculum and the introduction of a greater amount of

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flexibility to meet the needs of students who have different interests and plans. Our use of the terms "four years" and "general or undifferentiated period" is in no way a criticism of efforts to develop more effective and more efficient programs of undergraduate medical education. We are certainly not trying to freeze any medical school into its present mold. We applaud experimentation. N. N

BASIC RESIDENCY TRAINING

Abolishing the internship as a separate and free-standing year of training and incorporating that year into a progressively planned residency will open the way to a greater amount of flexibility and coordination in the planning of residency programs.

The stated requirements for most types of residencies testify to the importance of knowledge in related specialties. Candidates for certification in pediatric allergy and pediatric cardiology must be previously certified by the American Board of Internal Medicine or the American Board of Pediatrics; residents in child psychiatry must already be certified by the American Board of Psychiatry; and those in thoracic surgery must meet the certification requirements of the American Board of Surgery. Each of these specialties is thereby recognized as constituting an extension or a subspecialty of a broader specialty.

Even in cases which do not involve a sequential relationship, the statements of residency requirements indicate the importance of study in related fields. A resident in general surgery is expected to gain experience in several of the specialized fields of surgery. Residents in internal medicine spend part of their time in psychiatry, neurology, dermatology, or pediatrics. Those in psychiatry are expected to be "competent in and responsible for the medical examination and treatment of their patients." Residents in orthopedic surgery are advised, and those in otolaryngololgy are required, to have a year of residency in general surgery. In short, no specialty is an island unto itself, complete and independent of other specialties.

It is possible for each medical service to teach its own residents the selected portions of neighboring specialties considered most essential. It is also possible for residents in one specialty to spend a portion of their time in a related service. Both methods of teaching are widely used, and both have shortcomings. The danger of the first procedure is superficiality and of the second, disjointedness and repetition.

Both dangers may be reduced by organizing those elements of residency training that must be mastered by residents in several related specialties into a basic program common to those specialties.

Residents in obstetrics and gynecology "must understand and be trained in the care of emergencies, shock, hemorrhage, blood replacement, electrolyte and fluid balance, protein and nitrogen balance, choice of anesthetics, chemotherapy, acidosis and alkalosis, wound healing, etc."2 Residents in other surgical specialties must also understand and be trained in these matters. Part of the necessary understanding and training can be acquired in the undergraduate years. Part probably must be reserved for the training and experience that are unique to a particular specialty. In between lies a substantial area that could be planned as part of the education of residents in several related specialties. For example, a period of fundamental training in general surgery (two to four years) before branching into the specialized surgical areas is advisable, and a basic period of perhaps two years in medicine would

advantageously precede branching into the medical specialties. It is not necessary that only two basic residency programs be considered. Perhaps some other number, some other way of grouping specialties, would offer greater educational advantages. ويتخبل

This recommendation has been made many times. As long ago as 1945, representatives of five of the surgical specialty boards agreed that basic surgical training was an essential prerequisite to sound training in all of the surgical specialties. Despite this agreement in principle, the boards could not agree upon the details of a plan to put the principle into effect.

Most residency requirements permit great flexibility with respect to specific content, methods of teaching, variety of experience, and organization of the program. From this standpoint there is little to inhibit a hospital from exploring the possibility of a basic residency training with subsequent branching into more specialized training. In another respect, however, the stated requirements impose some limitations. Generally speaking, a residency program is not approved unless it is directed by a senior physician who is certified or recognized as highly qualified in the particular specialty. Modification of this requirement would be necessary to permit residents who plan later to enter several different specialties all to take the first portion of their residency training in a program common to those specialties.

The details of this proposal must be determined by the staffs of individual hospitals, and it is desirable that the details be neither rigid nor uniform from hospital to hospital. Neither is it essential that all specialties within a group branch off the common stem at the same time. A hospital might find it profitable to organize a basic program for residents in four specialties, to have residents in two of these specialties leave the basic program at the end of two years to begin concentrated training in their specialties, while residents in the other two specialties continued together for another year before separating.

Three advantages should accrue from such basic residency programs. One is combined planning. For example, gynecologists, orthopedists, and other specialized surgeons as well as general surgeons would jointly plan the basic surgical residency. In general, teaching physicians in related groups of specialties would be forced to give concerted thought to what they wished to include in their residency programs and how the agreed upon content could best be organized and taught. This is always a healthy exercise.

The second advantage is that gaps and redundancies would become evident. Sending residents around from one service to another is likely to result in several repetitions of the same material at about the same level of detail. Better organization might save time and enable the student to reach a greater depth of understanding.

The third advantage would lie in the better utilization of the patient population for teaching purposes. There would be less compartmentalization of patients of particular types, greater flexibility in their use, and thus opportunities for broader and more varied experience on the part of each beginning resident. As an example of present difficulties, one consultant informed the Commission that "Because of the divisions of training programs and surgical staffs, the general surgery resident is not allowed to gain experience in pelvic surgery. Each service jealously guards its domain and sees to it that there is no crossing of lines." There should be some crossing of lines. A basic surgical residency prior to later specialization would make that posssible.

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We recommend that hospitals experiment with several forms of basic residency training, and that the specialty boards and residency review committees encourage experimentation by interpreting liberally those statements in the residency requirements that now inhibit this form of educational organization.

The desirability of basic residency programs seems clear. In fact, it almost seems axiomatic that with proper basic training in medicine or in general surgery the trainee will learn his subspecialty more rapidly and more efficiently. But no one can foretell with assurance the ideal duration or number or organization of basic residency programs. Experimentation is therefore in order, and we encourage teaching hospitals to undertake a variety of experiments.

THE DURATION OF RESIDENCY TRAINING

Most young physicians now spend four or more years in internship and residency training. The time has been lengthening in response to three factors: the growing amount to be learned; hospital needs for house staff; and the attitude that "my field is more difficult than yours, so the residency should be longer, and anyway a long residency looks good and adds to prestige."

Only the first of these reasons has any legitimacy. Hospital service is an important problem, but a separate one. A certain amount of rivalry among specialties is commendable, but residents should not have to pay the bill. Only the educational values should be considered in determining the length of residency training.

If the internship, as a separate part of graduate medical

education, is abolished and if the residency period begins immediately following graduation from medical school, there should be opportunities to shorten the length of graduate medical education. It is not clear that a full year would be saved in all specialties, but it is quite possible that abolition of the internship, together with the development of the basic residency period recommended above, would allow that much saving.

It is too soon to state with assurance just what changes in normal or average duration would be possible or desirable. Decision can be postponed for a time, for there is an alternative procedure that has merit in its own right.

We recommend that the specialty boards, in amending their regulations concerning eligibility for examination for certification, not increase the required length of residency training to compensate for dropping the requirement of a separate internship. This can be done by retaining present wording concerning length of residency training and deleting statements concerning internship training.

This recommendation does not propose that every resident finish a year sooner. It merely proposes that the formal requirement of internship plus residency be shortened by a year. Residents vary in ability, in the speed with which they learn, and in the amount of time they wish to devote to research or to more extended opportunities to study particular areas of their specialties. The resident and the physicians under whom he is working can exercise judgment concerning the length of time he should spend in residency. Reducing the formal requirement would not suddenly shorten the training period of all residents. It would permit shortening for those who could successfully complete the program in less time. Now,

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with rare exceptions, the best and the poorest all serve the same time.

The American Board of Neurosurgery has been experimenting with a technique that merits broader trial. With the help of the National Board of Medical Examiners, a written examination for prospective neurosurgeons is given during the course of their residency. These examinations have no weight in later applications for certification; they are progress examinations, the results of which are communicated only to the individual and to the head of his training program. To both they offer guidance on how the remainder of the residency period can most profitably be spent, or whether it should be extended.

Through the more widespread use of such examinations, through elimination of the internship, through the wise use of opportunities for basic residency training, and —most fundamental of all—through consistent and clearheaded emphasis on the educational values involved, the time required for graduate medical education can be shortened for many physicians. It should even become possible to use accomplishment instead of time as the criterion for completion of graduate medical education. Chapter 7

The Teaching Hospital

A hospital that offers programs of graduate medical education must meet the requirements described in the annual Directory of Approved Internships and Residencies published by the American Medical Association. Some of the major requirements that will have to be altered or given additional emphasis, if the recommendations of this report are adopted, are discussed below.

SIZE OF PROGRAM

If the first year of graduate medical education is no longer treated as a distinct and separate internship, one corollary will be the elimination of internship programs from approximately 70 hospitals that now offer the internship but no residency training.

We recommend that programs of graduate medical education be approved by the residency review committees only if they cover the entire span from the first year of graduate medical education through completion of the residency. (This does not mean that each teaching hospital should be required to offer programs in all specialties.)

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Interns and residents learn from each other and from more experienced residents, as well as from their patients and the senior members of the staff. The opportunities for learning are enhanced if the number of interns and residents working together exceeds some minimum number.

Moreover, the opportunities for learning in any one specialty depend not only upon the size and quality of the staff in that specialty but also upon the quality of the related medical services and laboratories in the hospital and upon the other facilities for medical education,

We recommend that programs of graduate medical education not be approved unless the teaching staff, the related services, and the other facilities are judged adequate in size and quality, and that, if these tests are met, approval be formally given to the institution rather than to the particular medical or surgical service most directly involved.

This recommendation means that a residency program should not be evaluated or approved by itself. The qualifications and facilities of the particular medical or surgical service directly responsible for each program must of course be considered. But consideration should also be given to related laboratories and services, to the way in which the hospital plans and conducts its educational activities, and to the way in which the particular program fits into the hospital's total educational effort. All of this means that the hospital, rather than its individual services, is responsible for the quality of its residency programs. Consequently, approval should be given to a hospital for residency training in designated specialties, instead of to the individual residency programs of that hospital.

Acceptance of these recommendations will mean that

some smaller hospitals now offering internship or residency training will not continue to do so. The residency programs in some small hospitals include so few students that the individual house officer is likely to learn less than he would in a hospital with a larger number of students. The hospital that provides graduate training to only a few students is likely to have to choose between giving a mediocre education and paying dearly for the privilege of being a teaching hospital. If all of the costs were counted, it seems probable that many small hospitals would be financially better off if they were to stop offering residency training and forthrightly employed nonstudents for the house staff.

Some small hospitals, however, may be able to provide valuable training for a portion of a residency program. In such instances the small hospital could well provide part of the training of a residency program planned and offered by a larger, nearby hospital qualified to offer full residency training.

PATIENT POPULATION

It goes without saying that a teaching hospital must have a patient population adequate in size and variety to support an educational program. Beyond this basic requirement, however, there are further problems with the patient population and the assignment of cases to house officers.

The decreasing number of free or ward patients constitutes a widely recognized difficulty for graduate medical education. Patients who enter a hospital with insurance or prepayment plans are likely to be the private patients of an attending physician or a senior staff member. If

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they cannot be assigned to house officers, the educational program is bound to suffer. Hospitals are trying various arrangements to meet this problem—for example, the use of patients assigned to a service rather than to an individual staff member, the use of members of the families of the hospital or university staff, the offer of medical services to all persons living in a designated geographical area, explanations to private patients that "My assistant, Dr. Jones, will be responsible for . . .," or other means of compensating for the lack of ward or free patients.

We encourage teaching hospitals to face this problem frankly and to inform prospective patients of the nature of the arrangements. Patients should understand that the medical service offered by a teaching hospital is not worse than the service available elsewhere, but is likely to be better, for the residents make a positive contribution to the quality of medical care. They are competent. They have access to highly qualified senior men. The senior men are eager to let the young physician have responsibility, but are available, whenever necessary, to help him to solve his problems. Achievement of the hospital's educational objectives requires the teaching staff to give the best medical care and services it can to patients who are used for teaching purposes.

Even when the patient population is adequate in size, problems arise in the assignment of cases to individual house officers. The specialization of residency training and the assignment of residents to specific services lead to many complaints that although a resident may see a sufficient number of cases he does not see an adequate variety. If all of the gynecological cases go to one service and all of the colon and rectal cases to another, and neither are available to the resident in general surgery, the surgical resident simply cannot be as well trained as he would be had he opportunities to work with a wider range of cases.

The solution of both of these problems requires that all patients who are admitted to a teaching hospital be available for teaching purposes.

The traditional difference between a paying patient and a free patient has been that one paid his own bills and the other did not. Now this distinction is breaking down as more and more patients enter the hospital under insurance, prepayment, or government programs. Medically, the patient who pays all his own bills, the growing number of insured patients, and the dwindling number of charity patients are indistinguishable, and from the standpoint of medical education also there should be no distinction. Whatever their financial means, patients who want the advantages of treatment in a teaching hospital know that physicians have to be trained, and should accept the social responsibility of providing opportunities for their training. Practicing physicians, too, must adapt to the disappearance of the free patient and recognize that the training of future physicians now requires hospitals to use paying patients for educational purposes.

THE TEACHING PHYSICIAN

Some critics of existing arrangements have argued that all medical education—both undergraduate and graduate —should be in the educational environment of the university and under its control. It is unlikely that this argument will prevail, yet one of the grounds of the argument must be taken into account by any teaching hospital, whatever its relation to a university. The internship-residency period is not simply an apprenticeship. It is not junior-grade medical practice. It is a period of graduate

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education in a complex and difficult profession. The criteria for selecting the physicians responsible for this form of graduate education should be essentially the same as the criteria thought to be proper in selecting faculty members in other professions: scholarly accomplishments. successful experience, teaching ability, creative contributions to the field, and enough interest to be willing to make a substantial commitment of time and energy to teaching. Not all of these attributes are easy to measure. and there are many arguments over their relative importance. There are no easy rules of thumb whose use will assure the selection of excellent faculty members in any educational field. But the criteria mentioned-being the best we have-should be used, and the educational objectives should be kept clearly in mind in selecting teaching physicians. Technical ability may deservedly give a physician a high reputation or a busy practice; but it does not, alone, qualify him as the right man to teach house officers. Performance and teaching are not the same.

Chapter 8

The Role of the University

In order to avoid any misunderstanding, it is necessary at the outset to say that graduate medical education cannot and should not, now or in the foreseeable future, become entirely a university responsibility. University hospitals are in no better position to provide all graduate medical education than they are to provide all of the hospital services that are needed. They do not have the space and facilities for all of the residency programs that are necessary. They do not have the number and often do not have the variety of patients who are needed. Many university hospital staffs are deficient in some of the kinds of interest and experience that should be represented among the teachers of the next generation of practicing physicians. The continuing need for teaching hospitals not part of a university must be clearly recognized. But this chapter-unlike all others in our report-is about the special responsibilities of universities and university medical centers for graduate medical education.

EVOLUTION OF MEDICAL PRACTICE

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merit of helping to solve specific problems. Collectively and cumulatively they have the greater merit of moving medicine to a deeper level of understanding and a new mode of practice.

Medical practice used to be largely symptomatic. Medical education was then primarily empirical and consisted largely of learning remedies to treat symptoms.

Now, some disease mechanisms are understood, and the disturbed bodily processes can be controlled or altered in desirable directions. The advance from knowledge of symptoms to knowledge of mechanisms led directly to large changes in medical practice, and required medical education to give great emphasis to biology, biochemistry, and the normal and pathological functioning of organs and systems.

The next great advance, from an understanding of mechanisms to an understanding of causes, is under way but far from complete. We have sometimes talked of mechanisms as if they were causes; and for some diseases induced by simple or single causes, such as invasion of the body by an identifiable disease agent, the primary cause is understood and in some cases can be controlled.¹

There are other diseases, however, that result from unknown and probably from multiple causes. Many disturbances of cellular growth and differentiation, rheumatoid conditions, and psychiatric conditions are examples. The symptoms have been described, but symptomatic treatment is insufficient. Some of the disturbances of process are recognized, but cannot be controlled because the causes are unknown. Control, cure, and prevention await understanding of the underlying causes, their interactions, and their varying manifestations.

The factors that "cause" disease in this more complex and fundamental sense will almost certainly not all be found in the study of any one discipline. Some of the factors are primarily biological, so many of the branches of biology must be involved in the search. So must chemistry and physics. But so also must psychology, sociology, and the other fields that inquire into man's nature, habits, emotions, and interrelations with his family, his society, and other men. And so, too, must be fields of study dealing with geographic, climatological, and other aspects of the environment in which man develops and lives. In such complexity, many diseases may have no single cause. The "cause" may be a pattern or combination of chemical, biological, psychological, sociological, environmental, and developmental variables.

Full exploration of such many-variable problems will require medicine to join forces with other departments of the university, for no hospital and no school of medicine has adequate resources of experience, interest, and talent to study all of the elements involved. Collaboration with other branches of the university will also be necessary to develop the preventive, therapeutic, and reparative techniques that will be made possible by a fuller understanding of the manifold and interrelated causes of disease.

Both in research and in patient care, hospitals are beginning to make use of computers and the mathematical, logical, and electronic bases upon which they are developed. Clearly, medical research and medical practice are becoming partly dependent upon disciplines that have not in the past been part of the medical school or the hospital.

If the supply of talent were sufficient and the budgets large enough, research workers and technicians from these other fields could be brought into the hospital in supporting roles. But neither condition exists, and even if they did, that solution would be less fruitful than a partnership of equals, for in a university—rather than in subsidiary

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positions in a hospital—are to be found the research leaders, the constant stimulation of new ideas, and the best opportunity to educate students of top quality.

THE UNIVERSITY AS INNOVATOR AND TEACHER

University medical centers have provided academic standards and an intellectual environment that have been of tremendous advantage to medicine and medical education. They, and other teaching hospitals that have become great research centers, will continue to be leaders in the improvement of medical education and practice. There are three principal ways in which they can assist other teaching hospitals.

One well-established method is the education of new teachers. The residencies and fellowships at university medical centers attract able young physicians, many of whom later move to other hospitals where they can devote a substantial portion of their time to teaching and research.

A second well-established export from university medical centers is a flow of new knowledge. Research results are usually published, but the opportunity, and the obligation, of the medical center must go beyond the publication of research to include further development, clinical testing, and perfection of techniques that make the new knowledge available for practical use by any qualified physician. In the university medical center are to be found the best translators and combiners of medical knowledge and medical art or skill: the scholar-surgeon, the professor of medicine who might just as appropriately be the professor of biochemistry, the Ph.D.-M.D. research workers,

the physician who has attained high status as a basic scientist. It is in the university medical center, with its rich and varied clinical and intellectual resources, including men who combine in themselves mastery of the art of medicine and the science of medicine, that new knowledge can best be translated into new skill, the new skill tested, and the combination of skill and its relevant knowledge made ready for export to other teaching hospitals and to practicing physicians.

The third contribution of university medical centers to other teaching hospitals differs from the first two in being largely a future opportunity rather than an established custom.

One of the most valuable of all recent developments in education has been the organized efforts of groups of scholars and teachers to prepare new and greatly improved teaching materials for widespread use by other teachers. This movement started as a rebellion by a few mathematicians against the fact that the curriculum in mathematics, from the primary grades into college, had remained almost completely frozen for half a century. Mathematics had changed, and so had the needs for mathematics by engineers, scientists, social scientists, and others. Yet the same old courses were being taught, and newly published textbooks were hard to distinguish from older ones. With grants from private foundations and the National Science Foundation, several groups of mathematicians and mathematics teachers set out to make a thorough, imaginative overhaul of mathematics instruction at the high school level. The result has been really new textbooks, new in ideas and content as well as in name, supplementary readings for teachers and students, films, and other teaching and learning aids that can be used by many teachers in many schools.

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Instead of continuing to lament the fact that the runof-the-mill teachers are not as well trained and as well acquainted with new developments in mathematics as would be desirable, the developers of the new mathematics courses recognized that these were the only teachers available, that they were going to continue to teach mathematics to the nation's youth, and that the quickest and surest way to help them to improve was to put into their hands just as excellent teaching tools as could be constructed. Thus was born "the new math."

The idea was so obviously a good one that before the mathematicians were well under way it spread to physics, then to chemistry, biology, and later to the earth sciences, geography, social studies, English, and other fields. The idea has also been extended downward to the elementary grades, upward to the college level, and outward to other countries.

Why not try the same idea in graduate medical education? In each past extension to a new level or a new field, it has been necessary to start from scratch to produce the actual teaching materials. Only the basic method of close and intensive collaboration between experts in the subject matter and experts in teaching has remained the same. The choice of materials, the method of organization and presentation, and all of the other details have had to be custom made for each new subject matter and each new age group involved. And so it would be in graduate medical education. Much work would be involved and the bill would amount to quite a few million dollars. But the idea is worth trying.

University medical centers, aided by faculty colleagues who have had experience in developing some of these new teaching materials in other fields, constitute natural centers for initiating the development of improved methods of medical teaching and improved teaching materials. If their work is successful, the product can be exported to any hospital that wishes to improve its programs of graduate medical education.

Because conditions and residents differ in different hospitals, and because reasons of economy and efficiency argue against many expensive and time-consuming efforts running concurrently in the same field, it would seem reasonable for a consortium of university medical centers and other teaching hospitals to join in the initial development, trial, and revision of the new ideas and teaching materials.

We recommend that staff members of university medical centers and other teaching hospitals explore the possibility of organizing an intensive effort to study the problems of graduate medical education and, where such development appears feasible, they seek to arrange for the development of improved materials and techniques that can be widely used in graduate medical education.

NETWORKS OF HOSPITALS

Partly as a result of congressional action and partly through the evolution of medical thought and custom, it seems altogether likely that hospitals will become more closely organized into integrated networks. A university medical center is likely to be at the heart of each such network. Also involved will be the medical center's affiliated hospitals (which, by definition, are hospitals in which medical students serve a clinical clerkship or receive some other portion of their education) and other hospitals,

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some of which are teaching hospitals and some of which are not. Such networks will facilitate communication and cooperation in the treatment of patients and in the dissemination of improvements in medical education.

The size and nature of these networks and the relationships among the hospitals composing them will undoubtedly vary. Whatever the specific arrangements turn out to be, the needs for hospital service, for consultation, for access to equipment too expensive for every hospital to own; the opportunities presented by high-capacity, highspeed computers to store great quantities of detailed information and to make that information available wherever and whenever it is needed; and the need for a variety of opportunities for the education of medical residents all support the logic of closer ties of university medical centers, other teaching hospitals, and nonteaching hospitals. There are advantages to the hospitals and to their patients in this hospital analogue of group practice.

HEALTH CARE

Many physicians who are not content with the provision of a repair service when illness strikes share the dream of a more encompassing and far-reaching health service. Their goal is to prevent illness, to maintain each patient in as near optimum health as can be achieved. Sanitation, immunization, public health measures, dietary instruction, and physical fitness programs are all steps in this direction. But there are other steps to be taken.

In progressing from the treatment of symptoms to an understanding of some disease mechanisms and the ability to control some disease processes, medicine profited immeasurably from its alliance with biology and chemistry. Medicine, in effect, asked these disciplines, "What can you do to help us?" and got a magnificently effective answer.

The development of a successful system of health care will require medicine to ask of other disciplines: "What can you do to help us?" Keeping a population in as good health as possible will require cooperation with agriculture, nutrition, engineering, architecture, the environmental sciences, sociology, psychology, economics, education, and perhaps other disciplines. No one can foretell just what may be required, for some of the questions have not yet been formulated. But if people are to be kept well, consideration must be given to anything that might contribute to making them ill.

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There will be research of a multidisciplinary nature. There will be health or medical questions that can be answered only by the methods of other disciplines. As a simple but often overlooked example, the patient's interpretation of his physician's instructions may be quite different from what was intended. The physician may not realize how greatly he and his patient differ in customs, habits, values, and even in the meaning they give to words he thinks they are using in common. One recent study of the interpretation of labels turned up the alarming finding that a respectable number of the persons questioned thought that the indicated "antidote" was something they should mix with a preparation before using it. There could be some fruitful collaboration between medicine and English.

The university is the only institution in which medicine can find all of the intellectual partners it needs in developing the concepts and the techniques of a broad program of health care.

In the course of time, material from disciplines now

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only remotely related to medicine may come to be incorporated as standard parts of medical education. During the exploratory years, while medicine is finding out what it can usefully learn from these other fields and while they are finding out how they can most usefully answer medicine's question, "What can you do to help us?" the geographic proximity and the traditions of the university will provide the most favorable opportunity for the collaboration that can lead to an effective program of health care.

CONTRIBUTIONS TO OTHER FIELDS

The science and art of medicine will benefit from closer collaboration with the rest of the university, but the advantages are not all in one direction. Teaching and basic research often gain in vitality and significance by contact with practical problems. Pure biology has profited from work done for medical or agricultural purposes. Physics has benefited from engineering. The study of linguistics was advanced by military needs for improved teaching of languages.

The interplay between medicine and other disciplines involves more than an exchange of specific contributions of knowledge or technique. Exchanged also—and sometimes extended and improved in the process—are points of view and methods of analysis and thought. Communication theory, the concept of homeostatis, the ideas of Sigmund Freud, and methods of rigorous experimental design—to cite four quite different examples—illustrate how profoundly ideas from one field may permeate and stimulate other fields.

Of all the institutions that have been developed by man, the university is the one that best fosters continuous intellectual interchange. David Goddard, Provost of the University of Pennsylvania, told the participants in the 61st Annual Congress on Medical Education that a university is "a more invigorating intellectual place when it has a great medical school as a part of it." It is equally true that a medical school is more invigorating intellectual place if it is part of a great university.

NATIONAL GOALS

Science, technology, industrial organization, management skills, and wealth have reached levels which now permit the United States to choose major national goals and to move toward them with concerted effort and with expectations of success. The largest and most costly peacetime example is the effort to send a man to the moon and to return him safely to earth. The cancer chemotherapy program and the current planning for a highspeed ground transportation system for the heavily populated area from Boston to Washington are other illustrations of large, costly national programs.

The wisdom of these programs has sometimes been debated. Each has its defenders, and each its critics. Future national programs will also be debated. But man is an explorer. He tries to do what he thinks he can do. And man in the wealthy, industrialized, technologically and scientifically competent United States is beginning to think that he can shape the world to his own desires: exploit the wealth of the sea and the sea bottom; exert substantial control over the weather; design a much more productive food system for the world; control population growth; develop an improved system of health care; routinely repair, replace, or provide substitutes for failing

human organs; control the pollution of air, water, and land; remove the blight from large cities; and even, perhaps, modify heredity and improve intellectual ability by biochemical means.

Some of these hopes may be overoptimistic. Some may be undesirable. All will be costly. Before embarking on any, it will be necessary to study the costs, alternative methods, probable results, interactions, and possible dangers or side effects. And then the results of these detailed studies will have to be synthesized to provide a sound basis for the many economic, engineering, social, and political decisions that must be made.

No one of these large problems is solely a medical matter, but most have their medical aspects. Medical thought can contribute, and the decisions concerning them will have implications for medical thought and practice.

None of these problems is solely an engineering problem, or a scientific problem, or an economic one. All will require contributions from many disciplines. The multidisciplinary work that will be necessary in research, systems analysis, feasibility studies, and forecasts of social, economic, legal, and ethical consequences may be conducted in government institutions. Perhaps the work will be done in institutions specially created for the purpose. Perhaps universities will be the responsible agents. Whereever primary responsibility lies, universities, industry, and government will all be heavily involved.

Planned, integrated, directed studies of this large-scale multi-disciplinary character are foreign to the traditional university. In some ways they are in direct conflict with the concept of a community of scholars, each pursuing his own self-chosen objectives and working on his own selfselected problems. But they are unlikely to be foreign to the university of the future, for the university has the necessary intellectual resources, and it is in the university that future generations of scholars can best be educated for more effective work on such large problems.

Those universities that choose to devote part of their talents to work on such large problems will find, to a greater extent than before, physicians working with electronic experts, engineers with economists, sociologists with lawyers—and on through a variety of groupings of two, three, or more of the traditional disciplines. Varied organizational devices will be used; institutes organized about a problem rather than a discipline, interdepartmental seminars and committees, the appointment of faculty members to serve simultaneously in two or more departments, and other, not yet invented, devices are likely.

The geographic proximity and the habit of intellectual collaboration provided by a university will foster the development of effective linkages of medicine with all the other disciplines and professions involved. Close linkages will be necessary to assure effective collaboration and to guard against costly and perhaps calamitous error.

THE UNIVERSITY MEDICAL CENTER AND GRADUATE MEDICAL EDUCATION

Methods of improving the university contribution to medical education have been discussed in this and earlier chapters. University medical centers should be among the pioneers in establishing the facilities for teaching comprehensive and continuous medical care, as described in Chapter 5, and in developing corporate responsibility for residency training and in initiating new programs of basic residency training, as described in Chapter 6. Through such means the university hospital can be a model for

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other hospitals. As suggested earlier in this chapter, it can be of direct assistance to other hospitals by helping them with their training programs and by making available for export the best teaching ideas, procedures and materials which can be developed.

So far as we can see into the cloudy future, it appears that the need for close union will grow more urgent. Knowledge will continue to grow, in medicine and in other fields. Further growth in knowledge means further specialization. Further specialization leads to greater fragmentation and to greater dependence of one specialist upon another. As fragmentation and mutual interdependence increase, it becomes necessary to establish additional means of collaboration and communication among the various specialties. And all of this means that the minimal number of people necessary to constitute an adequate medical school faculty, hospital staff, department of physics, or university faculty grows larger.

The increasing cost of increasingly powerful equipment and, in medicine, the increasing sophistication of medical care constitute a second force operating to bring about larger groupings. Equipment too expensive for a few workers can be an economy for a larger number. A computerized information system unjustified for a small hospital may greatly enhance efficiency in a larger one. Some highly specialized facilities are so expensive or needed so infrequently they can be justified only on a regional basis.

Trends now evident will grow stronger and clearer in the future: regional groupings of hospitals; collaboration of the medical center with other parts of the university; the university medical center as the center of a network that brings the resources of many disciplines, many specialists, many kinds of information, and many specialized services to the benefit of patients in its own beds and in the beds of other hospitals in the network. These trends will continue, for the growth of knowledge must lead through specialization and fragmentation to a higher order of organization which will enhance the ability of many kinds of specialists to work together on the problems that are the reason for their existence.

The broad outline of events to come makes it essential that the relation between the university and graduate medical education become closer than it now is. Further advances in knowledge will bring about greater understanding of the multiplicity of causes and of their interrelationships in determining the course and nature of disease processes now only imperfectly understoood. The increasing sophistication of medical care and practice, progress toward health care as the highest form of medical practice, the deepening intellectual ties between different fields of research and scholarship, and the collaboration essential to working on large programs, all, without exception, call for a closer union between medical education and the university. And this closer union will require change and adaptation in the university to enable it to make its full contribution to the improvement of health care.

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Chapter 9

Supervision of Graduate Medical Education

In some fields of learning such as history or physics, the members enjoy the privilege of setting their own standards and of determining who is qualified for admission to their guild. The judgement of peers, usually based primarily on scholarship or research productivity, establishes standards and controls admission. External or legal controls are considered neither necessary nor appropriate.

But practicing members of a profession are not so free. Because they offer services directly affecting the health, finances, or welfare of the people, society properly requires certain standards and controls. Standards are usually established by the profession, to protect society and the profession itself. Government effects controls, which usually begin at the time of decision as to whether an aspirant will be permitted to enter professional practice. Thus, society—through the agencies of government—has established certification or licensing procedures to determine who is to be allowed to practice law, medicine, and certain other professions.

In the case of medicine, the standards and controls are many and varied, are imposed at different stages, and are administered by different authorities.

Admission to medical school is under medical school control.

Admission to practice is a function of the individual states. The existence of much reciprocity and widespread acceptance of the National Board examinations as the equivalent of a state's own examinations does not lessen the state's authority or responsibility.

Approval of an internship program is a responsibility of the American Medical Association's Council on Medical Education, aided by the Internship Review Committee.

Approval of a residency program is granted or withheld by a residency review committee appointed by the Council on Medical Education, the appropriate specialty board, and, in some cases, a college or society of the appropriate specialty.

Admission to an internship or a residency is at the discretion of individuals or departments of the hospital.

Certification as a specialist is granted by an examining board consisting of members of the specialty.

Who may practice in and use the facilities of a hospital is determined by the trustees of the hospital. Their decision is often based upon the physician's eligibility for board certification.

Thus responsibility shuttles from medical school to hospital to the state to the American Medical Association to a specialty board and related medical societies to the hospital and back to a specialty board. The elements of this governing structure were developed at different times, to meet particular needs. Each has been constructive. Yet it seems unlikely that anyone would design from the beginning a system of such diffuseness and complexity. The fact that it has evolved as it has imposes certain limitations on the ways in which it might be changed. It is impossible to start completely afresh, but it should be possible to achieve some major improvements.

Unnecessary complexity is a barrier to change, and society is growing impatient with the situation in medicine, largely because this complex structure has so impeded needed change.

Moreover, when complexity is compounded by fragmentation, inbreeding is likely to become a further barrier to change. The same relatively small and relatively homogeneous group of physicians who attained success in a particular specialty are leaders in determining internship and residency requirements and certification standards in that specialty. Such an inbred system tends to perpetuate the methods, the standards, the successes, but also the shortcomings, of the system under which the leaders obtained their training, and tends to make change difficult to effect and sometimes even to consider—and this in a profession in which continuing infusion of new knowledge makes continual change imperative.

That the whole complex system works as well as it does is to the credit of the Council on Medical Education and a goodly number of medical educators who use their overlapping appointments and concurrent responsibilities to achieve a greater degree of coordination than the formal description of the system would lead one to expect. The same men who serve on the faculties of schools of medicine often serve on internship and residency review committees and on specialty certification boards. Faculty members sometimes serve as members of the staffs of affiliated hospitals in which internship and residency training is offered. The coordination resulting from this informal network is greater within the group of specialists responsible

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for the several levels of education, and for certification in one specialty, than it is among the several specialties.

THE NEED FOR CONTINUING REVIEW

New knowledge, new medical opportunities and possibilities, new social demands come at such a pace as to require continuing review and continuous efforts to improve graduate medical education.

If there is to be continuing review, there must be an agency that is qualified and authorized to exercise leadership and assume responsibility. The Council on Medical Education comes closest to being that agency, but it now shares responsibility with many other agencies, each of which is partially responsible for a small portion of the total. Their efforts to improve graduate medical education have been commendable and partially successful, but too fragmented to be completely effective. What is needed is a central body with greater authority than the Council on Medical Education now enjoys, one deeply concerned with all of graduate medical education and possessed of enough knowledge, prestige, and authority to secure more unified planning and better articulation of the parts.

The suggestion that such a central body be established will be interpreted as a threat to the independence of many of the agencies and organizations that now have responsibility for some part of graduate medical education. This interpretation will be correct; the purpose of the proposal is to reduce the independence of a number of existing bodies in order to achieve a more effective and flexible organization.

The traditions of the American system make it clear that the central body we are proposing should be established by voluntary action of the medical profession. The functions of review, coordination, and improvement of educational programs are professional, not governmental, responsibilities.

The medical profession must have primary responsibility, but where and how, within the formal structure of medicine, to establish this new body will require medical statesmanship of a high order. It must have widespread confidence and support within medicine. The public must feel confident that the interests of society are guaranteed. The new body must be responsible to medicine as a whole rather than to particular segments or specialties. It must have enough independence to be innovative and courageous and enough authority to be effective.

The Council on Medical Education of the American Medical Association comes closer to meeting these criteria than does any other existing agency. But we doubt that the Council on Medical Education should be asked to add to its present load by assuming all of the new responsibilities involved.

The hospitals, either individually or collectively, are not the proper agency to be given sole responsibility for determining standards and patterns of education. Their primary purpose is not educational.

The individual universities and schools of medicine might once have seemed the logical institutions to assume control, but they chose not to accept that responsibility, and there is little evidence that they would be willing to do so now, or that the other interests involved would be willing to grant them the authority.

The Association of American Medical Colleges is the agency recommended for this purpose by the Coggeshall report. Although there would be a number of advantages in having that organization extend its interest to include

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the period of graduate medical education, it is to be doubted that the assignment of sole responsibility to the AAMC would be acceptable to the other interested parties, or that this arrangement would give adequate representation to the legitimate interests of those parties.

The specialty boards and medical societies that limit their membership and activities to a particular segment of the medical spectrum are, by virtue of that limitation, not appropriate agencies to assume responsibility for the whole range of graduate medical education.

In short, no existing agency seems to be entirely suitable. We therefore recommend that a newly created Commission on Graduate Medical Education be established specifically for the purpose of planning, coordinating, and periodically reviewing standards for graduate medical education and procedures for reviewing and approving the institutions in which that education is offered.

In establishing the Commission on Graduate Medical Education, there are three major problems to consider: the composition of the Commission; the qualifications of members; and the method of their selection.

In order to give the Commission an efficient working size, we recommend a membership of ten, whose five-year terms will be so staggered as to provide for the appointment of two members each year. In order to insure a reasonable rate of introduction of new members and new ideas, we think it desirable that a member who has completed a full five-year term be ineligible for reappointment during the two years following the expiration of that term. Some of the original members will of necessity be appointed for less than a full term, and later it will from time to time be necessary to replace members who have died or resigned. We believe that a member whose initial appointment was for a partial term should be eligible for immediate reappointment for a full term.

The Commission should include members drawn from different fields. Experience in medical education and in the delivery of medical care should both be represented. Although physicians will probably always constitute a majority, there are medical educators from the sciences basic to medicine who should be expected to serve. Some members should come from outside of medicine. Medicine is a public profession, intimately related to higher education, dependent upon private philanthropy and public funds for support, and linked in many ways with the society it serves. Medicine will benefit if the Commission always includes a few members who can see the problems of graduate medical education from a point of view somewhat broader than that of medicine itself.

The composition of the Commission will be of utmost importance in assuring it freedom to exercise wisdom and leadership. All of the members should be eminent in the fields of medical education, broadly defined, the related sciences, higher education, or public affairs, and all should be chosen solely on the basis of established records of distinguished service in one or more of these fields. Not less than two of the members should come from outside the area of medicine and its immediately related basic sciences.

Who should choose them? This is indeed a problem. The number of medical organizations is too great to permit each to select a representative. A commission of ten members is not large enough to allow each specialty board, each kind of hospital, each medical organization, or each other special interest to be represented. Even if this arithmetic difficulty did not exist, dividing the responsibility for selection among many organizations would be wrong

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in principle. The Commission should not be a federation of special interests and its members should neither be considered by others nor think of themselves as spokesmen for particular groups or interests. We are not proposing a federation, but a board of high competence and impartiality whose members will work in the best interest of graduate medical education as a whole.

We have concluded that the best means of securing a board of this caliber will be to have all members appointed by the Council on Medical Education.

We recommend the Council on Medical Education for this responsibility because it is more cognizant of the problems of graduate medical education than any other representative of the organized medical profession, and because it has a long record of constructive contributions to the improvement of medical education.

The Council on Medical Education should be the appointing agency, but the Council should have help in deciding whom to appoint. In order to extend the range of selection and to help maintain balance in the Commission membership, we propose that other organizations aid the Council in identifying persons who should be considered for appointment.

Among the numerous organizations in medicine, the Association of American Medical Colleges has a distinctive role: medical education is its central concern. Although most of the attention of the AAMC has in the past been directed to medical schools rather than to graduate medical education, medical education is a continuum, and the undergraduate and graduate stages should become more closely articulated. We therefore propose that three of the ten initial members of the Commission, and in the future their successors, be appointed by the Council on Medical Education from lists of suggestions, containing at least twice the number of names to be appointed, submitted by the Association of American Medical Colleges.

Medicine has many organizations. The rest of society has no single representative organization, unless it be the Federal Government, and that is not the proper source of suggestion for membership on the commission.

As a body that represents the public welfare and the highest traditions of scientific research and service, we recommend that the National Academy of Sciences be asked to serve as a source of suggestions for membership on the Commission. We propose that the Council on Medical Education appoint two of the initial members, and their successors, from lists of suggestions submitted by the National Academy of Sciences. Each list should include at least twice the number of names to be appointed.

Other organizations, in addition to the Council on Medical Education, the Association of American Medical Colleges, and the National Academy of Science, should have an opportunity to be influential in the selection of members of the Commission. We therefore recommend that the Council on Medical Education, the Association of American Medical Colleges, and the National Academy of Sciences give due consideration to the qualifications of persons suggested to them by other bodies and that the Council on Medical Education and the Association of American Medical Colleges take the initiative in consulting with other organizations involved in the problems of graduate medical education.

Each of the three primary bodies—the Council on Medical Education, the Association of American Medical Colleges, and the National Academy of Sciences—and each of the organizations they consult should name the persons they think will best serve the broad interests of graduate` medical education as a whole. None should name "repre-

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sentatives" in a narrow parochial sense. In fact we think it quite possible, and perhaps desirable, that the Commission members not know, or at least pay no attention to, the fact that their names were originally proposed by one or another source.

There are two particular responsibilities to point out. The National Academy of Sciences will have a particular responsibility for suggesting persons from outside of medicine. It would be perfectly proper for any of the three primary bodies or any of the organizations they consult to propose persons from one of the related sciences or from quite outside the biomedical realm. But the National Academy of Sciences will have a particular responsibility to make such nominations.

The Council on Medical Education will have a special responsibility for maintaining balance and breadth in the Commission membership. To be avoided is any undue concentration of members who come from one field of medicine, who live in one part of the country, who represent the same point of view, or who resemble each other too closely in some other respect.

In summary, we recommend that the Commission consist of ten members, all of whom are appointed by the Council on Medical Education; that three of the members be appointed from a list of six or more names submitted by the Association of American Medical Colleges; that two be appointed from a list of four or more names submitted by the National Academy of Sciences; that the other five be appointed by the Council on Medical Education without restriction as to the source of suggesttion; that other organizations involved in graduate medical education be consulted in

preparing the lists of names from which appointees are selected; that in later years, successors to the original members be selected from lists of suggestions developed and submitted in the same manner as the lists from which the original members were selected. We recommend that not less than two of the members serving at any one time come from outside the field of medicine; that all of the members serve as individual statesmen of medical education rather than as representatives of particular organizations; and that members be appointed solely on the basis of established records of distinguished service in medical education, the related sciences, higher education, or public affairs.

RESPONSIBILITIES OF THE COMMISSION ON GRADUATE MEDICAL EDUCATION

Some of the responsibilities of the new Commission will be transferred directly from the Council on Medical Education, thus lightening the Council's present load. Others will be new or will be enhancements of responsibilities now exercised by the Council on Medical Education in collaboration with other organizations.

The Commission would establish and annually publish standards for residency training.

The executive responsibility of determining which residency programs meet these standards need not, however, be exercised by the Commission itself. In fact, it will probably be better able to concentrate on its responsibilities for establishing standards and policies if it is not

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burdened with the necessity of appointing all of the residency review committees and reviewing the educational programs of individual hospitals. We propose, therefore, that the Council on Medical Education continue to provide personnel for and to supervise the field staff that examines teaching hospitals; that the present methods of appointing residency review committees be continued; and that the Council on Medical Education publish an annual list of institutions approved for residency training, indicating in each case the types of residency training for which each institution is approved. Close coordination between the Council on Medical Education and the Commission on Graduate Medical Education will be necessary in any event and will, we believe, make this proposed division of responsibility effective.

The Commission on Graduate Medical Education would annually receive, review, and comment on a report from each residency review committee on its activities and problems. It would receive and consider appeals concerning standards and procedures. When appropriate occasions arise, the Commission would arrange joint meetings of residency review committees, or would appoint special groups to study common problems.

The Commission would aid in coordinating the educational work of the specialty boards by annually receiving, reviewing, and commenting on a report from each dealing with the problems of graduate medical education as seen by the specialty board. When appropriate occasions arise, the Commission would arrange joint meetings of specialty boards to consider educational problems of mutual concern, or would appoint special groups for that purpose.

Whenever the need arises, the Commission would be free to appoint temporary consultants, and to ask, or be asked by, the representatives of any specialty board or other appropriate group for a meeting to consider problems of special interest to that group.

The Commission would serve as a general policy board for graduate medical education. It should look not only to the annual operating responsibilities and activities of the residency review committees, but also to the interrelations among them, the relations of graduate to undergraduate medical education, and the changes in graduate medical education that changing times and conditions make desirable. From time to time it will probably wish to sponsor studies—which might be supported by foundation grants—of particular aspects or methods of improving graduate medical education.

The Commission would have the duty of reporting periodically to the medical profession and to the interested public on trends, on problems, and on its efforts to improve graduate medical education.

The major differences between the proposed system and the present one would be these:

Responsibility for overseeing the whole sweep of graduate medical education, which is now lacking, would rest with a new organization, the Commission on Graduate Medical Education.

This new Commission would assume the educational responsibilities of the Advisory Board for Medical Specialties and the Liaison Committee for Specialty Boards and some of the responsibilities of the Council on Medical Education.

The Internship Review Committee would be abolished.

The residency review committees would evaluate—within published standards—programs for the first year of graduate medical education as

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well as for the later years.

The Commission on Graduate Medical Education would have a clearer mandate than does the Council on Medical Education to review, criticize, and seek to improve the whole of graduate medical education.

Establishment of the Commission on Graduate Medical Education will lead to some changes in functioning of the existing Advisory Board for Medical Specialties. This board is a federation of two representatives from each of 19 specialty boards and two each from the Association of American Medical Colleges, the Federation of State Boards, the American Hospital Association, and the National Board of Medical Examiners. Although it has a major hand in deciding whether or not a new specialty board should be established, it exercises little control over the policies of the existing specialty boards or the residency review committees. Whether to continue, disband, or alter the Advisory Board for Medical Specialties is a question for the specialty boards to decide in terms of its future value as a common meeting ground for the consideration of problems of mutual interest that fall outside the province of the Commission on Graduate Medical Education.

RESIDENCY REVIEW COMMITTEES

The task of reviewing residency programs and deciding which ones merit approval should be approached from two points of view. The standards, the experience, and the specialized knowledge of educators and practitioners in the appropriate specialty should be heavily represented. If anyone knows what constitutes good training in surgery, surely it would be the surgeons. But surgery, or any other specialty, is not something that stands by itself; it is only a part of medicine. The point of view of medicine as a whole should be represented.

We therefore recommend that each residency review committee include a few members from outside of the particular specialty.

It would be appropriate for all or most of the members from outside the particular specialty to be men who hold positions of responsibility for residency training in other fields of medicine.

Experience with the ways in which committees work promises that these outsiders cannot take command of the committees to which they are attached; if they try, they can always be outvoted by the specialized majority. But they can bring to each residency review committee a wider range of experience and judgment. Their positions will have given them opportunities to observe residents in one specialty as they work with and fit into other hospital services and responsibilities. They will not be defenders of the traditions of the particular specialty that is under review, but can look at a particular program from the broader standpoint of the whole of medical education.

THE EXPECTED GAINS

It is not possible to list in advance all of the specific changes that may be brought about by the Commission on Graduate Medical Education, nor can one expect all of the improvements to appear quickly. The discussion and debate that will precede decisions concerning the recommendations of this report will take time, and if the pro-

posed new Commission on Graduate Medical Education is established, still more time will pass before it can become fully effective.

If and when it does achieve effective stature, we would expect its usefulness to result not only from the exercise of its formal responsibilities but also from its thoughtful leadership.

Some of the problems of graduate medical education including some of those discussed in earlier chapters call for experimentation and the careful reporting of results so that the successes and failures will be widely known. The new Commission could stimulate and encourage appropriate studies.

In other cases it will not be experimentation that is needed so much as coordination, decision, and agreement on policy in handling problems already recognized and other problems that will be recognized in the future.

As one example, there is considerable uneasiness about the comparability or noncomparability of certification requirements of the several specialty boards. Probably the most frequently cited example is the disparity in the amount of surgical training required for certification in general surgery as compared with obstetrics-gynecology and urology.

Men in all three of these surgical specialties are considered by their colleagues to be qualified to perform some of the same operations, yet the amount of *surgical* training that is required for specialization ranges from 18 months in obstetrics-gynecology to four years in general surgery.

The Commission on Graduate Medical Education could render a useful service by examining residency programs and certification requirements for such discrepancies and by bringing together the responsible committees and boards so that the discrepancies might be minimized or otherwise justified.

Another problem with which the Commission might concern itself is the distribution of physicians among the several specialties.

Superimposed on the curve of rising popularity of medical specialization have been changes in the relative popularity of the different specialties. That further changes lie ahead can be seen by comparing distribution of established physicians among the specialties with the rates at which newly trained physicians are entering those specialties. Nearly all fields of specialization are gaining ground while general practice loses. But the rates of gain vary substantially, and the differences raise a number of questions. Of all physicians in practice, will the country need twice as high a proportion of surgeons, psychiatrists, and pathologists in the future as it has now? Will the comparatively small increases in numbers of pediatricians and internists that appear probable be enough? If the present distribution among the specialties is satisfactory, what evidence is there that the distribution forecast by the current trends will be? Or do current trends forecast a better distribution of specialists in the future than we have now?

The changing distribution among the specialties and the maintenance of the best balance among them will need periodic review. The Commission on Graduate Medical Education could stimulate the necessary studies and consult with the representatives of hospitals and specialty boards in order to develop agreement as to how better balance might be achieved.

Other examples of specific problems could be cited, but in the long run the most important contribution of the new Commission would not lie in solving a few specific problems that are now recognized. It would lie in pro-

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viding for graduate medical education a higher quality of thoughtful leadership and coordination than now exists. Such leadership could greatly strengthen the ability of the whole complex of organizations and institutions to adapt more constructively to the conditions of the present and the different conditions of the future.

We believe that the proposed Commission on Graduate Medical Education would have enough vigor, enough strength of conviction, and enough thoughtful, cooperative influence to see that major problems are dealt with. It could and should play a leading role in bringing into effect the proposals made in earlier chapters. It would enable the medical profession to adapt to changing demands and opportunities more rapidly and constructively in the future than it has in the past.

Graduate medical education needs an organization that can and will turn its spotlight into many nooks and crannies, that will seriously consider serious problems, and that will exert strong leadership in bringing about improvements already known to be desirable and other improvements that will later be recognized. If the Commission on Graduate Medical Education serves as effectively as we believe it can as a responsible policy board for the whole of graduate medical education, it will be a very long time before there is need for another external examination such as ours has been. Notes

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