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MEDICAL EDUCATION AND SOCIETAL NEEDS: A PLANNING REPORT FOR THE HEALTH PROFESSIONS

SUMMARY

Report of a study by
a committee of the

INSTITUTE OF MEDICINE

Division of Health Sciences Policy

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NOTICE The project that is the subject of this report was approved by the Governing Board of the National Research Council, whose members are drawn from the councils of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The members of the committee responsible for the report were chosen for their special competences and with regard for appropriate balance.

This report has been reviewed by a group other than the authors according to the procedures approved by a Report Review Committee consisting of members of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

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SUMMARY

Introduction

Medical education in the United States today owes much of its structure to having followed many of the recommendations of the 1910 report by Abraham Flexner. He decried an abundance of non-rigorous proprietary schools and held up as a model the university-based curriculum of Johns Hopkins. Flexner's urging for reform succeeded so well that medical education and medical practice henceforth became solidly grounded in the knowledge and methods of natural science.

Medical schools now provide intermediary education between college and an expected period of graduate medical education (residency). Most build their curriculum on two years of basic science and two years of clinical medicine, taught along disciplinary lines by faculty members who are full-time academics. Major departures from that model have been few and far between, limited largely to development of an interdisciplinary curriculum in the 1950s, and more recently, to problem-based and community-oriented approaches to medical education.

As medical education settled into a 70-year period principally spent in adding to its science base, American society was changing all around it. Many of the changes were related, at least in part, to medicine's advances, such as a steady expansion in effectiveness against the infectious diseases--immunizations were developed to prevent some and antibiotics were found to cure others. New technologies helped to improve diagnosis; new drugs and surgical procedures were introduced to improve treatment; understanding of risk factors for disease grew; systems of life support were perfected to take over for failing organs.

But, as infectious diseases became less of a threat, chronic diseases moved into the ascendancy; as newborns

were led unscathed through the illnesses of childhood, they lived to incur the diseases of adulthood, including those related to environmental factors and personal habits; as techniques were improved to sustain life, concern arose about the quality of that life; and as physicians became more scientific, complaints were heard that they were less compassionate. More physicians are being trained than ever before, but the costs of health care continue to rise steeply, and doctors are scarce in the inner city and rural pockets of poverty.

Since the Flexner report, the country's entire economic and social system has evolved from one of small scale individualism to organized corporate and government administration. Health care has become an industry--one of the largest--now representing 10 percent of the Gross National Product and employing more than 7.5 million people. The 450,000 physicians constitute less than 10 percent of health care personnel. Health care decisions no longer derive exclusively from the relationship between an individual doctor and a patient. The doctor-patient relationship is affected by the complex relations between physicians and the hospitals with which they affiliate, the growing number of salaried physicians and physicians participating in group practice arrangements, and the various private medical insurance programs and federal entitlement programs such as Medicaid and Medicare. Furthermore, roles and responsibilities of physicians in relation to other health professionals continue to change as nurses, physician extenders, and others seek greater professional responsibilities, and as legislative bodies mandate particular roles.

Another force for change has been the growth of the research programs sponsored by the National Institutes of Health (NIH). Biomedical research has become a multi-billion dollar enterprise. It has produced both an explosion of knowledge and a highly research-oriented faculty in the laboratory-based experimental disciplines, which have tended to be dominant over the population-based sciences and the behavioral sciences.

Because of apprehension in the 1960s that our future supply of physicians would be inadequate and increasing concern for social justice in our country, we have more doctors today than ever before, and they are a more heterogeneous group. Scholarships and low interest loans, federal laws and enforcement efforts, and increased willingness and efforts by admissions committees to enroll qualified women and minorities have opened the doors of the profession to more students in general and to women, minorities, and those from less wealthy families in particular. Medicare and Medicaid legislation has brought us closer to equity of access to health care, which people more and more view as a right. But recently, in the face of economic pressures, the trends toward equity of access to the profession and to health care have slowed.

Institute of Medicine members and others have expressed doubts that preparation of practitioners is suitably matched to some aspects of today's health care system. Issues that led the Institute to undertake this review and planning effort, include the following.

- The growing numbers of physicians, the expectations of expanded roles of non-physician health professionals, the desire to assure equity of access to health careers, and the continued presence of medically underserved populations (defined geographically, socioeconomically, or ethnically) raise complex questions that must be dealt with by educational institutions, governments, and society as a whole. How can all of these concerns be balanced and integrated to arrive at a health manpower policy? The issues range widely and include admissions policies of health professions schools and advanced training programs; local, state, and federal subsidy and support for education and research; and federal policies relating to immigration. What will the roles of the various health professions be in the future? How should the education system adapt to changes in role? How can numbers and distribution of health professionals be matched to national needs?

- Can an education system be devised to prepare health professionals for the problems of their patients in the decades ahead? Those problems will hinge on trends already well established--the aging of the population, the shift of the burden of illness away from infections and toward chronic diseases, and the growing importance of behavior and style of living to a person's health. Heightened awareness on the part of practitioners will have to include the importance of primary care physicians in treating mental illness, and a view of disease and dysfunction from a population-based perspective that extends beyond the individual patient.

- In an era when information is generated at a rate never experienced before, how can the education system best prepare health professionals to keep abreast of scientific advances during their entire career? How can computers be utilized for the most effective management of information?

- Increasingly bureaucratized health services and intensively technological medicine warrant a special effort to preserve the caring function of medical practice. How can the objective of caring be translated into practice; how is it taught and evaluated?

- The traditional medical goal of best possible treatment for a patient can employ unprecedentedly expensive technology today, when economic constraints are increasing. Can physicians be trained to include in their medical decision making a concern for economic consequences, and to search for more cost-effective techniques of quality care?

- How can the education system prepare health professionals to grapple with questions about what constitutes best care when technology allows extension of life, but a life of greatly compromised quality? Physicians, other health professionals, patients, families, and society as a whole recognize the need for wise and sophisticated decisions to deliberately withhold or withdraw these technologies. Ethical, economic, and personal values all come into play here.

- How can physicians and other health professions best be helped to deal with a public increasingly conscious of such ethical issues as informed consent, privacy, and aspects of clinical trials.

- How can the education system assure continued advances in knowledge? what is the best approach to the training of a cadre of researchers? Thoughtful consideration is needed to enhance communication between clinical practice and laboratory research.

- Questions of responsiveness to the community and possible conflicts of university and community missions arise in many contexts, but appear especially pressing for academic health centers. Teaching hospitals and academic health centers appear vulnerable to the pressures of increased costs, growing competition from community hospitals, reduced direct and indirect federal support, and a disproportionately large share of patients who are unable to pay for their care.

Charge to the Planning Committee

The Institute of Medicine wished to examine these various concerns in the context of current and future societal needs and evolving professional roles in a highly complex and changing health care system. With the support of the Pew Memorial Trust, the Institute undertook the planning effort that produced this report. A committee was appointed to outline the scope and conceptual framework for a review of medical education.

The work of the committee was 1) to identify the perceived deficiencies and strengths in the present system for delivery of health care in the United States, 2) to project future health care needs in light of the way medicine is expected to be practiced and organized in the next 10 to 20 years, 3) to identify elements in the medical education system that have some influence on meeting present and future health needs and that could be coordinated with a national health manpower policy, 4) to identify the issues meriting highest priority for

attention, and 5) to agree on the scope and framework for a significant effort intended to help the education system be most responsive to future health requirements of society.

This review and planning effort was undertaken with the full realization that the intrinsic and extrinsic factors that influence medical education have become so intertwined as to be practically inseparable. It also was realized that no single person, group, or institution has the authority to mandate solutions to these major educational, institutional, and inter-professional issues. The committee's intent was to consider responsibly and rationally the factors relevant to creating a health care system more in tune with the structure of our society and to suggest some educational priorities in the establishment of such a system.

Rationale for an Integrated Look at Major Issues

The first question the committee had to resolve was whether another major study of medical education would be worthwhile. Considerable doubt was encountered about the value of a series of studies on medical education. There were those who adjured us, in effect, "if it ain't broke, don't fix it." They viewed the health care and medical education systems as fundamentally sound and feared that marginal alterations could inadvertently damage the whole. Others, who perceived a need to improve the health care system, expressed skepticism about the ability of the medical education system to influence it. Many other people questioned the need for yet another study of the same subject and pointed out that the time was at hand for implementation of what we already knew. Still others considered the subject of medical education too narrow for meaningful analysis.

Even if the education system were optimal for the present, it would not necessarily be optimal for the future. Both the health needs and the health professions have changed over the years, and they are expected to continue to evolve. The rate of change of national health needs and of the health-care system has

been rapid in recent years compared with change in the education system. A new and better match should be made between the educational processes for the health professions and society's expectations of those professions. Thus, the committee concluded that an integrated look at the medical education system together with the education of non-physician professionals who deliver health care, from the perspective of the nation's health care needs in the next 10 to 20 years, could provide timely guidance.

The charge to the committee was to plan a study of medical education; most of the resulting effort emphasized the education of physicians. But the answer to almost every question that arose depended on decisions about future professional roles: who would be responsible for aspects of health care of the well elderly and the chronically ill, who will advise about health-promoting behavior, and who will teach people how to change their behavior?

The first step in rethinking the medical education system must be an effort to project what the future role of the physician should be. This inevitably leads to the roles of other health professionals--nurses and social workers, to name but two--because physicians do not work alone. Thus, our proposal is to monitor the educational agenda of the health professions in a coordinated manner and to undertake an early examination of optimal allocation of roles and responsibilities.

To what extent can changes in the education process be used to solve some of the problems centered in the health care system? Educational changes alone will not solve these problems, but they will have some effect. By formal course work, by implicit and explicit messages in the words and actions of clinician-teachers, and by informal discussions with mentors and colleagues at many stages of the education process, physicians and other health professionals can learn about care alternatives, career alternatives, and the social implications of one choice over another. A greater awareness of these

choices would contribute to the solution of some of the complex and longstanding problems of the health care system.

Committee Conclusions

The committee concluded that a major effort is indeed warranted. However, it did not recommend that another broad study of medical education be undertaken. Rather, the committee recommends creation of an institutional mechanism more consonant with current decision-making processes. This mechanism would provide a forum for discussion by all concerned constituencies, a means to filter and sort major concerns relevant to education of health professionals, and a basis on which to identify areas that require action.

There is a continuing need to scan the horizon for potential influences on the education system, to inform public and private decision-makers of opportunities and of missteps, and to formulate and implement sound policies for health professional education. Therefore, the major recommendation of the planning and review committee is that an Agenda Group on Education of Health Professionals be established. The proposed Agenda Group would provide a force to motivate and support institutions involved in education of health professionals to move toward constructive innovations responsive to health needs.

Proposed Plan

The Agenda Group on Education of Health Professionals would be established to deliberate on how the health professions education system helps or hinders progress toward future health goals of our country; to consider the social, economic, political, scientific, and educational forces in our society that act on health professions education; to tell when these forces can be enlisted to implement constructive changes in the education system; and, of equal importance, to caution when those forces are acting to undermine a valuable

aspect of health professions education. The committee's recommendation is that the Agenda Group have a broad mandate and perspective, encompassing a range of health professions. It also should have assurance of at least a five-year continuity.

The Agenda Group could be an instrument for thinking in detail about the major forces that influence health professional education, about ways to preserve valuable parts of current health professional education, and about changes in the education systems that would help move the health care system closer to meeting the needs of the public. It would provide a locus for systematic communication among colleges, universities, professional schools, hospitals, professional organizations, governments, and public interest groups. The Agenda Group also would be a mechanism for scanning for events and trends that might affect health professional education and its responsiveness to national health needs. The Agenda Group could commission studies on issues it judged to be of major significance and in need of detailed analysis.

There have been many recommendations from many sources on how to improve medical education, but very few have been implemented, perhaps because change usually occurs by social consensus. Traditional ways of reaching consensus are being strained and may be breaking down. The Agenda Group might provide a matrix around which social consensus on education of health professionals could develop.

The Agenda Group should function in the modes of study and inter-institutional cooperation and provide a mechanism for needed perspective and new directions. It could provide an appropriate institutional arrangement for dealing with the social ecology of the health care system, a large industry of which medical education is only a small part. The Agenda Group should be capable both of reflective consideration of issues over time and short-term responses. It should monitor relevant trends and events, suggest new directions, make recommendations for action, and generally be representative of the public's health.

Composition and Qualities of the Agenda Group

The committee believes that the perspective this effort would have is extremely important. The interests and needs of the general public must serve as the starting point, rather than the needs of the health professions as viewed by the health professions. The Agenda Group should not be an advocacy group for any of the actors in the health professional education stage, nor for special pleading. The participation of professional organizations is essential, but the group in its entirety must not be allied with any particular professional interest; it should be as free as possible from the pressures of representing any particular interest group, and therefore be able to converse with any sector of society in the spirit of free communication and trust.

The Agenda Group should be composed of six to twelve persons selected on the basis of their expertise, broad interest in public affairs, and judgment, rather than on their professional or institutional affiliation. In aggregate, the group should be composed of persons who have demonstrated wisdom in matters relevant to higher education in general and health professional education in particular, as well as in matters of public policy and institutional change, and in various social, behavioral, population, and biomedical sciences.

Activities of the Agenda Group

The Agenda Group would examine broad issues of population and social changes related to health and ways in which health professions education could help to accommodate those changes. The group would be a continuing monitor of events, trends, quality, critical thinking, and conceptualization about health professional education at the national and state levels. Priority tasks of the Agenda Group would be to identify appropriate roles in health and health care as well as tasks and goals of schools to prepare health professionals for those roles. The Agenda Group would have as a major goal the identification of changes

needed in health professional education and provision of help in bringing about these changes so as to maximize the possibility of training the wide variety of workers in the health care system to cooperate for more effective health care. Extensive consultation and collaboration with leaders of national, regional, and state professional organizations and educational institutions, and with policymakers, will be essential. Periodically, but no less often than after three and five years, the group would report on its findings regarding significant trends having inpact on health professions education, anticipated problems, and approaches to their resolution.

While the Agenda Group is developing its long-term work plan, a series of shorter studies could be implemented. Working within its original mandate to plan a review of medical education, the planning committee identified four studies that would address specific problems in improving the education and training of physicians. It is our expectation that these concepts will be broadened or other studies will be recommended as the Agenda Group deliberates, especially in view of its expanded scope to include non-physician health professionals. The four studies--modulating the impacts of financial pressures on education, the changing role of the physician, the social structure and dynamics of the medical education system, and the science base of medicine--would provide data and analyses for the Agenda Group. The studies could contribute substantially to the eventual solution of problems that already can be identified or anticipated.

The charge to the Agenda Group is a broad conceptual one, so specific committees should be constituted to conduct these shorter targeted studies. The Agenda Group should be instrumental in designating needed expertise and resources for each study committee. Direct participation by one or more Agenda Group members would be valuable but not essential. As appropriate, the special resources of professional organizations should be called upon.

Sponsorship of the Agenda Group

The organizational locus of the Agenda Group requires careful consideration because the group risks being viewed as a competitor by existing entities that have an obvious stake in the issues. The climate of the times and complexity of the issues require unfailing objectivity of assessment, but the group also must be able to involve leaders in medical and health professional schools, in professional organizations, and other influential bodies that have particular interest in the issues.

Several possibilities come to mind. The Agenda Group could be a more or less independent body housed in a sponsoring foundation. A second possibility would be a freestanding operation, such as that of the Carnegie Commission on Higher Education. Were it to operate in the Institute of Medicine of the National Academy of Sciences, the Agenda Group could operate either as a committee of the Institute or as an independent unit housed in the Institute. The planning committee favored the option of an independent body housed in the Institute of Medicine.

Financial Support

Regardless of the option selected for the organizational base of the Agenda Group (a foundation, freestanding, or the Institute of Medicine), it is our recommendation that the financial sponsorship come mainly from foundations, with a lesser contribution from the federal government.* A single foundation or a consortium of foundations should provide leadership and initial commitment of funds. The planning committee believes that the initial commitment should be for five

*Whatever role federal and state government play in the future in relation to health care and health professions education, government and the Agenda Group will need each other as informed and critical interlocutors.

years, a period of time that would provide a good test of the usefulness of the enterprise.

Because technological, scientific, social, and economic changes are more rapid now than ever before, the need to look ahead in education of health professionals is more critical than in the past. Private foundations traditionally have played a pivotal role in providing financial support for medical education and research and in sponsoring studies in medical education. Our proposed venture provides further opportunity for foundation involvement in educational innovation.

Implementation of the Agenda Group's Recommendations

A crucial concern is to promote implementation of recommendations that the Agenda Group will be making on the basis of its own deliberations or stemming from other studies. Insight into how to sustain changes once implemented also will be important.

Innovations in education may derive both from internal and external forces: the creativity, enthusiasm, and skillful leadership of an individual; the push and pull of economic constraints and opportunities; and changes in the social, political, cultural, educational, and scientific climate. External forces, especially economic ones, influence the health professional education systems, but not necessarily in directions that better promote the health of the public. In academic medical centers, for example, there is a broad range of activities in research, care, and training, and education does not always have highest priority.

Without the leverage of money or regulation, power to implement changes must derive from the shedding of light, from the persuasiveness and intellectual rigor of the presentation of the problems and approaches to their resolution. If the Agenda Group is sponsored by several foundations, each should assist in the wide dissemination of reports and implementation of recommendations.

Informed leadership opinions should be developed within the affected professions. In addition, the leadership of those segments of society that the medical, nursing, and other health professional schools depend on, such as state governments and components of the federal Department of Health and Human Services, should be involved both in planning and follow-up of the Agenda Group's work.

The group's recommendations will stand primarily on their merit, but their implementation can be facilitated beyond the persuasiveness of credible people. Some of the leaders in medical schools, schools of public health, nursing schools, teaching hospitals, and other relevant institutions might wish to implement needed improvements, but need assistance or support in doing so. The sponsoring foundations could provide support to follow through on the recommendations.

There should be special attempts to reach users, the Congress, and others, even before the studies are completed; their comments on the draft reports could be solicited. This would provide valuable feedback to the study committees and the Agenda Group and enhance prospects for subsequent implementation.

Incentives for implementation should be a matter for attention. Some thought must be given to the factors that are likely to affect the acceptability of innovations in particular settings. What would innovations mean to the prestige and authority of those who must adopt them? What are the fiscal costs and who incurs them? What is the intrinsic value to the user of curricular or teaching programs or arrangements that are going to be replaced? How can people who are going to experience a change be involved in the planning and implementation of the innovations? How can individuals and institutions be motivated to take a leadership role?

No matter how good the recommendations of the Agenda Group, their implementation could bring some unintended and undesirable effects. It is important that the Agenda Group monitor the impacts of implementation of its recommendations, to enable timely corrections. The

diversity among schools makes it likely that a certain program or recommendation will not be suitable to all schools. The ability to resist conservative pressure, the wisdom to foresee the consequences of its actions and the resiliency to meet new problems generated by the ramified effects of its actions will be invaluable to the Agenda Group.

Agenda Group Research Functions

Although the Agenda Group would depend heavily upon data and analyses generated by a variety of independent sources, the committee recommends that the Agenda Group also identify specific new studies that would help it meet its mandate. These studies could be conducted under the aegis of the Agenda Group or independently of it. In either case, the Agenda Group would coordinate and integrate the findings of the studies and would seek means to implement recommendations derived from them.

The four specific study topics recommended earlier focus on medical education because the initial charge to the planning committee encompassed only medical education. However, it is the strong recommendation of the committee that the Agenda Group modify and add to the suggested studies as appropriate, to include other health professions. It is our expectation that the information and conclusions brought forth by each of these studies would be most useful if the studies are conducted as a coordinated set of activities. Sequencing would be necessary for some studies--how large the science base of medicine is, for example, will depend on the role of the physician-- other studies could be conducted in parallel. It also is our expectation that as the Agenda Group deliberations proceed additional priority topics for study will be identified.

The priority order of specific studies was determined by a vote of the planning committee, but it should not be considered immutable. The expansion of the scope of the Agenda Group beyond medical education to health professions education may change the relative priorities. The Agenda Group may modify priorities in light of the expertise its members provide and the

actual timing of its activities--i.e, what studies are available and what developments have occurred since completion of this planning report. An environment can change quickly, and the priorities should be responsive to these changes. Additionally, the interest of funding sources may introduce other considerations.

The four medical education issues were chosen for different reasons, and their study will serve different purposes. Financial pressures is a topic relevant to the long-range view of the Agenda Group, but it also is of immediate concern. The intent of this study would be to examine the consequences of current fiscal crises and policies and to work toward short-term solutions, while also assessing the lessons for long-term policy. The three other themes are closely related to one another and to financial pressures. They would help the Agenda Group (and the larger community of educators and policymakers) look toward the future, learn from the past, and illuminate how decisions are made within the education system. Two major public policy questions for each of these priority topics, as selected by the committee, are enumerated below.

Financial Pressure on Medical Education

1) Should available funds for students be channeled into targeted efforts, such as subsidy programs mainly for minority and low income groups?

2) Is the present mix of sources of support for medical education adequate and what are appropriate responsibilities (including such issues as payment of indirect costs) of each source (students, state and federal government, private and public third party payers, philanthropy, grants for research, and cross-subsidies from other units of the university)?

The Changing Role of the Physician

1) How will the future role of physicians be affected by the increasing supply of physicians, the

increase in number and proportion of elderly, scientific advances, changes in burdens of illness, increased interest in health promotion and disease prevention, and changes in numbers and kinds of non-physician providers?

2) What outcome measures can be used to evaluate quality of physician performance? Valid outcome measures would be needed to determine which selection procedures and which innovative approaches to medical education are most likely to produce physicians well suited to their various future roles.

The Social Structure and Dynamics of the Medical Education System

Behind each of these issues are questions of power and decision-making within the education system.

1) What are the implications for educational values and messages of the organization and financing of academic medical centers?

2) How do the values and priorities implicit in the traditional socialization process by which a medical student becomes a physician relate to the shifting goals of medical education?

The Science Base of Medicine

1) What is the body of scientific knowledge needed for the future practice of medicine and what is the general education required of future physicians?

2) When in the educational sequence should particular aspects of science be taught, and how can better integration be achieved for the teaching in the several institutions involved?

The committee believes that all of these topics deserve priority consideration and clarification; some will require new research; all require thoughtful attention and considered action. The topics differ considerably in terms of their susceptibility to various

research methodologies. For some, there are existing instruments and experimental designs that can be applied to minimize threats to reliability and validity. In many cases, qualitative research methods can be applied, but in others, the lack of a clear conceptual framework inhibits more formal inquiry.

Conclusion

Our hopes for the Agenda Group are that it will provide a continuing means for examining and anticipating changes that are likely to have a major impact on health professions education--on what it is or what it should be. We hope that it will contribute to a climate favorable for improvements in the education of health professionals, and that it will facilitate communication and the more rational resolution of shared problems among the partnership of health professions so that they can best serve the health of the public.

APPENDIX

CONTENTS OF THE FULL REPORT