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Departmental Evaluation: An Institutional Strategy for Growth

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CONTENTS

PRESENTATION OUTLINE

INTRODUCTION

PURPOSE/OBJECTIVES

1. Goal understood?
2. Forward planning?
3. Constructive reassessment?
4. Mechanism for change/problem resolution?
5. Hidden agendas?
6. Acceptance?

PROCESS

1. Structured vs. unstructured
2. Regular vs. episodic
3. Internal vs. external
4. Flexibility
   --All departments vs. selected departments
   --Simple vs. complex departments
5. Selection of reviewers
6. Charge to reviewers
7. Report/feedback

COST/BENEFIT

1. Expectation of change
2. Degree of benefit for highly productive departments
3. Faculty tension and ego damage created
4. Administration/faculty polarization vs. cooperation
5. Administrative time and support required
6. Refinement of institutional data
7. Reality testing
8. Resource allocation or reallocation
9. Important thread in interrelating capital, academic, operations and campaign planning

DISCUSSION

REFERENCES

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DEPARTMENTAL REVIEW IN SCHOOLS OF MEDICINE

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DEPARTMENT OF INSTITUTIONAL DEVELOPMENT

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DEPARTMENTAL REVIEW IN SCHOOLS OF MEDICINE

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The purposes of this study were to identify, describe, and comment on the various processes utilized in medical school departmental review and to assess the impact and potential uses of the process for medical school management. Almost two-thirds of the 138 medical schools in the U.S. and Canada have formal processes for the evaluation of their departments and of the leadership provided by department chairmen. Most of these schools have established provisions for departmental review since 1970.

Conclusions presented in this report are based on data gathered from four sources. First, a survey developed for the purposes of this study was sent to all U.S. and Canadian medical school deans, requesting data about departmental review procedures employed in their institutions; 90% of those queried responded. Second, site visits were conducted at five of those medical schools which currently formally evaluate departmental performance. The deans, department chairmen, and faculty were interviewed and provided insights about the forces leading to the initiation of departmental review, the mechanics and management of the process, the perceived impact of review procedures and outcomes on institutional operations, the costs and benefits of the process, and the likelihood of its continued use. A third source of data was a 1975 survey conducted by the University of Alabama which solicited the opinions of medical school deans about stated terms of appointment for department chairmen. The final source of information for this study was the published

literature, most of which discusses departmental review in non-medical settings.

Study results reveal that there is great variation in the purposes, procedures, and energy invested in departmental reviews. These differences are apparent between institutions as well as between departments within the same institution. The management of the review process depends on the institutional environment, the resources available, the dean, the department chairmen, the faculty, and the attitudes of central university administration. Thus, no standardized approach to departmental review is presented. This report describes departmental review as a cyclical intervention which includes seven steps: (1) identification and communication of the objectives of the review; (2) collection of data descriptive of departmental activities and performance; (3) analysis of data; (4) generation of conclusions; (5) formulation of recommendations; (6) communication of recommendations and intended actions; and (7) implementation of recommendations.

Effective departmental evaluations require skill, judgment, and commitment from the dean's office and staff as well as from the chairmen and faculty. Strong leadership by the dean and by the review committee chairman is essential to assure that the review focuses on issues central to the improvement of departmental performance. Reviews that last longer than six months tend to lose their constructive impetus. An interval of approximately five years between reviews is viewed as appropriate. Written guidelines for reviews may not be necessary, but are usually helpful in communicating the purpose and procedures for each

review. Review committee members should be carefully selected on the basis of the nature of the issues to be addressed. Finally, there must be trust among department chairmen and faculty that the process is applied in an equitable manner.

Although departmental review has considerable potential for positive purposes, the process can also have negative consequences. Specifically, both direct and indirect costs of reviews may be considerable although they may not be apparent. Reviews that are poorly administered or that have limited commitment and involvement from faculty are of little or negative value. In addition, departmental evaluations by themselves do not resolve major institutional issues. Review is not a substitute for strong, decisive institutional leadership or for carefully considered administrative policy.

Departmental reviews, when properly managed, can benefit the chairman, the department, and the institution as a whole. Reviews help to clearly articulate departmental problems so they can be addressed in a more effective and rational manner. Evaluations can also reassure a chairman and his department they are proceeding appropriately. While review is rarely seen as planning in and of itself, it does stimulate assessment of departmental objectives and priorities. Furthermore, reviews may provide useful data for the redefinition of institution-wide strategy. Finally, departmental evaluations can facilitate a necessary change in leadership.

Departmental review, when viewed as a flexible and evolving process and when carefully monitored, can serve as a stablizing,

rewarding and strengthening force in a medical school. The formal evaluation of departments and their chairmen represents a potentially powerful tool to help medical school leadership in its effort to cope with, adjust to and plan for institutional change.

I. INTRODUCTION

A. Scope of Study

Approximately 60% of the 138 medical schools in the United States and Canada have provisions for the evaluation of their departments and for the stewardship of their chairmen at varyingly regular intervals or on an ad hoc basis. There is great variation, however, in the energy invested in these evaluations and in their importance to institutional activities. Three quarters of the over 70 schools utilizing departmental review have instituted the process in the past seven years [1].

This report presents:

1) An estimate of the frequency of departmental review;
2) A description of the forces leading to the increasing application of departmental review in medical schools;
3) A description of the processes involved in departmental review based on site visits to five medical schools;
4) Comments on the implications of the various ways of managing the essential steps in the process;
5) An assessment of the impact and potential uses of departmental review for medical school management.

B. Reasons for the Study

The study was developed as part of a contract between the National Library of Medicine (NLM) and the Association of American Medical Colleges (AAMC). In 1972, the AAMC, with support from the Robert Wood Johnson Foundation, initiated the Management Advancement Program (MAP), which was designed to familiarize medical school deans and other academic medical center administrator with management concepts and techniques which have been found to be of value in complex, multi-purpose organizations. This program has provided an opportunity for medical school administrator to discuss and explore managerial processes and tools which can help medical schools respond advantageously to opportunities and demands. As the program has evolved, a need for "state of the art papers" or studies on selected facets of medical school admin istration has been identified. The topic of departmental revie was selected for the first study for several reasons. There has been (1) a general increase in the utilization of the review process and a corresponding need for information about initiating or proceeding with reviews; (2) a heightened awareness of the importance of departments as administrative units in the structure of medical schools; (3) a change in perceptions of the role(s) of department chairmen; and (4) a recognition that departmental reviews can serve as sources of data important to general medical school management.

C. Definition of Departmental Review

Departmental review is defined as either a regular and recurring or ad hoc, medical school or university-mandated evaluation

of an administrative unit (a department) in a medical school. The evaluation of the department may include an assessment of its standing relative to stated or unstated departmental objectives, to other departments within the institution, and/or to similar departments in other institutions. The department evaluation may also include a critical review of the leadership afforded by its chairman. The process follows the rules, regulations, and procedures of the medical school or university. The review may be carried out by medical school faculty members and administrative staff, by a combination of medical school and university faculty and staff and/or by individuals from other institutions. Conclusions from the evaluation and resulting recommendations are formally transmitted to the dean and through him to the chairman. This formal review process is in addition to the on-going, informal evaluation of departmental performance which is part of day-by-day and year-to-year medical school operations. Excluded in this definition have been reviews necessitated by external agencies such as the Liaison Committee on Medical Education or the National Institutes of Health. With some exceptions, reviews incidental to the nomination of a new chairman have also been excluded.

This report concentrates on the formal review of medical school departments. Assessments of other administrative units and administrators, including the dean's office and the dean, the medical school itself, the teaching hospital, or divisions of large departments, may be similar to departmental reviews, but are beyond the scope of this paper.

It should be recognized that medical school departmental review always takes place in some larger context. The department itself is reviewed, but the department is a component of a medical school, which is usually a part of a medical center, which in turn is usually a part of a university, which may be a part of a system of higher education. Also, departments, especially the clinical ones, relate, often very intimately, to institutions such as affiliated hospitals which may not be incorporated within the administrative system of which the medical school is a part. The review process both affects and is affected by the policies, programs, problems, and needs of the medical school and of the hospitals and clinics with which it is associated.

This report, except in a section describing certain unique aspects of the medical school as contrasted with university campus departments, presupposes some familiarity with medical school structure and operations. Throughout the report, the word chairman is taken to include both sexes; the use of chairman carries no value judgment and has been adopted only for ease of expression.

II. STUDY DESIGN

A. Data Sources

Comments and conclusions in this report have been based on data gathered from four sources:

1) Literature Review

Evaluation in higher education has been the subject of considerable research and study, most of which has been directed at teaching methods, faculty development, student performance, and general educational processes[3]. In contrast, there are few descriptions related to the review of administrative personnel or of the programs and departments they manage. Those few references describing experience applicable to the medical school setting have been cited in appropriate sections of this report.

2) Departmental Review Survey

A survey developed for the purposes of this study was sent to all U.S. and Canadian medical schools in March, 1977. Its objectives were to ascertain the extent of the use of departmental review, the purposes of its use, the degree to which it is a university-wide as contrasted to a medical school-only effort, its mechanics, the composition of the reviewing groups, and the extent to which similar processes are applied to the dean's office. The results of this survey have been summarized and circulated elsewhere[1]. Data

derived from the survey have been cited where appropriate in subsequent sections of this report.

3) The University of Alabama at Birmingham Survey of Term Appointments

In 1975 the University of Alabama solicited the opinions of medical school deans about stated terms of appointment for department chairmen. At the dean's request, an Ad Hoc Committee on Term Appointments, chaired by Dr. J. Claude Bennett, collected this information to use in deliberations about whether or not to specify terms of appointment for chairmen at that institution. Ninety-two (92) institutions responded to this inquiry. The University of Alabama kindly made these data available for use in this study[9].

4) Site Visits

Five medical schools were site-visited to gather in-depth information about the review process. Those interviewed were asked to (1) define the various aspects of review procedures, including the format and mechanics utilized, the data gathered, and the criteria by which departmental performance is measured; (2) describe the forces which led to the initiation and continued use of departmental review; (3) identify the costs and benefits of the process in monetary and non-monetary terms; (4) evaluate the potential of the process as a management tool; and (5) identify the effects

of the review process on attracting and retaining faculty at all levels.

Site visit schools were chosen to provide examples of various approaches to review in different types of institutions (e.g., public and private). The willing participation of the dean at each site visit institution was an important selection criterion.

B. Conduct of Site Visits

In some instances, the dean's office arranged the site visit schedule; in others, a member of the site visit team scheduled the interviews based on a list of faculty and staff members developed by the dean. An effort was made to meet with chairmen representing each of several perspectives: basic and clinical science chairmen; experienced and novice chairmen; and chairmen whose departments had been or were about to be reviewed. Members of the junior faculty and of the medical school and hospital administrative staffs were also interviewed. The dean was always interviewed at the end of the site visit to avoid interviewer bias from that perspective. On the average, 14 individuals were interviewed at each school.

Interviews lasted 30 to 45 minutes. Two, and in some instances, three people made the site visits; two site visitors went to all five schools. Each interview was conducted in similar fashion, using a group of predetermined and open-ended questions. Notes were taken or recorded during and immediately after interviews. Each site visitor prepared a lengthy summary of his or her impressions of the process at the site visit institutions. Each of the five site visits lasted approximately one and a half

days. In total, 10 basic science department chairmen, 14 clinical science department chairmen, 6 other senior faculty members, 5 deans, 14 other administrative personnel (including senior people from the university president's and hospital director's staffs), and 20 junior faculty members were interviewed. All the schools were visited in Spring, Summer or Fall of 1977. This report summarizes the impressions formed by site visitors and provides examples illustrative of review procedures and experiences.

C. Description of the Five Site-Visited Schools

UNIVERSITY A - Departmental review has been used at this institution for about 15 years. The process was initiated at the behest of a new university administration whose goal was to improve both the quality and quantity of faculty outputs. Review is administered on a university-wide basis according to tightly prescribed university by-laws. Terms of chairmen are fixed and may be renewed more than once only under unusual circumstances. A thorough review is mandated every six years and prior to the appointment of a new chairman. Internal reviewers are frequently utilized although external reviewers have been used occasionally. Those interviewed expect the process to continue much in its present form. The dean's office as well as every department is subject to review.

UNIVERSITY B - As one of many responses to the stimulus provided by the student unrest of the 1960's, a faculty commission recommended the institution of departmental review at this large, multi-purpose and organizationally complex university. The process is university-wide, although it is more rigorously applied

in the medical school than elsewhere. Chairmen are appointed to five-year terms which are usually renewed once and only rarely a second time. The dean is afforded considerable flexibility in carrying out review. Internal reviewers are used with occasional exceptions. The process has wide support among the chairmen. The dean serves a single seven-year term; his office is also subject to review.

UNIVERSITY C - About ten years ago, a newly-appointed president of this major university wished to ascertain the strengths and weaknesses of its academic units. External departmental reviews were instituted on a university-wide basis. Conducted in a low key fashion by the dean, the process occurs at three year intervals and now relies primarily on internal reviewers. Although still evolving, the process is viewed positively. Those interviewed suspect that reviews exert a more subtle and prevading influence at the school than is superficially apparent. The dean's office is reviewed in greater depth than are the various departments.

UNIVERSITY D - About six years ago and coincident with a change in deans, the senior faculty of the medical school of this university requested the initiation of a flexible system of departmental review. In this case, the initiation of review was seen as a way of strengthening the hand of the dean by providing him with access to information about department operations. It was thought that departmental review conducted every five years would improve administrative processes by providing an objective evaluation of each department. In this university, review takes

place only in the medical school; the number of terms a chairman may serve is unlimited. Review committees are comprised primarily of medical school representatives although external reviewers are sometimes used. The dean and his staff are encouraged to use broad discretion in determining the scope of each review. This process of departmental review appears to be gaining in institutional visibility, acceptance, and impact. Both the dean and senior faculty are convinced of its utility, and its continued use and development are expected.

UNIVERSITY E - Unresolved and destructive territorial problems, pressure from the university president to examine assumptions underlying faculty appointments, an approaching major change in administrative personnel, and increasing uneasiness about sustaining the high status of some of its basic science units led the administration of this medical school to develop a review process. The reviews, directed by the dean and conducted by external experts, have been of the basic science departments only. Because reviews were introduced recently, it is too early to assess the effectiveness of the process. However, actions have been or are being taken on the recommendations generated during reviews.

III. FACTORS LEADING TO INCREASING USE OF DEPARTMENTAL REVIEW

As background for the findings presented in later parts of this report, this section analyzes some of the forces which are contributing to the increasing use of departmental review in medical schools. Published experience in university settings is summarized briefly and is then compared and contrasted with information on its use in medical schools. Finally, this section explores the changing role of the medical school department and of its chairman, and discusses the recent emergence of departmental review in more than half of all U.S. and Canadian medical schools.

A. Departmental Review in Non-Medical School Settings

Evaluation in higher education has been the subject of numerous articles and books. While much of the literature concentrates on the assessment of academic performance, some efforts describe the theory and practice related to review of administrative personnel or of the programs and departments they manage. Reports which provide background and descriptions useful to understanding departmental review and its general applications can be grouped into four categories: (1) documentation of the increasing prevalence of academic review; (2) presentations of evaluation ideologies and procedures; (3) discussions of evaluation experiences; and (4) descriptions of guidelines and their limitations. These papers reflect the traditional emphasis in education on the evaluation of individual performance. Descriptions of reviews of personnel, programs, departments, and/or units are limited.

1) Evolution of Departmental Review in the University Setting

One stimulus which has led to the increased utilization of administrative review was a public statement by Kingman Brewster in 1969 requesting that his performance as President of Yale University be evaluated following his first seven years in office. Subsequent to his remarks, a number of institutions have implemented policies calling for periodic review of the chief executive officer. Examples are The State University of New York and the Minnesota State University System[11].

Several significant forces are leading institutions to the systematic evaluation of their missions and of the performance of their administrative units. Financial exigencies have been a pervading factor. Anderson points out that in an industry that enrolls more than 10 million students, employs 750,000 faculty, has annual expenditures of 35 billion dollars, and functions in an exceedingly complex environment, it is inconceivable that there should be no formal study of performance[12]. Evaluation is also seen as important for the following reasons:[11,13]

(1) It can be a means to reassess institutional objectives and to enhance institutional performance and stability;

(2) It can serve as a response to demands for accountability from the public, government, alumni, etc.;

(3) It can serve as a response to demands from students and faculty for more and better information about the institution;

(4) It can provide a mechanism which facilitates more orderly and less disruptive change in leadership;

(5) It can serve to enhance professional development;

(6) It can provide data which facilitate resource allocation and reallocation decisions.

2) Evaluation Ideologies and Procedures

A second group of articles addresses evaluation ideologies and procedures. While evaluation may take many forms, the success of a review is contingent upon matching the appropriate evaluation tool with the functions being reviewed. In addition to the informal, on-going evaluations common to all institutions, five basic types of review have been outlined:[3,5,14]

a) Professional judgment evaluation - This is an assessment based on the opinions of experts. This approach is employed when a high degree of objectivity is not possible or not required. It can be used in situations where the time frame for evaluation is short. Examples are accreditation, peer review and promotions.

b) Measurement evaluation - This is an assessment that is used when validated measurement tools are available and when objectivity and comparability of data are required. Accurate data and quantifiable criteria are essential features. Standard test scores are examples.

c) Goal-oriented evaluation - This is a measure that is used when specific goals or standards can be identified and when

acceptable measures of performance can be established. The assessment of academic departments on the basis of stated goals is an example of goal-oriented evaluation.

d) Decision-oriented evaluation - In situations where a systematic assessment is part of a cyclical decision-making process, a decision-oriented evaluation process is used. In this case, evaluation data constitute an important component of policy formation; well-planned management information systems can play a role here. This approach is reflected in evaluations which are a part of the budgetary process.

e) Goal-free response evaluation - In an open, fluid system where concrete goals do not exist and when all observable effects are potentially relevant, a goal-free responsive evaluation is appropriate. Under these conditions, human values are critical, and therefore, relevant data are likely to be subjective. This form of evaluation is particularly valuable when assessment of the "side-effects" of a program or policy is required.

Gardner points out that while these assessment approaches are not mutually exclusive, evaluations can be characterized by one of the categories. The most important factor is the selection of the appropriate framework(s) to meet the objectives of the evaluation[5].

3) Examples of University Review Procedures

At least three schools have described, in some detail, the implementation of administrative review procedures and practices. In "The Evaluation of University Faculty and Administrators: A Case Study," Richard Fenker reports on the Texas Christian

University experience with formal evaluation of the performance of administrators and faculty[19]. The purpose of the T.C.U. reviews has been to minimize the arbitrariness of decisions relevant to promotions, tenure, and salaries. This review process relies on a structured evaluation tool that elicits quantifiable data which then constitute a source of information for administrators who must make decisions about faculty rewards.

Another paper describes a five-step process which has been used at Mankato State College[20]. In this case, the Dean of the School of Arts and Sciences instituted a three-year, tightly-structured review process designed in part to enhance the administrative skills of the chairmen. The Minnesota State University System has also developed a process of administrative evaluation which is based on policy and procedures for a periodic review and evaluation of the performance of all of its university presidents [13,21]. An interesting aspect of the Minnesota guidelines is the provision for a resigning or retiring president to serve in a "distinguished service professorship" following the expiration of his term. This provision has two important purposes: (1) to provide long-term security for an out-going president, and (2) to ensure that the state system can continue to profit from accumulated experience of the out-going administrator. Several other institutions have reportedly made a significant commitment to administrative and/or program review. These include the State University of New York, the Oregon State System of Higher Education, and Haverford College.

4) Guidelines and Limitations of Review

Several articles or books emphasize guidelines, "model" approaches, "rules of thumb," and limitations[3,10,11,12,22]. While many of the authors disagree on procedural details, such as frequency of review, review committee composition, and scope of review, the following generalizations emerge:

(1) Periodic review of academic programs/departments and their administrative leadership, if carefully, purposefully and appropriately employed, can be an important aid to personal and institutional growth;

(2) Evaluations are more effective if carried out on a periodic rather than on an ad hoc basis;

(3) The objectives and procedures used in reviews should be clearly stated and generally understood;

(4) The confidentiality of review findings must be assured and maintained;

(5) Formal reviews should be conducted only if they are perceived as being of greater benefit than existing, on-going, informal evaluations;

(6) Properly managed evaluations should result in institutional stabilization rather than disruption;

(7) Each assessment is and should be a unique event. Consequently, no one method or model of evaluation is necessarily correct. Reviewers must

consider numerous variables, many of which are qualitative, subtle and complex, and therefore, cannot be neatly addressed in a checklist fashion. As such, the specific purposes for each review should be carefully considered before evaluation procedures are selected.

B. Utilization of Departmental Review in Medical Settings

In "Peer Participation in Hospital Department Review," Douglas Peters reports the experience with departmental review at the University Hospital at the University of Michigan Medical Center[33]. While the reviews described in this article frequently require participation by medical school faculty, the process is essentially a hospital-based function. Because this article is the only published account of experience with departmental review in an academic medical center, the following discussion of the growing utilization of review in medical schools relies on data from the departmental review survey and on the authors' perceptions of the changing role(s) of departments and department chairmen in the academic medical center complex.

1) Extent of Use

One hundred twenty-one (121) of the 138 U.S. and Canadian medical schools answered the survey requesting information about departmental review procedures currently in use. These answers reveal a dramatic increase in the frequency of application of departmental review since 1970. Seventy-three or 60% of the schools which responded use departmental review; of these, 50 or 68% use it in a periodic rather than ad hoc fashion. Three-fourths of

those using departmental review have initiated it in the last seven years; only 18 schools have more than seven years experien with review procedures. Extent of use is as follows:

WHERE DEPARTMENTAL REVIEWS ARE USED	
University wide	29%
Medical center wide	6%
Medical school wide	46%
Selected departments only	4%
Unevenly in various facilities and schools of the University	15%
	100%

In about half of the medical schools using review, similar procedures are not utilized in other university units. During the site visits, basic differences between medical school departments and other university departments were frequently cited as the cause of this phenomenon. For example, the power and multiple responsibilities of the medical school chairmen are seen as being very different from those of other university department chairmen. In addition, there are significant differences in the level and type of resources for which medical school and university chairmen are responsible. Some recent articles on the nature of the medical school department chairmanship elaborate these ideas[24, 25]. A more complete explanation of this issue and its relation to the increasing acceptance of review in medical schools requires discussion of the evolution of the medical school department and the changing role of the department chairman.

2) The Medical School Department

In educational terms, a domain is a body of knowledge that is described by a commonly accepted group of laws or theorems. In the world of medicine, a domain may also be defined by a technology or a group of technologies. The existence or emergence of a domain can be seen as the theoretical or intellectual basis which legitimates the emergence of a department as a quasi-autonomous unit of the university. It has also been suggested that the emergence of new units called departments in various universities around the country is in and of itself a rationale for the development of these same departments elsewhere[28]. However, the emergence of a new medical school department has organizational implications far beyond the delineation of concepts which attract a group of scholars to each other.

Over the last 70 years, the department and its chairman have emerged as the key organizational and administrative unit of North American medical schools[29]. Characteristically, the chairman is appointed by the university president and/or board of trustees after a search and recruitment process in which the faculty and the medical school administration are active participants. Thus, the department as a structural unit and the chair as a managerial function are clearly part of the institutional administrative line. In addition, both are supported by the mandate of the faculty as expressed in the search and selection process. Thus, power and authority are drawn from above and below, i.e., from both the administration and the faculty. Terms of appointment for chairmen are frequently unstated. However, the

expectation has been that appointments will be continuous until the person moves to another position, elects to step down, retires for reasons of age, or dies. The chairmanship has been widely considered a terminal appointment for most people in most medical schools. The power, authority, responsibility, and leadership roles of the chairman are so significant that the departments they lead are frequently conceptualized as "theirs". The relative status of the department within the school and among its peers in other medical schools is in no small way attributable to the gifts, accomplishments and leadership of the chairman. Collectively, chairmen are usually considered the senior statesmen of the institution. They serve as a council of elders, whose judgment is to be sought, support solicited, collective feelings respected, and recommendations, with rare exceptions, followed. Continuity and stability of chairmanships have also come to symbolize institutional stability.

As medical schools have received more and more of their support from external sources, such as research grants and contracts and fees for patient care, a franchise-like arrangement has emerged in which the chairman has been expected to develop and extend a specific area of activity. In periods of growth and expansion, increasing power, autonomy and visibility for chairmen, for the faculty, and for the department are common. The same developments become infrequent in periods of static or declining resources. In spite of vast differences among institutions, and despite changes in both the source and levels of support for departmental operations, the phenomenon of large, relatively

autonomous departments led by powerful chairmen is viewed as characteristic of North American medical schools.

This is not to suggest that department chairmen function independently, for many factors affect their roles and responsibilities. These include the mix of clinical and research activities, the nature of faculty reimbursement patterns, university and/or medical school regulation of operating procedures, and the quality and number of hospital affiliations. In spite of these multiple, interdependent forces, the structure of the department and stability and effectiveness of chairmen are viewed as essential components of a strong medical school. This pattern of administration would not be so widespread or so persistent were it not highly functional for medical schools. Thus, interventions such as departmental review which are potentially threatening to this structure are viewed cautiously.

3) Changing Role of the Department and Department Chairman

The social, scientific, and technological changes which have occurred in recent years have inevitably modified the role of the department as an autonomous medical school component. Similarly, these changes have dramatically affected the functions, power, leadership, demands, and attractiveness of the chairmanship.

Institutions have grown in size, in number of departments, and in complexity of department and institutional mission. Accompanying these changes has been the increasing interdependence between departments and between departments and programs. The formal espousal of matrix management by the recently organized

medical school at McMaster University in Ontario serves as an illustration[31,32]. Interdepartmental teaching, waning of bloc. courses, cross-departmental dependence on complex instrumentation and/or research support services are all developments that serve to blur departmental lines. The emergence of support for outputs not necessarily related to departmentally-defined disciplines further obscures administrative responsibilities. Center grants from the National Institutes of Health, program project grants, and a variety of contracts which require the involvement of people from many different departments represent pressures for modification of the traditional departmental structure and require interdepartmental cooperation. Institutional programs rather than departmental products are publicly demanded. One now hears of pre-M.D. education, post-M.D. education, continuing education, tertiary care referral centers, and regional resources rather than Dr. White's thyroid clinic, Dr. Brown's training program in pediatrics, or Dr. Smith's annual refresher course in colon disease. As products or outputs become less discipline-oriented, medical center administrators are expected to deal with issues which can no longer be resolved at the departmental level. Thus, in many settings, the department is being conceptualized more as an integral part of the administrative structure of the institution and less as the personal "franchise" of its leader.

The role of the department and particularly the nature of the chairmanship has also been affected by increasing competition for limited resources which has made decision-making more difficult at all institutional levels. Resolution of conflict through

growth or through the addition of resources is fairly easy; developing new programs and bringing on new people is exciting. Choosing between competing and equally legitimate demands is difficult. Wondering what to do with a program that has lost its support is conducive to sleeplessness. Advising competent people that there is no room for them is no pleasure. A job which calls for reallocation resulting from resource shortages is very different from one calling for the distribution of surpluses.

The evolution of the role of the medical school department, the changed and relatively reduced flow of resources over which the department has discretion, and changing perceptions of the location of responsibility for fiscal integrity help explain the development of new and different attitudes toward the permanence of department chairmen. Recent reports suggest that the role is less rewarding and more demanding that it used to be[23]. It is no longer automatically assumed that chairmen will serve indefinitely [30]. More specific manifestations of these changing attitudes are reflected in the following observations: (1) some chairmen are beginning to question the desirability of long term appointments; (2) the demands of the position are viewed as physically and emotionally draining; (3) administrative responsibilities are seen as taking time away from activities which would contribute to the scholarship, creativity and professional competence of the individual; (4) the mushrooming concern for process, for participation, for public accountability and for what might be called increasing "horizontality" of administration detract from the level of autonomy which has been an important perquisite of the

chairman; and (5) chairmen have had to adjust to a greater level of inter-departmental dependence and to greater demands for commitment to institutional objectives.

4) Emergence of Departmental Review

The inter-relationships between departmental and institutional sources of revenue have a profound effect on medical school operations. When resources are generally readily available, and when many departments generate a major portion of their own operating funds, there is less concern at the institutional level about the efficiency of resource allocation and expenditure. However, as the relative availability of resources declines, the acquisition, allocation, and effective, efficient management of all institutional resources become critical concerns.

Another issue related to resource availability is the need for the institution to be concerned about the type of leadership that is appropriate for the various administrative units at different times. As institutional objectives change, the leadership must be regularly re-evaluated for its continuing suitability. Someone who would have been a superb choice for chairman ten years ago might not be appropriate now.

Many chairmen interviewed in the course of this study identified the following paradox: continuity of leadership is very important when new programs are initiated or when existing programs are modified. However, long term chairmen tend to have a tendency to assume standard ways of doing business. Accordingly, many chairmen recommended some sort of renewal process and/or limitation on the term of the chairman. In addition, the necessity of

acknowledging and rewarding exceptional, consistently productive people who remain effective and full of fresh ideas for decades should also be recognized. As one university president pointed out in an interview, given the proliferation of demands on its administrators, the institution has an obligation to recognize and appreciate both publicly and privately the importance of the chairman's role.

There is nothing new about evaluations of departmental performance. For years reviews have been carried out, sometimes formally and sometimes very informally. Budgets, space assignments, growth versus stagnation of research programs, local and national recognition by peers, the ability to recruit, retain, and place students and faculty, the prominence of department members in local, regional, and national councils, and the success and attractiveness of patient care activities have all constituted an implicit evaluation of the performance of a department. The process which this report describes includes these factors. However, the paper focuses on the explicit formal review processes which are part of the administrative procedures of the medical school and which contribute to the planning and control functions of the institution.

IV. DEPARTMENTAL REVIEW AS A PROCESS -- ITS COMPONENTS

The forces leading to initiation of departmental review may arise within university administration, within medical school administration, within the faculty or within one of the constituencies the medical school serves. Many specific issues may be identified as reasons for utilizing review; frequently, the process emerges as a result of the need to address overall institutional objectives or strategy. Although forces sustaining review may fluctuate over time, they must be significant and legitimate if review is to maintain its credibility and utility.

Given the variety and complexity of issues which lead to initiation of review, it is not useful to attempt to describe a standardized approach to the process. Thus, this report presents review as a cyclical intervention made up of seven steps, each of which may be managed in a variety of ways. This framework is chosen to demonstrate the potential for flexibility of review concepts and procedures.

A. The Departmental Review Process - A Cyclical Model

Departmental review should be conceptualized as a process or an intervention made up of a series of components. The process may be used in many ways, with varying levels of intensity, flexibility, and skill, depending on the environment, resources, dean department chairmen, faculty, and attitudes of central university administration. Departmental review should be viewed as a single process with many variations. The process includes:

(1) Identification and communication of the objectives of the review;

(2) Collection of data descriptive of departmental activities and performance;

(3) Analysis of data;

(4) Generation of conclusions;

(5) Formulation of recommendations;

(6) Communication of recommendations and intended actions;

(7) Implementation of recommendations.

B. Purpose of Departmental Review

Although review is sometimes used throughout the university, its application in the medical school departments is almost always for medical school and not for university purposes. In the 73 medical schools reporting the use of departmental review, its purposes are as follows:

PURPOSE OF REVIEW

Departmental Review is Used	Primarily	Secondarily*
1. By the university to evaluate the work of the medical school	6%	6%
2. By the medical school to evaluate the status or performance of a department	46%	41%
3. By the medical school to evaluate the performance of a chairperson prior to his reappointment	21%	45%
4. As a planning and management tool used by medical school administrators to review objectives, goals, and resources of a department	25%	49%
5. Other	2%	2%

* More than one secondary application could be indicated.

At each of the five site-visited medical schools, departmental review was instituted as a reaction to a change or perceived potential for change in the quality of faculty work or in what might be called the administrative or organizational balance of the school. At two of the schools, the impetus for review flowed from the faculty to the administration. In two others, it flowed from administration to faculty; and in one, faculty and administration seem to have simultaneously recognized the desirability of initiating a review procedure. In four instances, the relative competitive position of the school and/or a desire to redirect faculty efforts were reasons given for developing a process of review. In one instance, review was initiated at the request of the faculty to ensure a more desirable balance between the dean's office and the faculty in the administration of the school. In this case, the faculty felt the office of the dean needed strengthening. The process is generally seen as an effective and influential intervention for some purposes.

C. Convener - Who Initiates the Review?

In 68% of the schools responding to the departmental review survey, the dean is responsible for initiating the review process. In others, the executive committee (9%), the chairman (4%), the vice president or his equivalent (4%), or some mixture of sources (15%) can call for review.

At all of the site-visited schools, the dean initiates or convenes the review. However, the conditions under which reviews are requested vary, and the control of the process by the dean is mitigated by many circumstances. At one institution, the dean is

mandated by university by-laws to hold a review of each department every six years. In addition, he is required to depend upon procedures which are identical to those used throughout the university. Medical school problems which appear on the university president's desk may also serve as impetus for review. In other situations, a review of the clinical units may emerge as a result of changes in the type and nature of key clinical affiliations. The legitimacy of review must be recognized by the faculty if resulting recommendations are to carry any weight. This fact is illustrated by the experience of one institution which has found that it can steadily increase the visibility and effectiveness of review as the process gains acceptance among the faculty.

D. Review Committee Composition

In 68% of the schools which use review, the dean appoints the review committee; in 9%, the president or vice president has this responsibility; and in 23%, some combination of officers of the school selects the committee. The following table shows the kinds of people medical schools have included on review committees:

REPRESENTATION ON THE REVIEW COMMITTEE

(N=73)

Types of Personnel	% of Schools Having Included Them on Review Committee
Chairmen	77%
Other faculty	71%
Students	37%
Members of department being reviewed	42%
Non-medical school university personnel	60%
Non-university personnel (external reviewers)	38%

Many variations of committee composition have been tried including external reviewers alone, internal and external reviewers, and internal reviewers with or without outside consultants. Reviews may also be conducted primarily by the dean, sometimes with the assistance of his staff, and sometimes with assistance from an advisory committee. It should be added that external reviewers are not always members of the committee; while 38% of the schools have included external reviewers on the committee, two-thirds of the schools have employed review consultants who did not serve as members of the review committee. About one-third of the schools responding to the survey have appointed students to review committees. Although medical students were not included as review committee members at the site-visited institutions, the opinions of graduate students in the basic sciences and of clinical trainees were cited as valuable in the evaluation of the work of the department.

In most cases it was emphasized that the dean is and should be responsible for assuring an even-handed selection of reviewers. Sometimes, the faculty by-laws mandate committee selection procedures. In other cases, the dean seeks nominations of potential committee members from the department being reviewed. It is clear that whatever the method of reviewer selection, an important factor is the acceptability of the group to the department being evaluated and to the faculty at large. If this criterion is met, committee recommendations are more likely to be seriously considered.

E. Charge to the Review Committee

The role of the review committee and its responsibility to

the dean must be clearly understood. If review is to retain its credibility, the charge to the review group, the selection of review committee members, the identification of the types of information to be collected, and the range of possible outcomes should all be carefully considered and clearly articulated. The importance of selecting an effective review committee chairman was also emphasized as it is generally agreed that the success of the review may well depend on his or her leadership, energy, sensitivity, perceptiveness, experience, and prestige. More specifically, a carefully stated charge to the review group and the appointment of a strong committee chairman can help to avoid a long, drawn-out review and the potential for reviewers to abuse the power of committee membership.

F. Internal and External Review Compared

External and internal reviews differ. A review by one or more external experts who spend, at most, a few days on a site visit is very different than a review by faculty or staff members who are familiar with the department being evaluated. External review has particular merit in situations where the quality of the research or the scholarly activities of the department are of primary concern. Sometimes, chairmen request external reviewers. This seems to happen when the chairman feels he needs extra-institutional support, when there is a change in the focus of departmental activity, when major changes in administration have occurred, or when a critical review of new or projected programs is desired. In these cases, thought should be given to the personal and professional relationships of external reviewers to the

chairman of the department being evaluated. External review has the side effect of increasing the visibility of a department, its people, and its activities outside the institution.

There are drawbacks to external review. Expenditures for travel, honoraria and entertainment are not trivial. In addition, obtaining competent external reviewers is difficult; individuals of the caliber desired are over-committed and well-rewarded. Furthermore, in situations where there is a significant level of institutional conflict and where the review may result in decisions that affect the careers of individuals, external reviewers may be reluctant to assume roles as de facto arbitrators. External reviewers are seen as having limited value when the review process is focused on teaching, patient care, and administrative matters. For example, it can be difficult for external reviewers to appreciate the local historical or political factors which affect the activities of the department in an affiliated hospital.

Thus, for questions about research quality, national standing, and/or large-scale redirection of effort, external reviews are viewed as helpful. For judgments about the internal affairs of a department, for the evaluation of its teaching and patient care programs, for the assessment of its contributions to the general affairs of a medical school, and for insights into the potential of a department, review by local representatives is probably more appropriate. One chairman said that schools or departments with parochial interests are most appropriately reviewed by internal evaluators; departments whose interests are more national in scope are best reviewed by external experts.

There are other considerations in the selection of reviewers. External experts will be loyal to their own disciplines and are likely to recommend more resources for their peers. On the other hand, external consultants may be better able to give objective, unbiased opinions than faculty members. In addition, an evaluation by external experts may avoid the destructive personal conflicts which can surface during an internal review. The president of one university thinks that the value of an external expert goes beyond participation in the site visit. Such individuals may be seen as consultants for several years after the evaluation; these reviewers may also be seen as potential candidates for future chairmanships.

In contrast, there are real benefits in using one's own faculty to conduct reviews. Recommendations formulated by an internal committee may increase the likelihood of commitment to implementation. Secondly, individuals who serve on review committees may learn a great deal about an academic unit other than their own, which in turn may help to promote interdepartmental activities and relations. Internal reviews are less expensive than external reviews, exclusive of the hidden cost of time committed by the faculty to the review procedure. Strong leadership must be provided by either the review committee chairman or the dean in internal reviews to assure that committee deliberations remain focused on the primary task of evaluating the performance of a department and do not drift into an assessment of the personality of the chairman or of other faculty members.

G. Data Collection

Implicit in any plan for departmental review should be the existence of criteria against which the department can be measured. These criteria, whether stated or unstated, imply a need for data descriptive of the performance of the department. These data may be subjective or objective, quantitative or qualitative, specific or general. Thus, the review report should clearly identify data from which conclusions and recommendations are derived. In addition, while there should be some consistency in the types of data utilized from review to review, the data gathered and the type of analysis utilized must relate to the scope and objectives of each evaluation.

In general, the following types of data are collected:

1) Quantifiable Data

These include expenditures; change in expenditures; source of funds; number of faculty, students, other personnel, patients, grants, beds, and/or square feet of space. Such data are usually readily available and may be taken from annual reports and/or other sources.

2) Non-quantifiable Outputs

These include assessments of such factors as contributions to undergraduate teaching, perceptions of the quality and effectiveness of this teaching, and/or the concern for and commitment to teaching activities. The quality as opposed to the quantity of research, the quality of clinical programs, and the contributions to the school in general are all essentially subjective but pertinent judgments.

3) Opinions of Peers

At all but one of the site-visited schools, opinions about the performance of the department under review and/or the quality of the leadership provided by its chairman were sought from all other department chairmen. Usually, the dean or the reviewing committee requests such information by letter. A chairman may reply in writing or he may speak with the dean or the review committee chairman. Chairmen interviewed expressed some discomfort in participating in the formal evaluation of their peers; however, all saw it as a responsibility to be taken seriously. Some chairmen suggested that such peer judgments should not constitute an evaluation of the chairman per se, but should focus on the degree to which the department being reviewed enhances the strength of the school as a whole. Others see peer evaluation as an opportunity to discuss the level of interaction of the department being reviewed with other departments. Most chairmen said they feel incapable of evaluating the conduct of the internal activities of another department. For example, how can a biochemist evaluate a clinical program in neurosurgery?

4) Opinions of Members of Department Being Reviewed

Opinions of faculty members of the department being evaluated are frequently sought by letter or in a confidential discussion between the member of

the department and the dean and/or the review committee. In some situations, junior faculty see this participation in review as an opportunity to voice opinions, frustrations, or support, and thereby, contribute to shaping the unit of which they are members. In contrast, some department members see department review as beyond their area of interest and responsibility, particularly in those cases where the review focuses primarily on the performance of the chairman. Several individuals interviewed expressed concern that review may stimulate discontent within the department. This type of conflict, which seems to occur infrequently, may in some cases become a legitimate issue for consideration by reviewers.

There is variation in both the type and the amount of data collected for review purposes. When a department seems to be performing extremely well, the dean may limit the evaluation to a solicitation of several respected opinions. On the other hand, when a department is undergoing major changes or appears to be struggling, the review may require collection of numerous opinions and a considerable amount of quantifiable data. In general, the time and effort devoted to the review process should be congruent with review objectives. For example, a review conducted by the dean's office for the purpose of polling department faculty opinion may be accompanied by a much smaller data-gathering effort than one in which an external committee is asked to evaluate numerous departmental activities.

H. Information Selection and Processing

After data are collected, they should be processed and summarized in a form useful to the review group and relevant to the objectives of the process. Three general approaches have been utilized: (1) if the review is conducted by an external group, either department representatives or the dean's office may select and summarize the information to be considered; (2) if the review is done by an internal committee, data selection and processing is frequently the responsibility of the review committee, usually with assistance from the dean's staff; (3) if the review is carried out primarily by the dean and his staff, the information to be used will be selected and processed by them.

It should be added that while an internal committee or the dean's staff may provide guidelines for the type and amount of data to be collected, the department chairman is almost always encouraged to submit additional data which he feels is appropriate. Several chairmen noted that the identification and presentation of data by the department can help to focus evaluation on issues which are important to the department members.

I. Recommendations and Report

At all site-visited schools, a summary report including recommendations for change is submitted to or generated by the dean. In 98% of the schools surveyed, the final report is written. It is the responsibility of the dean to inform the chairman of the findings of the committee and of actions recommended in the report. In many instances, the dean also meets with the entire department to share the observations and recommendations resulting

from the completed review.

The written reports are kept confidential in one-quarter of the schools and given restricted circulation in three-quarters of the institutions surveyed. In most cases, the dean shares the report with the department chairman and with the president of the university or his equivalent. Frequently, the university president receives only an abbreviated summary of the report or simply a recommendation for reappointment of the chairman. At the discretion of the dean or the department chairman, the summary report may be circulated to department members or on rare occasions, may be made publically available. Written reports are usually kept on file as part of the historical record of the work of the department.

V. FACTORS AFFECTING THE DEPARTMENTAL REVIEW PROCESS

In addition to the management of the individual components of the unit evaluation process, there are numerous other issues which must be addressed when initiating or conducting departmental review. This section identifies these issues and discusses their relationship(s) to the effectiveness of review activities.

A. Duration of Review

There was unanimity amongst those interviewed that review should be conducted expeditiously. In two instances where review was sharply criticized, a common complaint was that the evaluation effort got out of control and lasted for more than twelve months. Unwieldly university regulations tend to prolong the review past its point of maximum effectiveness; lengthy reviews give rise to uncertainty and tension about the status of the department and of the chairman. Based on these observations, those conducting the review and those being reviewed should insist on an expeditious process. The experience of the site-visited schools suggests that collection and consideration of the necessary information, interviews, meetings, etc., requires a minimum of two months; after six months, the constructive impetus of the process declines.

B. Interval Between Reviews and Chairman's Term of Appointment

Responses to the survey (see tables below) indicate that departmental reviews occur at intervals of seven years or less; most are carried out every five to seven years.

INTERVAL BETWEEN REVIEWS

(N=73)

Less than 3 years	15%
Three to five years	26%
Five to seven years	44%
On request	9%
Other	6%

TERMS OF CHAIRMAN'S APPOINTMENT

(N=73)

	YES	NO
Is a chairman's appointment renewable?	97%	3%
Is there a stated duration of each term?	55%	45%
Is there a stated limit on the number of terms?	12%	88%

At the site-visited schools, the interval between reviews varies from an unstated period to three to six years. The interval between reviews is usually, but not always linked to the term of appointment for chairmen. Data in the letters from the deans to the University of Alabama and site visit interviews suggest that five years is an ideal interval. In general, it is felt that intervals shorter than five years lead to unnecessary interruptions in the work of a department while intervals longer than five years are viewed as being excessively long when there are significant unit problems.

It should be noted that approximately one-third of schools utilizing review apply the process in an ad hoc rather than in a

regular, periodic fashion. In some instances, the sporadic rather than systematic use of review may be explained by the recent initiation of reviews and by the absence of routine procedures. However, it appears that there are institutions, experienced with the review process, that favor its use on an ad hoc basis to provide an intensive focus on specific issues. In these schools, reviews may be conducted only when the dean feels a department would benefit from review or when the chairman, himself, requests that his department be evaluated. Ad hoc reviews may be stimulated by the university, by department members, by practicing physicians and sometimes, but rarely, by students. In addition, it appears that most reviews which are a part of the selection and recruitment of a new chairman are ad hoc in nature.

C. Role of Written Guidelines

In organizations as large and as complex as academic medical centers, one would expect to find carefully defined departmental review procedures. However, survey data indicate that only 38% of the schools using review have written guidelines. The level of detail in these guidelines varies; in some cases, the guidelines are contained in a single paragraph; in others, the dean outlines the procedures in a memorandum to department chairmen; in still others, a complete section of either medical school or university by-laws is devoted to this subject.

It should be noted that rigidly defined processes can obscure the goals of the evaluation. The dean and faculty must be allowed to adapt procedures that are appropriate for the purposes of the

evaluation. If not, the resulting bureaucratization can lead to a general dissatisfaction with the process. Furthermore, the University of Alabama survey results suggest that written procedures are often an inaccurate representation of the process in practice. Finally, comments during the site visits suggest that there is little or no relationship between the effectiveness and intensiveness of a departmental review and the content of specific guidelines. What does seem to be important is the existence of some common understanding by all concerned about the purposes of the procedure and the process to be employed. Such a communication can be distributed formally or informally, in writing or verbally.

Based on guidelines collected for the departmental review survey, several generalizations can be made. Most guidelines include statements about the following:

(1) Purpose(s) for conducting departmental reviews;

(2) Interval between reviews;

(3) Selection and membership of review committee;

(4) Minimum data required;

(5) Form in which final recommendations will be presented;

(6) Identification of recommended actions which may result from the review, e.g., reappointment of chairman;

(7) Officials to whom the report will be made available.

D. Relationship to Other Forms of Review and Evaluation

Every academic medical center is subject to many formal and informal evaluations conducted by both internal and external parties. Institutional self-studies, annual reports, and accreditation evaluations are but a few examples. Although each of these evaluations has its own purpose, considerable overlap exists in the objectives and focus. All evaluations tend to examine similar activities and much the same data. As one of many evaluation efforts, departmental review parallels and, in some cases, duplicates these other activities.

Given this overlap, it is appropriate to explore mechanisms whereby departmental review may be coordinated with other required evaluation procedures. For example, annual reports may serve as an information source on departmental activities and accomplishments, as a checklist for chairmen to review the progress of the department during the year just completed, and as a planning guide by providing a source of reference for the development of future objectives. Chairmen at the site-visited schools noted that the finished report as such is often of less value than the process of preparation of the report. Interviews also revealed that while it is the dean who requires the preparation of annual reports, it is the chairmen and not the dean who attest to the value of these reports. The chairmen may use annual reports for one or more of the above-stated purposes; the dean tends to view annual reports only as a source of reference for the preparation of his own annual report for the medical school/center.

Institutional self-study is now a required activity for medical school accreditation. Because this self-study approach has only recently been initiated, there is insufficient experience on which to base parallels between self-study and departmental review. The objectives of the two processes are not the same and the people who evaluate the results are quite different, so at this point it is difficult to estimate how or if the two activities might interact.

Most medical school administrators indicate that little has been done to relate institutional evaluation mechanisms to each other even though many recognize the potential for more coordination of the various data gathering and evaluating processes. Most chairmen, recognizing that each review group has a legitimate interest in the affairs of a department, were irritated by, but tolerant of the overlapping demands from evaluation groups.

E. Faculty Support

The legitimacy and consequently the value of departmental review as a means to address institutional strengths and weaknesses is dependent upon the degree to which faculty and chairmen are responsible for, committed to, and involved in the development of the process. For example, a university administration may mandate a rigidly-structured departmental review primarily for use by the office of the president. This type of an assessment is unlikely to be seen as constructive unless the chairmen feel that its outcomes will ultimately affect departmental activities. Similarly, the collection of anecdotal data about the performance of a department and its chairman could assist in the assessment of

faculty morale, but may fail to result in carefully developed recommendations related to the management of the academic unit being evaluated. These examples can be contrasted to a review where the chairman and department members meet and help to identify appropriate data and issues in preparation for review, provide alternatives as to how the process might be carried out, and as a result, receive useful guidance in efforts to strengthen departmental performance.

F. Rotating Chairmanship

The rotating chairmanship, which is common on general university campuses, is rare in medical schools. Of those schools which were visited, only one school had any experience with rotating chairmanships (every three years for basic science departments), and at that site there had been a recent decision to abandon the rotational system. There was broad agreement that frequent and regular rotation of chairs had been an ineffective administrative policy. One professor, who has served twice as chairman, felt that such a system encourages limited commitment to administrative responsibilities; the chairman is reluctant to make difficult decisions knowing that he has only a limited period of time in which to implement policy changes. In addition, there is concern about retribution for unpopular decisions when the rotation next occurs.

In contrast, The University of Alabama survey contains generally favorable comments about rotating chairmanships. One dean, who represents a school which uses the rotational system in the departments of pathology, medicine, and surgery, reports that the

limited term has been a very satisfactory arrangement. In another institution, the rotating chairmanship has been abandoned in the clinical sciences, but retained in the basic sciences.

G. Utilization of Departmental Review in Medical School, Medical Center and/or University

It has been noted that departmental review is used with greater frequency in medical schools than in other parts of the university. Medical school departments, particularly the clinical units, are different from university departments of history or sociology, for example. The sources of revenue for clinical units are varied and can be very large, thus providing chairmen of these units with a great deal of latitude in allocation decisions. As a result, it might be assumed that the need for stable and consistent administration is greatest in the medical school departments. Consistent with this observation, short terms, rotating chairmanships, prohibitions against serving second terms, and election of chairmen, all of which are found on general university campuses, are rare in medical school/center settings.

When departmental review is used only in the medical school, involvement of the central administration varies. In some cases, university administrators adopt a hands-off policy, and the review is seen as a medical school project; in others, the university administration reviews reports in order to be informed about department functions. There are also situations where university administrators rely on data gathered during departmental reviews as input to making decisions about the department as a unit or about the medical school as a whole.

Problems may occur when review is university-wide. These problems may be resolved by having permissive guidelines that permit flexibility or by allowing some exceptions for the medical campus (six rather than four year appointments, for example, or an opportunity for multiple terms). Other modifications in a university-wide process may be appropriate: it may be desirable to expose the commonly experienced problems in basic science graduate programs to rigorous review; at the other extreme, hospital programs answer to so many external agencies that there may be no need for evaluations other than those which are performed on a regular basis.

Neither the survey nor site visit interviews elicited examples of health sciences center conflicts that had emerged as a result of the administration of departmental reviews. However, it should be noted that a medical school department frequently has responsibilities including major undergraduate commitments to other schools or faculties within the university. In instances where more than one school is involved, interface problems may be resolved by what might be called the "school of origin rule." In this case, the review is conducted according to the procedures and policies of the school in which the department is located.

H. Comparison of Basic and Clinical Science Reviews

A common perception is that review is better suited for use in basic science departments than in clinical science departments. Interview data fail to support this impression. However, the significant differences between clinical and basic science departments need to be incorporated in the focus and structure of

evaluation efforts if reviews are to yield meaningful recommendations. For example, the affiliated hospital plays an important role in determining the quality and kind of patient care and education programs offered under its auspices. Therefore, individuals who represent the interests of the affiliated hospital should be included in the design and implementation of processes to evaluate medical school activities that take place within that hospital.

In general, chairmen state that size and scope of activities of clinical departments require a more elaborate set of review procedures than is necessary for the evaluation of basic science units. While review may be structured differently for different purposes or for different types of departments, the process is apparently germane to the management of clinical as well as of basic science departments.

I. Review of the Department or of the Chairman?

When a department is reviewed, there are a number of interdependent but at the same time separate entities that can be examined. Among these are the status and contributions of the department on a national basis, its status and contributions to the medical school of which it is a part, its growth and development as a department over time, and the leadership provided by the chairman. Distinctions among these components are subtle, but those interviewed insisted that the differences are important. For example, the review committee may find themselves assessing: the excellent department with poor leadership; the poor department with excellent leadership; the popular chairman whose unit

is drifting; the unpopular and seemingly ineffective chairman with excellent programs; or the chairman who is embroiled in controversy, the resolution of which is necessary for the good of the institution.

Review of the chairman as contrasted with review of the department is the source of many objections to the review process. An evaluation which focuses on the chairman is sometimes seen as a promotional opportunity for an incumbent or aspiring chairman, as a deterrent to timely decision-making, or as a focus for acting out departmental frustrations. In these situations, the process tends to become threatening, loses support, and may lapse into ineffectiveness. At one school, a policy question of importance to the entire university became the focus of a review. This focus resulted in a polarization of opinion, which in turn led to a merciless attack on the department chairman. In the end, the review committee and the dean were able to manage the process in such a way that no one individual bore the burden of the conflict. However, the review process itself was blamed as having nurtured the potentially explosive situation. In contrast, efforts of another chairman to re-direct and restructure a very large department had resulted in frustrations for himself and many members of the department. In this case, the review allowed the chairman to see that neither he nor the department were making desired progress as long as he was ambivalent about his role as chairman.

One dean responding to the University of Alabama survey stated that at his institution, the evaluation of the work of the department and the review of the administrative ability of the chairman

are two separate activities. At this university, the performance of the chairman is specifically reviewed in connection with his reappointment. In this case, the appointment decision is clearly the responsibility of the dean and the university administration although recommendations about the matter are solicited from tenured faculty members. On the other hand, the activities of the department are reviewed by a faculty committee, appointed from a panel of nominees elected by the medical school executive committee. This committee is advisory to the dean, and it focuses on a global evaluation of the department and of its programs. While it can be argued that there is a certain artificiality in separating the review of the chairman from the review of the department, some procedures can and do highlight the differences between programmatic and individual evaluation. When the review of a department occurs simultaneously with consideration of the reappointment or appointment of a chairman, it seems inevitable that the focus of review will shift to appointment or reappointment considerations. On the basis of site visit interviews, it appears that the review process is more credible when the focus is on the work of the department rather than the appointment or reappointment of the chairman.

J. Review of the Dean's Office

Of the schools surveyed, 30% have some form of dean's office review compared to 60% who use departmental review. In two-thirds of these 35 schools which review the dean's office, the university president or vice president conducts the review; in the other one-third, some other mechanism, usually relying on participation

y department chairmen, is used. In two of the five site-visited schools, the dean's office is reviewed. At a third institution, the dean is limited to a single seven year term. In schools where the dean's office is reviewed, the process is considered to be more rigorous and intensive than is true for the review of departments. Although there are inadequate data on which to base conclusions, one strongly held perception is that although the faculty may be deeply involved in the review of the administrative functions of the dean, the final responsibility for review of the dean lies in the office of the president or vice president. The value of a review of the office of the dean is seen as being similar to that of the review of the role of the chairman. It should be recognized that for the review to have maximum value, the dean should have been in office for a significant period of time, i.e., approximately five years.

VI. ASSESSMENT OF IMPACTS AND IMPLICATIONS OF DEPARTMENTAL REVIEW

Previous sections of this report have asserted that departmental review is a complex, multifaceted intervention. Its optimal application depends on appropriate interactions between organizational units. The potential usefulness of review is believed to be determined by the situation and types of problems under consideration. This section of the report will attempt to assess the impact of departmental review processes on various aspects of medical school operations.

Any such assessment must begin with the realization that the great majority of reviews are favorable. The work of the department is usually found at least satisfactory and is often praised; criticisms are constructive; and the efforts of the chairman are supported. While positive assessments are beneficial, the real value of departmental review can best be judged by the ability of the process to address and to help resolve difficult managerial and/or programmatic issues.

A. Decisions and Actions Resulting from Departmental Review

Departmental review does not always result in either decisions or actions. The process does document, describe, and evaluate the strengths and weaknesses of the department as an administrative unit of the school. Thus, it facilitates the confrontation of issues which require resolution. Decisions about actions to be taken in response to problems identified by departmental reviews must be made in accordance with the customary administrative procedures of the institution. For example, one review committee recommended the appointment of a new chairman and a changed

emphasis in departmental programs. Because resources were not available to act on these modifications, the dean's office was forced to make a decision to take no action. Another review committee could come to no agreement on a recommendation for the restructuring of a subunit of a basic science department. The issue was resolved by the administration of the school. These experiences illustrate the difficulties encountered when review committees are asked to grapple with questions that have broad institutional implications. In contrast, review committees can make meaningful contributions if the focus of their efforts is limited to intra-departmental considerations. To illustrate, one committee recommended that the chairman of the department reviewed shift his attention from the development of junior faculty to the need for increased support and involvement of his senior faculty. This recommendation constituted a useful intervention by the committee and was implemented, yielding improved departmental function and esprit.

While there should be some expectation that departmental reviews will have a positive effect on an institution, the observation that reviews do not always result in decisions or actions should not necessarily be viewed as a weakness. Recommendations emerging from departmental reviews are one of many inputs to administrative decisions. Several individuals said that a dean who acts too quickly on the basis of review committee recommendations may be using the review process in an inappropriate and potentially destructive manner. For example, a review may help a dean persuade a chairman that a change in department leadership would

be appropriate; however, results from a single review may not be the best data on which to institute such a change. Acting solely in response to the recommendations of a review committee in this case would constitute an inappropriate transfer of administrative responsibility from the dean to the committee. Similarly, a review report may document a shortage of space in a given department. However, the dean who takes immediate action to correct this deficiency is suggesting that the review process is the appropriate mechanism through which to negotiate for additional space.

These observations do not suggest that departmental review data cannot or should not play a role in the development of important institutional decisions. By formally recognizing important issues and problems, reviews can help to document the bases for recommended actions and can increase the creditability of selected administrative decisions for faculty members.

B. The Role of Departmental Review in Planning and Resource Allocation

Half of the medical schools responding to the departmental review survey see the process as a planning tool. Reviews tend to be retroactive evaluations of a department and its chairman in terms of the stated or implied objectives of the unit. Despite this retrospective focus, review committee observations which highlight trends in department activities can be incorporated in institutional planning and/or budgeting cycles. For example, one review validated the continued autonomy of a subunit of a department and helped to assure continuing support for that unit.

Another well-managed review provided data which served to confirm the value of major changes in the activities of a large department of medicine and to lend support for their continuing development.

During site visits, both department chairmen and deans stressed the point that departmental review is no administrative panacea. The review process seldom uncovers issues unknown to department members, but it can provide a new focus or a change in emphasis on the issues addressed. Similarly, individual reviews may not bring about significant institutional change directly, but evaluations can stimulate resource reallocations or changes in institutional or departmental priorities. When administered with skill and judgment and with support from the institutional administration, the review process can serve as a valuable tool for addressing both departmental and institutional issues and plans for change.

C. Effect of Review on Other Units of the Medical Center

Medical school departments are not free-standing units. Changes in department "A" may well have effects on departments "B", "C", "D", and/or on other units in the academic medical center. Interestingly, those interviewed stated that these potential "ripple" effects are frequently under-estimated prior to review. At one school, the review of a department, most of whose clinical activity is in a large specialty hospital, resulted in a re-ordering of departmental priorities for recruitment, changed perceptions of division strengths, and a modification of expectations for support services. All of these changes affected

hospital operations to the extent that the hospital director and board of trustees became involved. In another recent case, an extensive review of a large clinical department supported changes in its organization and administration which were viewed favorably by the dean's office and other departments. These events in turn raised anxiety among the faculty of another large clinical department about perceptions of their own performance.

Some medical schools have chosen to recognize the interdepartmental implications of departmental review. One chairman of a large clinical unit routinely calls a department meeting prior to the review of another department. At these meetings, department members discuss the performance of the department being reviewed in terms of the degree to which that department is responsive to their needs. Another common method of addressing interdepartmental issues is for the dean to request a verbal or written statement from each chairman regarding his or her thoughts about the department being evaluated. Interviews elicited no concensus about what role other departments can or should play in departmental reviews; however, it was generally acknowledged that evaluations of academic units should not be conducted in isolation from other institutional functions.

D. Effect of Review on the Chairman

When reviews coincide with the term of the chairman, an obvious outcome of the evaluation will be a recommendation about the reappointment of the chairman. The evaluation of the chairman prior to possible reappointment is a primary or secondary use of review in 66% of the schools. However, the resignation of a

chairman as a direct result of a negative evaluation by the review committee is not common. Nevertheless, departmental review is seen by those interviewed as a mechanism which can facilitate changes in leadership. Review is also commonly viewed as a logical time for a chairman to relinquish his administrative duties so that he may concentrate on different kinds of professional aspirations.

The effect of review on department chairmen goes beyond the issue of reappointment. One of the benefits of review can be a "vote of confidence" in the chairman; it can provide reassurance to a chairman and his department that the unit is proceeding in an appropriate fashion. While this "report card" aspect of review may be viewed by some as superficial, many of the chairmen interviewed see the review process as an opportunity to acquire an evaluation of their administrative strengths and weaknesses. A positive review is seen by many as a personal endorsement of the chairman by the institutional leadership; in addition, it is viewed as having the potential for enhancing both the role and power of the chairman in institutional activities. Letters from the University of Alabama survey outline some of the potential effects of stated terms on the leadership style of the chairman. However, no consistent view about the specific effect was elicited with the exception that the knowledge that one's appointment is not continuous sustains and maintains a chairman's involvement in teaching, patient care and/or research activities in addition to his administrative role.

E. Roles for Ex-Chairmen

The fact that departmental review is often associated with changes in departmental leadership forces consideration of the alternative roles for former chairmen who remain as faculty members in departments they once chaired. These individuals are usually tenured, well-salaried, and have been deeply involved in the development of the institution. They have often been inactive in teaching, research and/or patient care activities for extended periods of time because of involvement in administrative matters. Ex-chairmen adapt to their changed roles in different ways. Many become active members of the department; others find the transition to be difficult. Braunwald has recently discussed the discomfort of the former chairman who remains at the institution in which he administered a department[23]. The University of Alabama survey responses also cite the difficulty in identifying a role for chairmen who have had significant administrative responsibilities. Although most former chairmen have made positive contributions to the work of their departments, many of the chairmen interviewed acknowledged potential problems in dealing with past chairmen and suggested some alternative methods of addressing them. In cases where a chairman knows well ahead of time that his role will change, the potential conflict can be mitigated; a six month or one year sabbatical can be a useful transition period. In some institutions, ex-chairmen become involved in planning activities, or in fund raising, or in committee responsibilities or as "master teachers" whose contributions emphasize experience and judgment rather than familiarity

with the latest technical skills. Some deans have asked ex-chairmen to assume more formal administrative responsibilities such as associate deanships. Some chairmen may choose to remain very active in patient care, research or teaching while they are chairman so that the transition from administrator to faculty member is not quite so difficult. The point is that a school considering implementing a review process must confront the possibility that review may be one of the forces which results in an increased turn-over rate for chairmen. In these instances, institutional leaders must be prepared to address the difficult problems inherent in managing people whose once powerful administrative and leadership roles have been delegated to others.

F. Recruitment

According to those interviewed during site visits, departmental review is seen as a neutral factor in the recruitment of new chairmen, although most chairmen and deans indicated that they would like to see some form of review if they moved to another institution. Data gathered from the survey conducted by the University of Alabama surfaced several negative comments about the effects of departmental review on the recruitment of new chairmen. In practice, review has had little, if any, effect on the ability of a school to either attract or retain chairmen or other faculty members.

G. Institutionalization of Review

If the review process is perceived as constructive and useful, it tends to be adopted on a broad institutional basis. Thus, the successful review of a major department may lead to review of

each of its component divisions. A hospital at which the professional staff responds positively to reviews may consider implementing a similar evaluation of its administrative units. A dean of a school whose basic science units have been reviewed may find curiosity mounting as to the applicability of the process to its clinical science departments.

Some form of evaluation is common at all levels in academic medical centers. Presidents, provosts, deans, chairmen and unit directors are constantly informally and in some cases formally evaluated. Students, residents, instructors, assistant and associate professors, and all untenured faculty and staff are also regularly scrutinized as they seek promotion and advancement. One chairman pointed out that everyone in his institution is subject to some kind of formal evaluation with the exception of those tenured professors who have no administrative responsibilities. It may be that departmental review is one mechanism which could be used to evaluate the contributions of individuals in tenured positions.

H. Costs/Benefits

The costs and benefits of departmental review are both tangible and intangible. When external reviewers are used, travel and per diem costs are incurred and are usually defrayed by the dean's office. When internal reviewers are employed, the intangible costs of the time of committee members and diversion of their effort from other activities occur. All deans and most but not all chairmen reported that the benefits of external and/or internal review far outweigh the costs incurred. Because the

costs of review are considerable, it is generally agreed that the process should be kept as simple and as carefully focused as possible.

However, the most worrisome cost is not the cost of the review process itself, but that of potential changes in leadership which may result from the review. A change of a department chairman is expensive. The search and recruitment process requires both money and time. New chairmen expect to be appropriated additional positions, new or remodeled space, additional equipment, or expanded programs. Small schools and small units in large schools face the additional problem of having to recruit from outside the institution. A dermatology department, for example, is unlikely to have many individuals with the leadership qualities of a good chairman. The school whose resources are limited to the extent that recruitment of solid candidates for chairmen is difficult approaches the replacement of chairmen with some wariness. The costs of changes in leadership do not diminish the potential utility of departmental review; however, schools unwilling or unable to financially support such a change must recognize that limitation and focus reviews on other kinds of issues.

VII. CONCLUSIONS

The formal evaluation of the performance of medical school departments and of the leadership provided by their chairmen is presently practiced in approximately two-thirds of all U.S. and Canadian medical schools. Most of these schools have initiated the review process since 1970. Based on information gathered from site visits to five medical schools which utilize departmental review, it appears that the process is an increasingly accepted and important practice in the conduct of medical school affairs.

Departmental review may be viewed as a process or as an intervention consisting of a series of seven or more components. Each of these components may be handled in a variety of ways, giving the review process great flexibility. The following generalizations may be made:

(1) Effective reviews require skill, judgment, and commitment from the dean's office and staff as well as from the department chairmen and faculty.

(2) Written guidelines for departmental review may not be necessary for an effective review system, but they are usually helpful in communicating the purpose and procedures for each review, which must be clearly understood by those involved in the process.

(3) Reviews are most frequently conducted by committees whose members are appointed by the dean and include faculty, dean's staff and/or external consultants. The appropriate mix in committee membership will vary depending on the nature of the issues to be addressed.

(4) Strong leadership from the dean and review committee chairman is essential to complete the process expeditiously (not longer than six months is recommended) and to assure that the review focuses on issues central to the improvement of department performance and on department contributions to overall institutional objectives. Emphasis should also be placed on addressing only those issues about which something can be done. Reviews are most effective when conducted approximately every five years.

(5) There must be trust among department chairmen and faculty that the review process is applied in an equitable manner. However, to the extent possible, each review must be tailored to address the specific needs of the department being reviewed. The degree to which the process addresses the unique aspects of each department may be influenced by the level of involvement of the department in identifying appropriate review data and processes.

(6) It is difficult to separate evaluation of the department from evaluation of the chairman, particularly when review coincides with the term of the chairman. "Successful" reviews tend to focus primarily on the objectives, functions, and performance of the department and secondarily on the leadership required to bring about appropriate change. The personality of the chairman is not at issue in the well-constructed and fairly conducted departmental evaluation.

(7) Departmental review should be viewed as a flexible and evolving process which, if carefully monitored, can become an increasingly useful assessment tool.

A properly managed departmental review usually benefits the chairman, the department, and the institution as a whole. One of the greatest values of review is that it helps to clearly articulate departmental problems so that they can be addressed in a more rational and effective manner. A second, related benefit of review is its role in planning. While a review is rarely seen as planning in and of itself, it does stimulate assessment of departmental objectives and priorities by the chairman and faculty. It also confirms and documents strengths and weaknesses of a department, which in turn provides useful data for the continuing redefinition of institution-wide strategy. Furthermore, it provides guidance for a department that is planning or has already

initiated a significant change in the scope or level of departmental functions.

There are other benefits of departmental review. Reviews can serve to reassure a chairman that he and his department are proceeding appropriately. In addition, reviews will often encourage the development of the management expertise of the chairman. The evaluation of a unit may raise its level of visibility institutionally in the case of an internal review, and nationally when external reviewers are used. Finally, reviews may facilitate a necessary change in department leadership.

There are also drawbacks of departmental review. Direct and indirect costs of both external and internal reviews may be considerable. Poorly administered reviews with weak leadership, limited commitment and involvement from faculty, and inappropriate focus are of little or negative value. Departmental review is not an administrative panacea; it does not resolve, by itself, major institutional issues. The formal evaluation of departments does, however, represent a valuable administrative procedure which can contribute significantly to effective management of medical schools. In summary, a carefully designed and administered departmental review system is a stabilizing rather than a disruptive mechanism which serves to aid medical school leadership in its effort to cope with, adjust to and plan for institutional change.

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OBJECTIVES OF DEPARTMENTAL REVIEW

UNIVERSITY OF PENNSYLVANIA
SCHOOL OF MEDICINE

1. To provide departments with opportunities for reassessing their directions, goals, strengths, and weaknesses in the areas of teaching, research, and patient care.

2. To determine the present and future needs of each department with respect to personnel, programs, and resources.

3. To provide a mechanism by which the members of a department can express their views concerning the competence and responsiveness of the chairman and confidence in his or her leadership.

4. To examine the degree to which the department coordinates its activities with other departments in contributing to the excellence of the School of Medicine.

5. To assess the department's continued relevance to the mission of the School of Medicine and the University.

CONTENT AND FORMAT OF DEPARTMENTAL REVIEWS
BAYLOR COLLEGE OF MEDICINE

I. MISSION (1 page or less)

Describe the current mission of the Department and identify the programs of teaching, research and service which contribute most successfully to fulfill that mission.

II. ORGANIZATION (1 page or less)

Provide a current organizational chart showing departmental personnel and briefly describe lines of responsibility and accountability.

III. GOVERNANCE AND ADMINISTRATION (1 page or less)

Describe how administrative and policy decisions are made within the Department. It would be helpful to identify any internal departmental committees and their function.

IV. FACULTY (less than 3 pages, not including tables)

a) Identify new appointments or changes in faculty leadership and departures from the department (those holding primary appointments only) during the last two years. Please comment on any anticipated major faculty changes forthcoming in the future.

b) Briefly describe faculty recruitment plans.

c) Briefly list interaction or collaboarations with other departments.

d) Describe your strategy for scientific development of the faculty.

e) Briefly outline faculty career counseling or development procedures now in place within the department.

f) Provide tables showing 1) the school of origin of current housestaff/fellows and 2) the location and status of the housestaff/fellows who completed the program during the last two years.

V. TEACHING (less than 2 pages)

Summarize the teaching activities of the department with emphasis on changes within the last two to three years. Please address both the undergraduate and graduate medical education programs and comment on any student evaluations of teaching activities by the department. Summarize the number of faculty and percentage of effort for the undergraduate and graduate training programs each respectively. Please attach a copy of the most recent Residency Review Committee report along with a table showing the number of residency slots at each level for the last two years also noting the number of slots supported by each affiliate.

VI. RESEARCH (less than 2 pages)

Provide a list showing the name of research projects, the principal investigator, source of funds and duration of funding and annual direct and total (direct and indirect) dollar amounts for research protocols that are currently active within the department. For each of the last two years provide the number of grant applications submitted to peer reviewed and non-peer reviewed funding sources (separately) with an accompanying count of the number of awards actually received from these applications. Also provide a brief paragraph describing the research goals, current priorities, and recent accomplishments for the department as a whole. (A copy of your report as submitted to the Research 2000 Study would also be helpful). Please note any collaborative research that is being done with other departments within the school or with external organizations.

VII. CLINICAL ACTIVITIES (less than 2 pages)

Describe the clinical activities of the department as a whole, noting current affiliations that the department maintains, and the level of the service commitment at each affiliation. The description of service commitment should also address the number of faculty and an appropriate measure of the occasion of service. Please indicate the relative role of full-time/part-time regular faculty and voluntary clinical faculty at each of the affiliates.

VIII. PRACTICE PLAN (less than 2 pages)

Provide a brief description of your departmental practice plan, noting what billing algorithm, service, or service bureau you use (e.g., IDX) and whether you share billing resources with another department. Please provide a general description of the faculty distribution plan of proceeds and how annual limitations/ceilings or incentives on faculty earnings are structured.

IX. PUBLICATIONS

Provide a list of publications for the faculty with primary appointments in your department for July 1, 1987 - June 30, 1988, alphabetically by first author (with department faculty's name underlined). Do not include publications "in press" or abstracts.

X. SPACE (less than 1 page)

Describe the currently allocated department space. A table noting square footage by building, and by program and function would be helpful. Please specifically identify research space locations and sizes.

DDP:cbp
5/1/89

THE RESOURCE ALLOCATION MODEL
AT
WASHINGTON UNIVERSITY SCHOOL OF MEDICINE
(1987)

RAM DEFINITION OF RATIOS

Direct Sponsored Funds, divided by
1. Research Net Assignable Square Feet
2. General Fund Allocation
3. Full-Time Equivalent Research Faculty
4. Full-Time Equivalent Research Employee

Indirect Sponsored Funds, divided by
5 Research Net Assignable Square Feet
6. General Fund Allocation
7. Full-Time Equivalent Research Faculty
8. Full-Time Equivalent Research Employee

Patient Related Income, divided by
9. Non-Research Net Assignable Square Feet
10 General Fund Allocation
11. Full-Time Equivalent Non-Research Faculty
12. Full-Time Equivalent Non-Research Employee

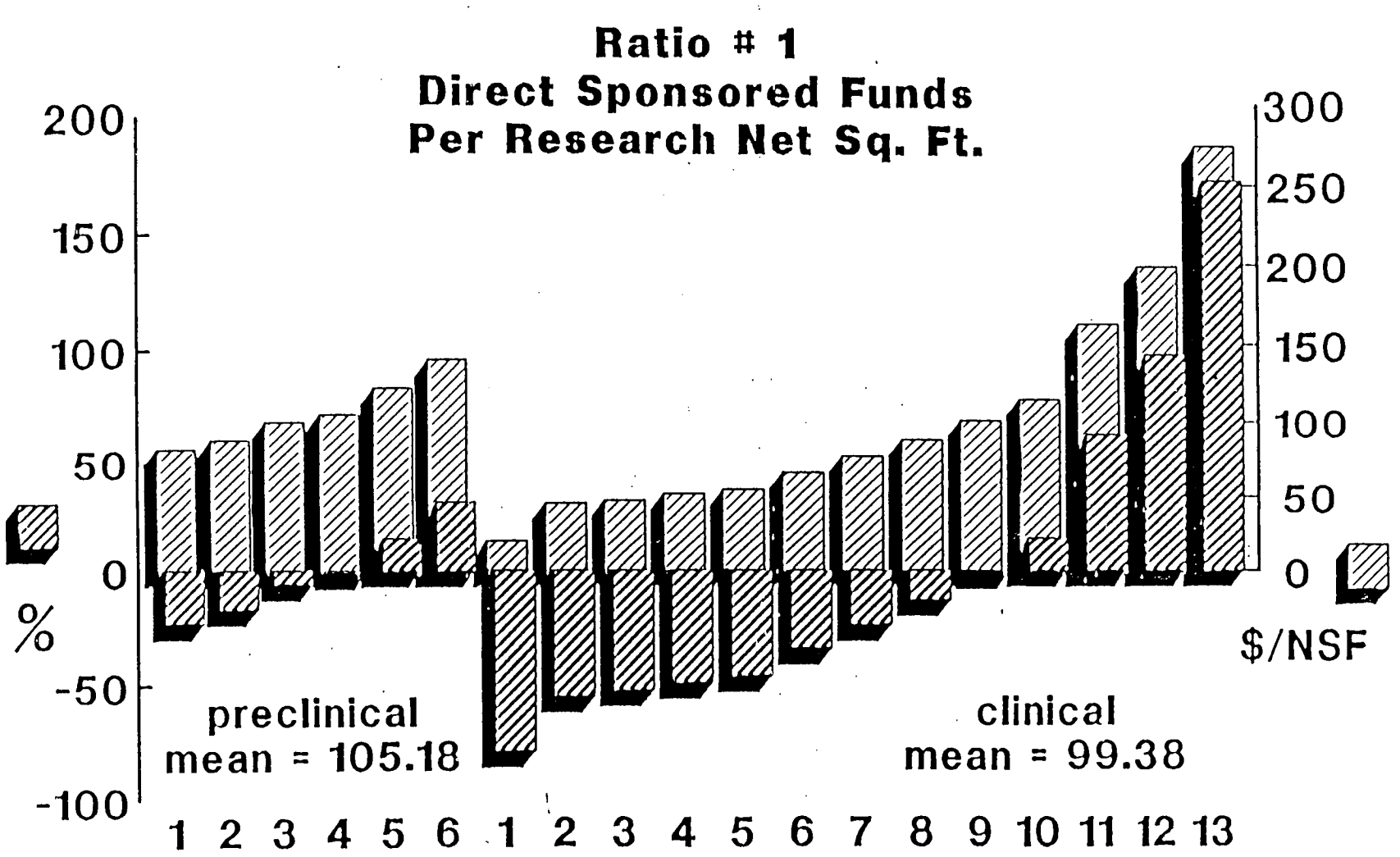
Patient Related Overhead Income, divided by
13. Non-Research Net Assignable Square Feet
14. General Fund Allocation
15. Full-Time Equivalent Non-Research Faculty
16. Full-Time Equivalent Non-Research Employee

Money Assets, divided by
17. Total Net Assignable Square Feet
18. General Fund Allocation
19. Full-Time Equivalent Faculty
20. Full-Time Equivalent Employee

Patient Related Overhead Income, divided by
21. Patient Related Income

Indirect Sponsored Funds, divided by
22. Direct Sponsored Funds

Indirect Sponsored Funds + Patient Related Overhead Income + Miscellaneous Overhead Income + Current Funds Investment Income + M.D. Net Tuition + Barnes Hospital Net Surplus Allocation, divided by:
23. General Fund Allocation + Departmental Physical Plant Costs + Prorations + General Fund Contingency



Washington University School of Medicine, Fiscal Year 1985-1986

ITEM 7A

Process of Review

One School's Approach: The Johns Hopkins University School of Medicine

A PLAN FOR CONSTRUCTIVE REASSESSMENT

Presented to Advisory Board of the Medical Faculty
18 May 1984

This plan which consists of a system of annual reports and periodic reviews is presented to the Advisory Board of the Medical Faculty and to the Medical School Council for approval in May of 1984 for implementation in the fall of 1984. The current version of the plan originated with the Dean's Planning Group, but has been modified by discussion with the Advisory Board, Medical School Council, and the School of Medicine Advisory Council of the Board of Trustees. Details of the discussion of key points can be found in the minutes of the meetings of the Advisory Board of the Medical Faculty on Monday, March 26, and April 23, 1984. Selected portions of previous drafts and memoranda are included here under Background.

The essential features of the plan, presented for approval and implementation, are as follows:

1. Annual Reports: Each department will submit an annual report in October. The first reports will be due 15 October 1984. The reports will be reviewed by the officers of the Institutions* and their staffs, following which the Institutional officers will meet with the department director to discuss the report.

2. Reviews: Each department will be reviewed every 5-7 years.

   a. Review will be conducted by a team of up to three consultants from other institutions.

   b. The team will be selected and the charge prepared by the officers of the Institutions.

   c. The officers of the Institutions may decide that in the case of certain departments it would be desirable to have a pre-review by an internal committee (members of Hopkins faculty) to identify areas requiring special attention by the external reviewers.

3. Schedule of Reviews: It is desirable that all reviews be of uniform depth; consequently, reviews of larger departments will require more time.

*Dean and President of the Hospital in the case of clinical departments.

(2)

The Johns Hopkins University School of Medicine / 720 Rutland Avenue / Baltimore, Maryland 21205

Richard S. Ross, M.D.
Vice President for Medicine
Dean of the Medical Faculty
(301) 955-3180

July 31, 1987

MEMORANDUM TO: Department Directors

FROM: Richard S. Ross, M.D. RSR

SUBJECT: Annual Reports

After three years' experience with the Annual Reports, we feel the guidelines should be modified to require submission of the reports every two years. It is our belief that this will reduce the burden on Departments and will still provide a mechanism for monitoring the major changes in departmental direction and activities.

In order to implement this alternate year submission, we have prepared a list of those reports due on October 15, 1987 (covering academic year 1986-87). Those not on this year's list should be prepared to submit a report next year (October 1988) covering two years (1986-87 and 1987-88).

Those Departments asked to submit an Annual Report in October 1987 are:

Anesthesiology	Ophthalmology
Biochemistry	Otolaryngology - Head & Neck Surgery
Gynecology and Obstetrics	Pathology
History of Medicine	Pediatrics
Neurology/Neurosurgery	Radiology
Oncology	Urology

As indicated last year, the reports can be relatively brief, minimizing the number of lists and tabulations and data available elsewhere. We want a report which reflects what the Department Director believes has been accomplished in the past year and where the Department is going in the future. We would hope that the entire report might be no longer than five (5) pages (exclusive of publication list). To give you some idea as to what we are interested in, we have put numbers in parenthesis at the end of each heading on the enclosed outline to give you some indication of the number of pages that should be devoted to this particular topic.

Many of you use the Annual Report for public relations and fund-raising purposes and therefore, need to prepare a more extensive document. This is fine; but for our purposes, a minimal report of no more than five pages which indicates the changes since the last report, is sufficient. If you have prepared a longer document for other purposes, send us that document but also be sure to send us a short report as described above.

The deadline for receipt of the Annual Reports is October 15, 1987.

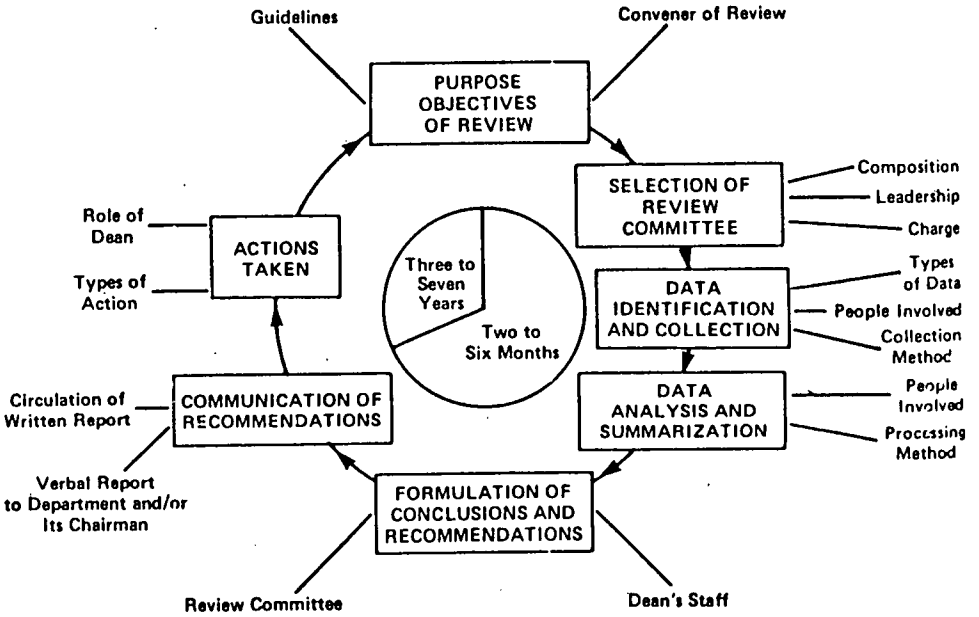
RSR:lmd
Enclosure

Number of copies needed:_____

ITEM 7B

Process of Review

Summary



SOURCE: Smythe, Cheves McC., Butler, Peter W., Jones, Amber B., and Wilson, Marjorie P. "Departmental Review in Medical Schools: Focus and Functions," Journal of Medical Education, 54 (April, 1979): p. 286

ALBANY MEDICAL CENTER
POLICY FOR DEPARTMENTAL REVIEWS

I. Purpose of the Review

The primary purpose of Departmental Review at the Albany Medical Center is facilitation of performance of departments and individuals. The reviews are to be used for identification of problems, opportunities and need, and will provide a basis for planning and implementing change. The data, its evaluation and the subsequent recommendations are intended for use by the Chairmen, Faculty, Medical Center administration, and the Council for Academic Health Sciences. It is important that Academic Health Science, Patient Care and Center administration communicate in writing about their analyses of the peer review to the department chairman and to the faculty so that there is open and continuing communication in the process.

II. Overview

The departmental review process will provide a means for periodic assessment of academic departments of the Center. The process will be continuous, consisting of two interrelated phases: first, a comprehensive review conducted at intervals of five to seven years; second, an annual review, which will be an update of the comprehensive review.

In the comprehensive review the departments are asked to conduct a thorough self-study. This self-study, the Periodic Comprehensive Review Report, shall rely heavily on those data bases compiled for external accreditation review purposes. The Report will be reviewed by a specially appointed Peer Review Committee to include members internal and external to the department and to the Center. This committee will evaluate the department based upon the Periodic Comprehensive Review Report and interviews with department members, other faculty and center staff. A final written report from the Peer Review Committee will be made available to the Chairman of the Department, the Deans, and, in the case of clinical departments, the Medical Director of Alden March Care, the Executive Vice Presidents of the Center, the President and Chief Executive Officer of the Center, the Chairman of the Patient Care Committee of the Board of Directors, and the Chairman of the Council for Academic Health Sciences of the Board of Directors.

III. Time Table

Department Chairmen will be notified well in advance of a scheduled comprehensive self-study; a one year notice is desirable but may be waived upon agreement between the Executive Vice Presidents as advised by the Deans, and, in the case of clinical departments, the Medical Director of Alden March Care, and the Chairman. A Task Force will complete the Periodic Comprehensive Review Report within two months. The Peer Review Committee will be appointed simultaneously with the appointment of the Task Force and will begin interviews and assessment no more than one month after the Periodic Comprehensive Review Report is completed. The Peer Review Committee will tender its Commentary within 30 days of completion of its work, which will take no longer than two weeks. The Chairman of the Department and the Executive Vice Presidents, as advised by the Deans, and, in the case of clinical departments, the Medical Director of Alden March Care, will issue a written response to the Commentary within 30 days. Thus, the process will be completed in six months. (See Attachment I)

IV. Collection of Data for the Periodic Review

The Periodic Comprehensive Review will be conducted at intervals of five to seven years. Exceptions may be made at the discretion of the President of the Center. A Department Chairman may request either a delay or an advancement of the date of the study. Since the self-study will necessitate the dedication of faculty time and may require secretarial and support resources, the Center will make a reasonable supplemental budget available for this purpose through the Office of the Executive Vice President and Provost.

The Periodic Comprehensive Review Report will rely heavily on the use of existing data bases. The Review will be conducted by a Chairman-appointed, Departmental Self-Study Task Force formed principally from members in the department. Students and house officers should be involved in this process. The Department Chairman may serve as Chairman of the Task Force or may appoint another department member to do so.

V. Guidelines for Periodic Comprehensive Review Report

The format suggested for the Periodic Comprehensive Review Report is outlined on Attachment II. Additional material may be incorporated at the discretion of the Departmental Self-Study Task Force. The Task Force Report in total shall be no more than twenty-five pages in length.

VI. Analysis of the Data

The Periodic Comprehensive Review Report will be evaluated by a Peer Review Committee which shall be appointed by the Executive Vice Presidents, as advised by the Deans, and, in the case of clinical departments, the Medical Director of Alden March Care, for this purpose. The Peer Review Committee will be comprised of:

1. An academic department Chairman, not of the department under study, to be appointed in consultation with the Chairman of the department under study.

2. Two members of the academic faculty, one full time and one volunteer/adjunct, not of the department under study, to be selected in consultation with the Faculty Senate.

3. Three external reviewers, at least two of whom shall be of the same discipline or specialty as the department under study, to be appointed in consultation with the Chairman and the faculty of the department under study.

The Peer Review Committee will summarize and evaluate the progress of the department during the period under review, the current level of performance of the department, and the organization and planning of the department for future contingencies. The Peer Review Committee will prepare written recommendations to be incorporated in their final Commentary. The Peer Review Committee Commentary, which shall be completed within 30 days after the completion of the evaluation, will address the issues outlined on Attachment III.

VII. Recommendations

The Periodic Comprehensive Review Report and the Peer Review Commentary shall be delivered to the Executive Vice Presidents, to the Deans, and, in the case of clinical departments, the Medical Director of Alden March Care, to the Chairman of the department under study, and to members of the Academic Governing Council. At its discretion, the Peer Review Committee may submit selected portions of their report as confidential items.

VIII. Implementation and Communication

The Executive Vice Presidents as advised by the Deans and the Department Chairman shall respond to the Periodic Comprehensive Review Report and the Peer Review Commentary in writing within 30 days. The responses, which of necessity may not be comprehensive, shall nonetheless respond in substantive and specific terms to the Report and the Commentary. Resource implications of any of the latter recommendations should be delineated clearly, and where possible, sources of support should be identified. All final reports (the Periodic Comprehensive Review Report, the Peer Review Commentary, and the Responses) shall be submitted to the President upon the completion of the Comprehensive Departmental Review process.

IX. Annual Progress Reports

Annual Progress Reports will be submitted to the Deans for the basic science departments and to the Medical College Dean and the Medical Director of Alden March Care for clinical departments. These progress reports will be received by January 1 of each year and will not reflect the depth of analysis and study required for the Periodic Comprehensive Review. This report will represent an assessment of the progress and achievement of the department as reflected through the performance of individual faculty members and the Chairman's view of departmental program(s). The Annual Progress Report may be written as a series of amendments to the most recent Periodic Comprehensive Review Report.

Annual Progress Reports offer the department Chairman an opportunity to communicate his/her assessment of the quality of the department and individual performance therein, while providing information and insights into current departmental directions and needs. Reports should be developed and structured in a manner consistent with the Guidelines for Annual Progress Reports (Attachment IV).

COMPREHENSIVE DEPARTMENTAL REVIEW
TIMETABLE

1 year prior to data collection
Notification to Department Chairman
by Executive Vice Presidents

12 months

Appointment of Peer Review Committee,
by the Executive Vice Presidents after consultation
with the Deans, and, in the case of clinical departments,
the Medical Director of Alden March Care,
and the Department Chairman

Appointment of Departmental Self-Study Task Force
by the Department Chairman
Preparation of Periodic Comprehensive Review Report (P.C.R.R.)

2 months

Peer Review Committee receives the P.C.R.R.
Conducts Interviews, Assesses Report

1 month and 2 weeks

Peer Review Committee Prepares Commentary

1 month

Submission of P.C.R.R. and Peer Review Commentary
to Executive Vice Presidents, Department Chairman
and the Academic Governing Council

1 month

Written Responses to Commentary
1) from Department Chairman to Executive Vice Presidents
2) from Executive Vice Presidents and the Deans,
and, in the case of clinical departments,
the Medical Director of Alden March Care,
to Department Chairman

Final Reports to the President
P.C.R.R., Peer Review Commentary, and Written Responses

GUIDELINES FOR PERIODIC COMPREHENSIVE REVIEW REPORT

I. Description of the review process
II. History of the department
III. Goals and objectives of the department

IV. Present status
- A. Organization and administration
- B. Programs
  - 1. Education
    - a. Medical curriculum
      - Undergraduate
      - Graduate
      - Continuing education
    - b. Graduate medical sciences curriculum
    - c. Allied health professions curriculum
    - d. Other
  - 2. Research (including a delineation of projects funded by external sources)
  - 3. Patient care
  - 4. Other
- C. Space available and allocation to programs
- D. Budget summary specifying sources of income (Academic Health Sciences, Clinical Practice, Grants and other sources)
- E. Personnel
  - 1. General overview
  - 2. Recruitment and development programs
    - a. Graduate students
    - b. House officers
    - c. Faculty (including a listing of faculty who have joined or left in last five years)
    - d. Staff
  - 3. Individuals
    - a. Roles within the department
    - b. Institutional responsibilities
    - c. Extrainstitutional responsibilities
- F. Morale
- G. Relationship to other departments in the Center
- H. Extrainstitutional relationships

V. Summary evaluation of present status
- A. Major problems
- B. Major assets
- C. Allocation of effort and cost to programs
- D. Achievement as related to previously reported goals and planning
- E. Comparison with department in similar institutions

VI. Future projections
- A. Goals
  - 1. Short-term
  - 2. Long-range
- B. Needs
  - 1. Short-term
  - 2. Long-term

VII. Summary and recommendations

GUIDELINES FOR PEER REVIEW COMMITTEE COMMENTARY

1. Department statement and achievement of purpose.

2. Definition of departmental constituencies.

3. Review and assessment of the department goals and objectives (are these realistic and consistent with the mission and goals of the Center? Are they being met?)

4. Consistency of the department programs and activities with goals and objectives.

5. Feasibility of departmental programs and activities in meeting stated goals and objectives.

6. Adequacy of faculty, staff members and other resources to achieve the programs and activities of the department.

7. Identification and assessment of departmental priorities for resource allocation.

8. Consistency in the administration of the department with the governing regulations of the Center and its component parts as well as those of applicable external agencies. An assessment of accountability in the use of resources.

9. Evaluation of the quality of programs and faculty. An assessment of resource distribution in the department in terms of equitability and responsibility.

10. Evaluation of the adequacy of funding for the tasks outlined.

11. Identification of recommendations for improved effectiveness and efficiency in programs and activities.

12. An assessment of the extent to which the department is involved in innovative programs. Responsiveness of the department to changing needs and the adaptation of programs and activities to meeting these needs. An assessment of contingency plans for possible resource reduction and/or expansion.

GUIDELINES FOR ANNUAL PROGRESS REPORT

The Annual Progress Report consisting of the items listed below is to be delivered to the Executive Vice Presidents by January 1 of each year. The Annual Progress Reports will be available to chairmen of all departments.

1. Faculty Evaluations

   a. Evaluate each member of the faculty using the Annual Faculty Report Form*

   b. Review with each faculty member the agreed upon Statement of Personal Goals and Objectives for the past year and assess the level of satisfaction of these Goals and Objectives.

   c. Prepare a Statement of Personal Goals and Objectives for each faculty member for the coming year, based on the Annual Faculty Report Form* and the evaluation of the Statement of Personal Goals and Objectives for the past year.

2. Statement of Goals and Objectives of the Department

   a. Review the Statement of Goals and Objectives of the Department for the past year and assess the level of satisfaction of these Goals and Objectives.

   b. Prepare a Statement of Goals and Objectives for the coming year, based on the most recent Comprehensive Departmental Review and the evaluation of the Statement of Goals and Objectives for the past year.

3. Summary Statement

* Development of the Annual Faculty Report Form

In anticipation of the Annual Departmental Progress Report, each faculty member in the department shall be requested to provide the Chairman with a completed Annual Faculty Report Form. The Chairman shall add his or her comments to each of these forms.

The current Annual Faculty Report Form will be reviewed and revised to yield an instrument appropriate for use in the development of a centralized comprehensive faculty roster database.

ASSOCIATION OF
AMERICAN
MEDICAL COLLEGES

AMERICAN MEDICAL EDUCATION:

Institutions, Programs, and Issues

MISSION STATEMENT

The Association of American Medical Colleges has as its purpose the improvement of the nation's health through the advancement of academic medicine. As an association of medical schools, teaching hospitals, and academic societies, the AAMC works with its members to set a national agenda for medical education, biomedical research, and health care and assists its members by providing services at the national level that facilitate the accomplishment of their missions. In pursuing its purpose, the Association works to strengthen the quality of medical education and training, to enhance the search for biomedical knowledge, to advance research in health services, and to integrate education and research into the provision of effective health care.

Adopted by the AAMC Executive Council June 1988

AMERICAN MEDICAL EDUCATION: *Institutions, Programs, and Issues*

October 1989

An AAMC Staff Report Prepared by
Robert F. Jones, Ph.D.
Director for Institutional Studies
Division of Institutional Planning and Development

Additional copies of this report can be obtained by writing to:
Association of American Medical Colleges
Attention: Membership and Publication Orders
One Dupont Circle, Suite 200
Washington, D.C. 20036
(202) 828-0400

Table of Contents

Figures

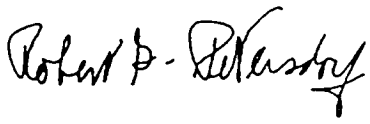
Foreword

The Association of American Medical Colleges is pleased to present "American Medical Education: Institutions, Programs, and Issues." This is an updated and revised version of a publication that originally appeared in 1977. Like the four previous editions, this document presents concise and cogent information about the academic medical centers that are the Association's members.

There are two elements to the publication. First, the document provides an easy reference on the characteristics of American medical education. It includes data and statistics on medical schools and teaching hospitals, their students and residents, faculties, and other resources. There is also information on the education, research, and patient care missions of these institutions. For the most part, these data are drawn from the broad array of informational resources that AAMC maintains on academic medicine.

This document does not intend merely to provide descriptive information on American medical education. By exploring a number of critical issues relating to the academic medical enterprise, it attempts to provide a more substantive overview of medical centers and the challenges they face in carrying out their activities and meeting their societal responsibilities.

The Association hopes that this publication will help to improve public understanding about academic medical centers and American medical education. The strong public support that our member institutions enjoy is essential to their continued well-being.



Robert G. Petersdorf, M.D.
President
Association of American Medical Colleges

Introduction

American medical education is the product of important initiatives taken during the mid- and late-nineteenth century first by the University of Pennsylvania, the College of Physicians and Surgeons in New York, Lind (later Northwestern) University, Harvard University, and the University of Michigan. The vision and leadership of those associated with the founding of the Johns Hopkins Medical School in 1893 led to the creation of a university-based, graded four-year educational program, combining laboratory instruction with supervised hospital experience. The Hopkins model eclipsed the many proprietary programs of marginal quality which existed at the time. In 1910, Abraham Flexner, supported by the Carnegie Foundation, published a thorough review and critique of medical schools in the United States and Canada, leading to further reforms and institutionalization of the current model of the scientifically trained physician.

Despite fidelity to this heritage, the complex of institutions and programs devoted to medical education near the end of the twentieth century little resembles that present at its beginning. Prior to World War II, medical schools were fewer in number and concerned primarily with education for the M.D. degree. Post-war investment in biomedical and behavioral research transformed medical schools into large-scale research institutions. Medical capability expanded and with it the demand for health care services. Unprecedented national affluence and an egalitarian ethic stimulated the growth of a societal commitment to provide access for all to a basic level of quality medical services. By the 1960s the nation had mobilized for a substantial expansion of its capacity for training health professionals.

In the ensuing years, society has come to expect from medicine constant gains in the prevention, diagnosis, and treatment of disease and improved health status. In response, medical schools and teaching hospitals have evolved into large, complex academic medical centers, under university auspices or as affiliated institutions with varied interinstitutional agreements and arrangements. These institutions are allied by a commonality of missions: to provide for the general professional education and specialized graduate training of future physicians; to be in the vanguard of biological and behavioral investigation; and to champion the application of new knowledge in the alleviation of suffering, rehabilitation of injury, and prevention of disease and premature death. These same institutions currently play a significant role in society's medical obligations to its poorest members. Because of the importance of these missions, academic medical centers are a national resource, fragile in nature, and essential to accomplishing important national objectives. This monograph presents a brief description of these institutions — their structure, financing, interrelationships, and programs — and the issues which they and society face in preserving and enhancing their unique contributions to the national well-being.

1 Institutions and Resources

The mission of academic medical centers is described simply by the functions of education, research, and patient care. The institutions and resources dedicated to this mission have undergone enormous growth and change, particularly over the last four decades.

MEDICAL SCHOOLS

At the turn of the century as many as 160 medical schools operated in the United States, many of marginal or poor quality. The reforms recommended by the Flexner report and subsequent elevation of standards led to the demise of many of these schools and slowed the pace with which new schools were inaugurated. By 1960, the number of U.S. medical schools accredited by the Liaison Committee on Medical Education (LCME) stood at 86. The perception of an impending physician shortage at that time stimulated the development of forty new medical schools by 1980. Only one additional medical school has been established in the 1980s, bringing the total current number to 127.

Forty-four states, the District of Columbia, and Puerto Rico each have at least one medical school **(Figure 1)**. The six states without medical schools have negotiated arrangements for their citizens to receive medical training at schools in neighboring states. At present, 53 medical schools (42 percent) are private schools; however, 37 of these schools received appropriated financial assistance in 1987-88 from the government of states in which they are located.

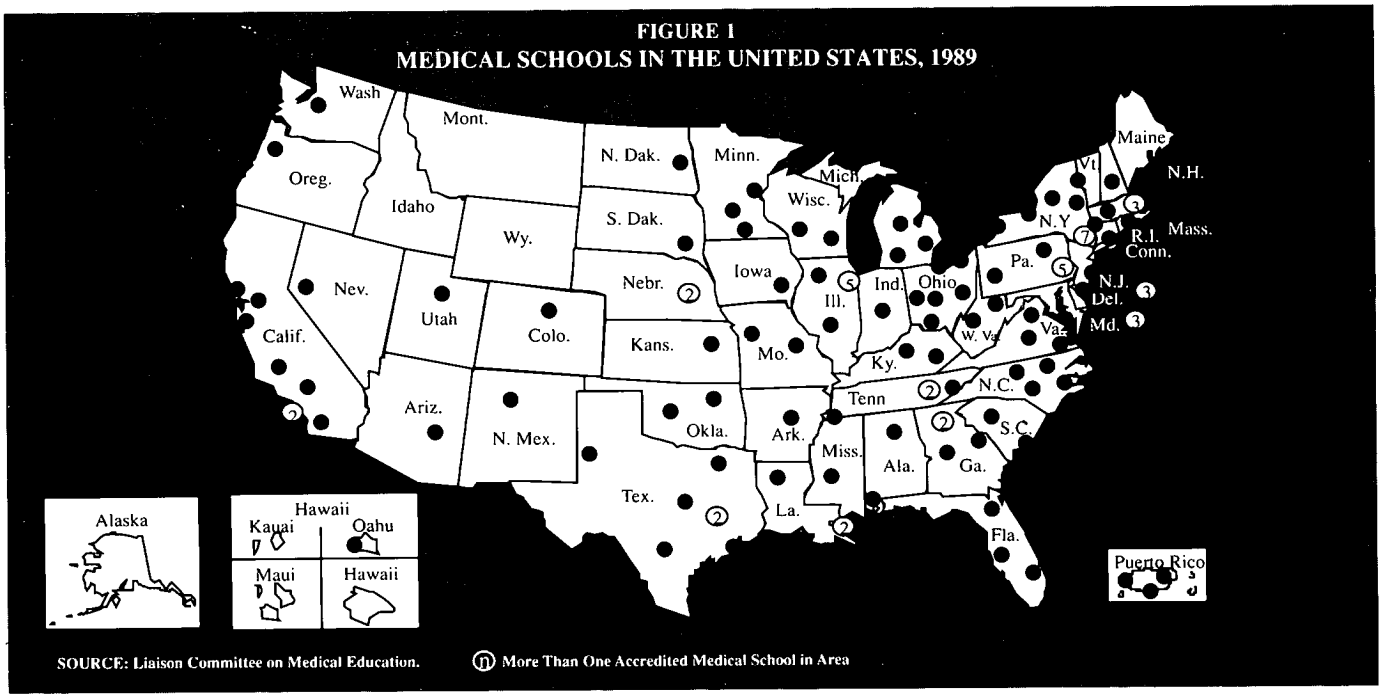
While the 127 medical schools share common general purposes and objectives, they are not homogeneous. Most are part of a comprehensive public or private university, but 21 medical schools are independent and freestanding or a part of a health science university. Traditionally, the development of medical schools has been accompanied by a major affiliated or university-owned teaching hospital and the recruitment of a full-time academic faculty. However, many of the medical schools founded in the 1970s were planned with community hospitals as the venue for teaching and community physicians as the teaching faculty. The creation of these schools was specifically motivated by the desire to supply primary care physicians for underserved areas in their respective states.

The origin and development of other medical schools have been guided by specific and unique purposes. Three are associated with historically black colleges and have as a special mission to increase the ranks of minority physicians. One school trains physicians for the uniformed services. Five medical schools trace their beginnings to a special partnership between the Veterans Administration (VA) and state governments. These medical schools were built with VA hospitals as the chief clinical training site.

This diversity of medical schools — in history and tradition, mission, and organizational structure, in addition to financial resources and facilities — is a major strength of the American medical education system. It provides the nation with a rich array of institutional resources to meet local, regional, and national needs. However, it also means that medical schools often must take different approaches to solving the problems they face.

What is an appropriate enrollment capacity for American medical schools ?

FIGURE 1
MEDICAL SCHOOLS IN THE UNITED STATES, 1989



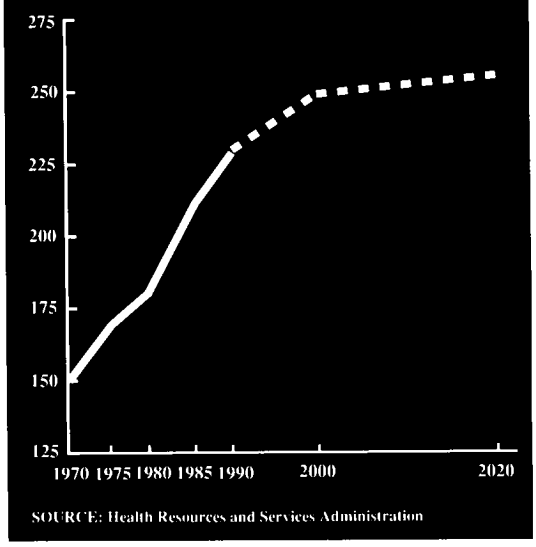
Medical schools vary also in the size of their classes. The 1988-89 first-year enrollment of medical students ranged from 38 in one school to 307 at the largest multi-campus school. The average first-year class size was 126.

In 1988 U.S. medical schools graduated 15,919 students, only slightly fewer than the 16,343 graduates in the peak year of 1984. The 1988 graduating class is still double the size of its counterpart 20 years earlier and contributes to continuing increases in the ratio of physicians to population. For example, in 1970 there were 150 allopathic physicians per 100,000 in the population. By 1980, this figure had risen to 190. In 1990, it is expected to reach 228 and by 2020, 255 (**Figure 2**). Given the long cycle of training for physicians, even an immediate and radical reduction of medical school class sizes would not forestall the inexorable growth in physician numbers over the next three decades.

Can society take advantage of increasing physician numbers to improve access to medical services?

There is currently sharp debate on the consequences of these unprecedented manpower levels. While estimates of supply can be gauged quite accurately, forecasts of the demand for medical services cannot be determined easily. Those who view the numbers as a present or impending physician surplus predict a series of negative outcomes: increased health care costs, a result of physician-induced demand for unneeded services; atrophying of physician skills, a consequence of reduced patient load; and general dissatisfaction among physicians, a harbinger of the profession's impending decline. Others foresee more salutary developments, notably, an increase in competition among

FIGURE 2
M.D.'S PER 100,000 POPULATION-ACTUAL AND PROJECTED



physicians leading to improved services and lower costs. They point out developments that could readily absorb an increased capacity: the aging of the population, the emergence of new diseases such as the acquired immunodeficiency program (AIDS), and changes in social policy that extend access to medical care to those currently underserved. An AAMC Task Force on Physician Supply has been studying these issues and is expected to issue a report at the end of 1989. Although the supply of physicians may indeed prove ample for the foreseeable future, the problems of geographic and

specialty maldistribution continue. In particular, there is a shortage of physicians providing primary care and other services to inner-city and rural areas.

The AAMC Task Force on Physician Supply has conducted its study at the request of AAMC member institutions. However, decisions on class size, which have national implications for physician supply, are the prerogative of individual institutions. Factors influencing these decisions are frequently of intense but very localized significance. For example, pressures to maintain or increase class size arise from institutional dependence on tuition income; considerations of educational opportunity for children of community, alumni, or political sponsors; and unmet local and regional needs for physician services. The continuing need for physicians to assume positions in biomedical research, medical education, health services research, and health care administration, in addition to medical practice, is another driving force. Finally, the goal of increasing minority representation in the medical profession is seen as being hampered by any reduction in capacity.

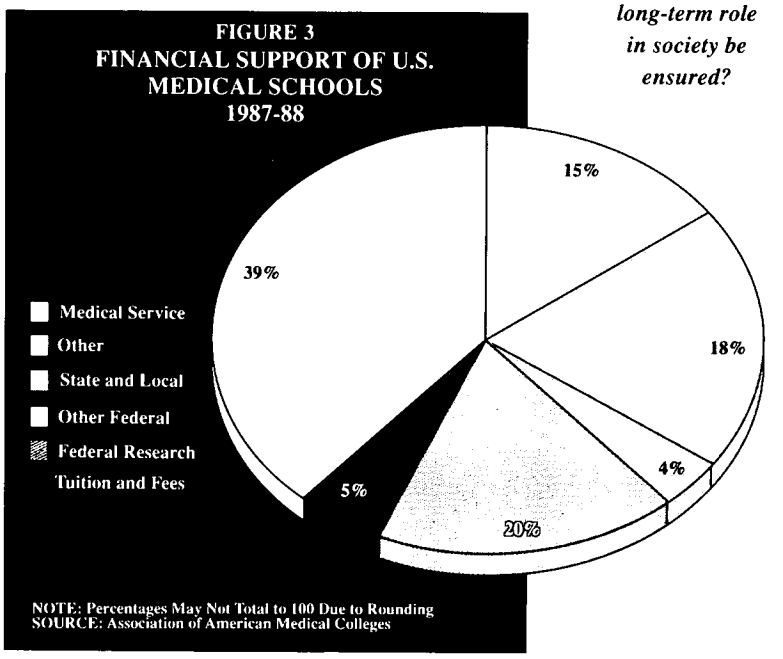
Despite these influences, medical schools recently have accomplished a small aggregate reduction in enrollment. Schools which have led the way appear to be responding to dramatic declines in the applicant pool together with the perception of an adequate local supply of physicians. The trend toward reducing medical school class size could have various collateral benefits. It may, for example, improve the quality of medical education by allowing more individualized attention to students and recapturing the more personal relationship that students had with their mentors before the era of expansion.

MEDICAL SCHOOL FINANCING

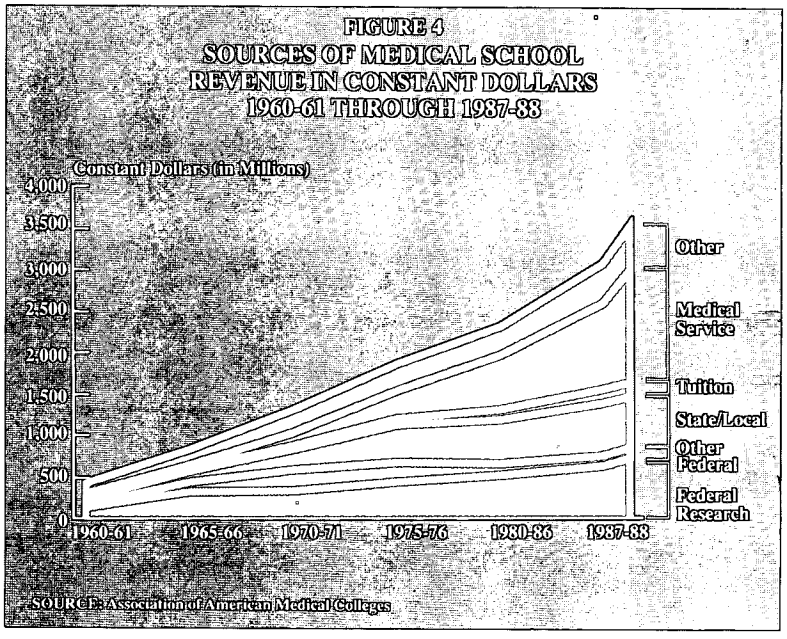
Revenue supporting the operations (excluding construction and student loans) of medical schools in 1987-88 amounted to $14.1 billion. A total of $9.0 billion (64 percent) was unrestricted, while $5.1 billion (36 percent) was in grants and contracts for sponsored programs in medical professional education, biomedical and behavioral research, and related activities. This $14.1 billion in operating revenues compares to $436 million in 1960-61, $1.7 billion in 1970-71, and $6.4 billion in 1980-81. In constant dollars, the compound rate of real growth since 1960-61 has been 13.7 percent annually.

Of the total program revenue in 1987-88, 24 percent came from the federal government in the form of grants and contracts for teaching, research, and service programs, including recovery of indirect costs associated with these programs. Federal research funds continue to represent the major component of federal support to medical schools, accounting for $2.9 billion (20 percent) of total revenues (**Figure 3**).

How can stable support for complex institutions with a valued, long-term role in society be ensured?



Although large in the absolute level of funds, federal support is decreasing in relative terms. As a fraction of medical school revenues federal funds peaked at about 55 percent in the mid-1960s and have declined gradually but consistently to the present level of 24 percent (**Figure 4**). Appropria-



How should the costs of medical education be distributed between the immediate beneficiaries—students, patients, program sponsors—and the long-term beneficiary, society at large?

Will increasing dependence on faculty practice income erode the academic character of medical schools?

tions and contract revenues from state and local governments increased gradually during the 1960s and early 1970s, but since then this source has also declined in relative terms, reaching an 18 percent level in 1987-88.

Revenues from patient care activities have expanded significantly over the past few decades and currently constitute a major component of the financial structure of medical schools. This category includes support provided by medical faculty group practice plans and reimbursements from affiliated hospitals for services rendered by faculty. In 1987-88 reported income from medical services provided by clinical faculty accounted for 39 percent of total medical school revenues, an amount that is probably understated as a result of differences in income reporting arrangements. In 1960-61, it constituted only six percent. In part, the sizeable growth of this revenue source is due simply to organizational changes and the financial accounting that accompanied them. As medical schools developed formal practice organizations for billing and collection purposes, reimbursement for patient care services that formerly was paid directly to the faculty physician began to be recognized as revenue to the school. However, coincident with that was an increase in patient care reimbursements generally, particularly with the development of Medicare in the mid-1960s, a program of federal health insurance for the elderly, and Medicaid, federal and state aid for the medically indigent. Until those programs were enacted, services to those groups were provided by clinical faculty but were largely unreimbursed.

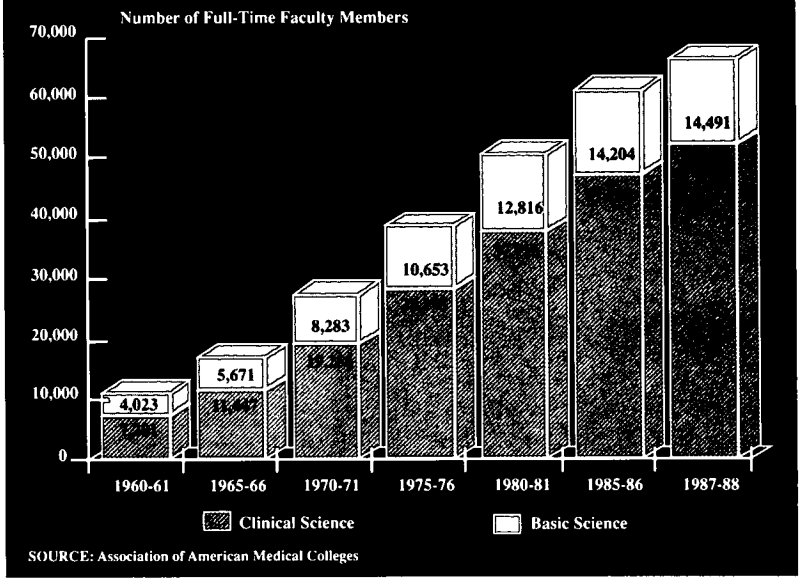
Tuition and student fees have remained a relatively stable component of medical school revenues at about five percent. However, from the perspective of the student, the increase in tuition levels necessary to maintain this level of support has been quite significant. The remaining sources of medical school revenues include private, industry-sponsored programs, foundation grants, gifts, and endowment income.

Financial support for U.S. medical schools is a complex issue, affected by the school's ownership, university organizational structure, and unique, historical financing patterns. Of major significance and concern is the growing dependence of medical schools on medical service income. In fairness, the emergence of this source of funds has enabled the development and expansion of programs that would not otherwise have been possible. But these benefits have not been achieved without the perception of loss to the academic character of institutions. Most importantly, continued growth of medical service income of the magnitude recently witnessed is unlikely, given government-mandated limits on patient care reimbursements and the increasing competition among health care providers. Adapting to these potential fiscal limits represents a major challenge for medical schools in the years ahead.

MEDICAL SCHOOL FACULTIES

The number of full-time faculty members in U.S. medical schools totaled 66,473 in 1987-88. While faculties continue to grow beyond the increments associated with the expansion of class size and the development of new medical schools in the 1960s and 1970s, this growth is now almost totally in the clinical faculty ranks (**Figure 5**). In large part, it reflects the increased involvement of medical schools in patient care activities, but also it is a product of the enlargement of the research

FIGURE 5
FULL-TIME MEDICAL SCHOOL FACULTY MEMBERS 1960-61 THROUGH 1987-88



SOURCE: Association of American Medical Colleges

enterprise and widened teaching obligations in the continuum of medical education.

The burgeoning patient care demands on clinical faculties have prompted medical schools to seek modifications of traditional academic systems for faculty appointment, promotion, and tenure. Increasing responsibilities for patients limit the time available for teaching and establishing a program of research, the necessary elements for progress in an academic career. Building a record of accomplishment in all three areas has become exceedingly difficult. Medical schools generally acknowledge that the majority of faculty can excel in only two of the three areas of teaching, research, and patient care. Many have differentiated non-tenure appointment tracks for clinician-educators or researcher-educators. Universities have also lengthened the standard evaluation period prior to the award of tenure, an acknowledgement that medical school faculty members in the context of their various responsibilities may require more time to establish a record of scholarship.

There is a growing concern that the cohort of research-intensive faculty initially appointed in the 1950-1970 era is aging, with consequent effects on research productivity. In 1988-89, 14 percent of medical school faculty members was 60 years of age or older; another 21 percent was between 50 and 59. The implications of these data depend upon the retirement patterns of medical school faculty over the next decade. Beginning in 1994, federal law will prohibit institutions from involuntarily retiring tenured faculty solely on the basis of age. Presently, a mandatory retirement age of 70 is permitted in most states. In eras of limited or no growth, faculty renewal depends heavily on openings created by retirement or other separations from faculty service.

One potential consequence of the elimination of mandatory retirement could be to hinder efforts at increasing the representation of women and minorities on medical school faculties. The proportion of women faculty members rose from 13 percent in 1967-68 to 20 percent in 1988-89. The trend reflects the overall increased presence of women in medicine. Moreover, the percentage of women medical school graduates who join the faculty of a U.S. medical school each year continues to exceed that of the men who join. Despite these advances, women continue to lag behind men in the proportions occupying the higher academic ranks, a phenomenon that cannot be explained simply by career age differences. In contrast to women, progress in increasing the proportion of minorities on medical school faculties is significantly less evident. In 1988-89, only three percent was from groups underrepresented in medicine (blacks, mainland Puerto Ricans, Mexican-Americans, and American Indians).

The proportion of women faculty members rose from 13 percent in 1967-68 to 20 percent in 1988-89 . . . . progress in increasing the proportion of minorities on medical school faculties is significantly less evident.

Will the elimination of mandatory retirement impede institutional efforts to sustain faculty renewal?

TEACHING HOSPITALS

The resources represented by medical schools and their faculties are complemented by a vast national network of teaching hospitals which serve as the primary sites for clinical education of medical students and residents, postgraduate fellowship training programs, and a significant proportion of other health professions education programs. While approximately 1300 hospitals are involved in graduate medical education, more than three-fourths of the residents in the United States train in the 420 members of the AAMC's Council of Teaching Hospitals (COTH). Included as COTH members are 72 VA medical centers. VA medical centers support the training of approximately 12 percent of residents.

Teaching hospitals are also distinguished by their programs of clinical research: the testing and development of drugs, medical devices, and treatment methods. Many of the advances begun in basic research laboratories of medical schools and universities are incorporated into patient care through clinical research programs at teaching hospitals.

The core mission of teaching hospitals remains the delivery of high quality patient care. Teaching hospitals are large by comparison to other hospitals and contribute uniquely to the nation's health care delivery system by the types of services they offer and the patient populations they serve. To illustrate, COTH members comprise only six percent of short-term, non-federal hospitals, yet account for 21 percent of the beds, 23 percent of the admissions, and 28 percent of the outpatient visits to these hospitals. They handle 20 percent of the emergency room visits and 25 percent of the births as well. In aggregate, COTH members employ nearly 900,000 full-time equivalent staff, includ-

Can teaching hospitals maintain their commitment to education, research, and specialized medical care in the face of restructured delivery and payment systems?

ing 29 percent of all registered nurses in short-term, non-federal hospitals.

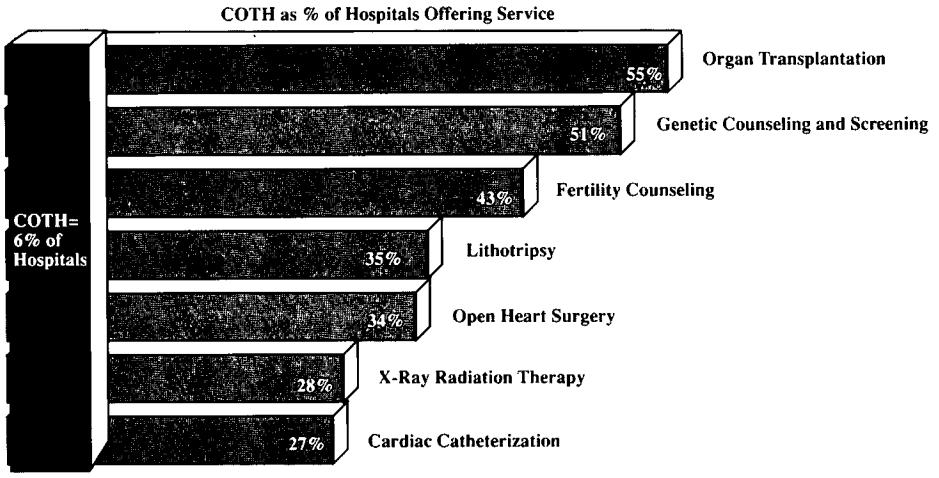
Teaching hospitals provide a comprehensive range of services, including a disproportionately large share of the most sophisticated and intensive hospital services. COTH members comprise 55 percent of all short-term, non-federal hospitals with an organ transplant capability and 34 percent of those with open-heart surgery capability (**Figure 6**). They include over one-half of the hospitals providing specialized genetic counseling and screening services, over one-third of those offering lithotripsy services, and over one-fourth conducting x-ray radiation therapy.

COTH member teaching hospitals are also major providers of patient care services to the poor and medically indigent. In 1987 COTH members absorbed 59 percent of the charity care charges and 33 percent of the bad debts incurred by all short-term, non-federal hospitals (**Figure 7**). They were responsible for 34 percent of Medicaid discharges from all short-term, non-federal hospitals.

COTH hospitals are primarily non-profit institutions sponsored by tax-exempt, non-sectarian, or church-related organizations. Eleven percent are state-owned and 10 percent, municipal- or county-owned. Nearly two-thirds of COTH hospitals, but less than half of other hospitals, are located in large metropolitan areas with populations exceeding one million.

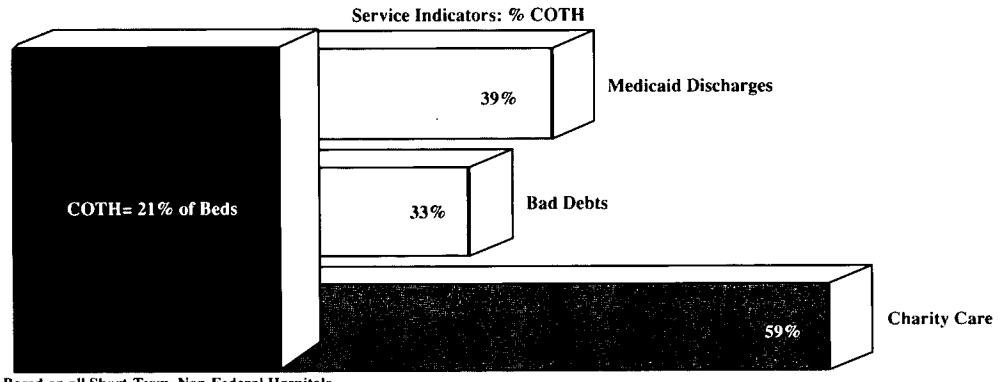
While all COTH hospitals have affiliation agreements with one or more medical schools, a smaller subset of 123 hospitals have a particularly close relationship. Sixty-two of these academic

FIGURE 6
SELECTED SPECIALIZED SERVICES PROVIDED BY COTH MEMBERS



NOTE: Based on all Short-Term, Non-Federal Hospitals
SOURCE: 1987 Annual Survey of Hospitals, American Hospital Association

FIGURE 7
SERVICES OF COTH MEMBERS TO THE POOR AND INDIGENT



NOTE: Based on all Short-Term, Non-Federal Hospitals
SOURCE: 1987 Annual Survey of Hospitals, American Hospital Association

medical center hospitals have a common ownership with a school of medicine in either a comprehensive or health sciences university, 39 public and 23 private. Six others, now separately incorporated, shared a common ownership until relatively recently. At 55 other hospitals owned separately, a close relationship is evidenced by a historical arrangement in which the majority of medical school department chairpersons also serve as hospital chiefs-of-service. Government-owned hospitals comprise 26 of these, while 27 others are private, non-profit. Two of these academic medical center hospitals are now owned or leased by for-profit corporations.

The emergence of large-scale purchasers of health care seeking negotiated arrangements for hospital services has increased competition in the health care field and forced teaching hospitals to review their organizational structures. A few have sought separate incorporation from their parent university (and state system), in search of more responsive decision making and efficient use of resources. Some teaching hospitals have followed a business strategy of vertical integration, developing or becoming a part of a large health care system, which might include several hospitals, physician groups, and delivery systems. As health care is viewed more as a commodity and its delivery system becomes increasingly corporate, the merging and consolidation of providers are likely to continue. To survive, teaching hospitals may increasingly participate in these restructurings.

How can teaching hospitals owned by state university systems gain sufficient management flexibility to be competitive?

2 Education

The education of future physicians is the core mission of medical schools and their faculties. Their involvement begins with the selection of qualified applicants to medical school, extends through their program of general professional education in the four years of medical school and the early years of residency training, and continues through specialty training leading to eligibility for board certification. Medical school faculties also are involved in programs of continuing education for physicians and participate in the education of biomedical scientists and of students in other health professions.

APPLICANTS AND ADMISSIONS

How can the medical profession preserve its attractiveness to the most able of young people?

Admission to medical school in the United States is selective, a practice which contrasts with the open enrollment policies of many other countries. It allows medical schools to admit men and women who, in the faculty's opinion, have the academic and personal qualities requisite for a profession based on high standards of competence and service to others. By retaining the prerogative to select their students, faculties also can ensure that the number of matriculants matches the resources available for an optimal education.

The criteria used by faculties in their selection process are broad-based. They include prior academic achievement, judgments by college faculty and advisors of the candidate's academic abilities and personal qualities, and evidence of values and attitudes commensurate with a career of service in a helping profession. Nearly all medical schools conduct personal interviews to assess the personal qualities, values, and attitudes of applicants, a practice which is rarely observed in other professional schools.

The evaluation of academic abilities is enhanced by the AAMC-sponsored Medical College Admission Test (MCAT). Following an AAMC-conducted, major national review and revision, this standardized examination now includes tests on the biological and physical sciences, a verbal reasoning component, and a writing sample. The science concepts assessed by the examination are drawn from a list of topics which a panel of medical school faculty and practicing physicians has deemed basic to the study of medicine. College science course requirements for admission to medical school are generally limited. This reflects the consensus that the study of medicine requires a science background but should not be restricted to those who major in the sciences. In fact, non-science majors who apply to medical school are admitted at a higher rate than science majors. The introduction of a writing sample or essay in the MCAT is intended to reinforce the importance medical schools place on a broad liberal education for students planning to apply, a point stressed in the 1984 report of the AAMC Panel on the General Professional Education of the Physician (GPEP) and College Preparation for Medicine.

The number of applicants to U.S. medical schools reached a historical peak in 1974 when 42,624 applied for 15,066 first-year positions, a ratio of 2.8 to 1 (**Figure 8**). From that time the number of applicants declined steadily, to a low of 26,721 in 1988. The 37 percent decline over the 14-

year period reduced the ratio of applicants to accepted students to 1.6 to 1. The declining number of applicants may have reached its nadir. Estimates of the size of the 1989 applicant pool predict a four percent increase, only the third such yearly rise in applicants and the largest in the previous 15 years.

The large drop in medical school applicants since the mid-seventies is not explained easily. It may be viewed in part as return to normalcy. In the ten-year period from the mid-sixties to mid-seventies, the number of applicants to medical school more than doubled, an outgrowth of burgeoning college enrollments that were in turn the result of the baby boom generation coming of age and Vietnam-era student draft deferments that encouraged college attendance. The effect of the military draft on applicant trends is striking when the sharp drop in men applicants is compared to the rising curve of women applicants since 1974 (**Figure 9**). In 1988, women applicants constituted 38 percent of the applicant pool and 37 percent of those accepted to medical school.

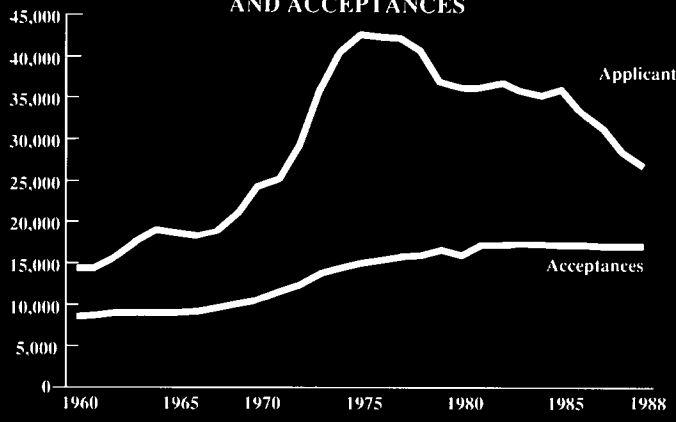
The introduction of a writing sample or essay in the MCAT is intended to reinforce the importance medical schools place on a broad liberal education for students planning to apply . . . .

Other factors undoubtedly have contributed to the decline in medical school applicants: increased tuition levels, lower expected career incomes, perceptions of a physician surplus, lessened physician autonomy in practice as a result of increased corporate involvement in health care delivery, and widely publicized problems of physicians in obtaining affordable professional liability insurance. Medicine has enjoyed high professional standards due in part to its attractiveness as a career to talented young people. The academic qualifications of medical school applicants remain high, but if a significant decline in the applicant pool continues, medical schools will likely reduce class size to maintain admission standards.

How can medical schools best work with undergraduate colleges and universities to ensure that applicants are prepared for the rigors of medical education?

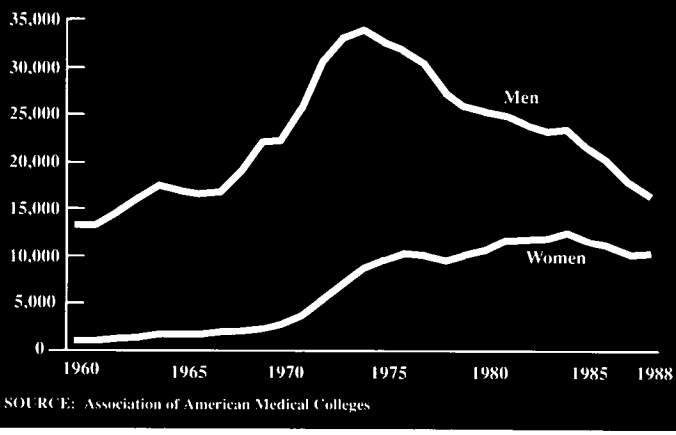
Efforts to increase the representation of minorities in the medical profession have not been served by the decline in applicants. The AAMC first identified the underrepresentation of minorities in medicine as a major priority for action twenty years ago. A decade later, a 1978 AAMC Task Force Report on Minority Student Opportunities in Medicine and its subsequent implementation plan expressed the view that expansion of the applicant pool was essential if more minorities were to enter medicine. Despite these initiatives, blacks constituted only 8.1 percent of medical school applicants in 1988. Other underrepresented minorities, American Indians, Mexican-Americans, and mainland Puerto Ricans, raise this proportion to 10.8 percent. Both figures are only

FIGURE 8
MEDICAL SCHOOL APPLICANTS AND ACCEPTANCES



SOURCE: Association of American Medical Colleges

FIGURE 9
MEN AND WOMEN APPLICANTS TO MEDICAL SCHOOL



SOURCE: Association of American Medical Colleges

How can the historic commitment to correct the underrepresentation of minorities in medicine be fulfilled?

slightly higher than those observed a decade earlier. Particularly for blacks, who constitute 12 percent of the population but only three percent of physicians, a significant boost in applicant numbers is required to erase a historic underrepresentation in the medical profession.

While equal access to the medical profession is a moral and ethical requirement, it is a social imperative as well. A 1984 federal government report detailed continuing large differences in the health status of white and minority groups in this country. Limited access to physicians and other health care professionals is a contributing factor to this phenomenon. Minority physicians are more likely to locate their practices in medically underserved areas and to understand the social and cultural conditions that contribute to poor health in these communities. As the ethnic and cultural composition of the U.S. population changes, it is vital that the medical profession reflect that ethnic and cultural diversity.

In 1987, the AAMC issued a statement which reaffirmed its commitment to increasing the representation of minorities in medicine. Improvements in this area will depend upon progress made in achieving near-term objectives of increasing minority student awareness of medical careers and knowledge of how to prepare for medical school, and of providing assistance in meeting the financial costs of a medical education. In the long term, it will require progress in eliminating the differences between whites and minorities in the quality of education received at all levels, elementary, secondary, and postsecondary, and in the motivation to pursue higher education.

TUITION AND STUDENT FINANCIAL ASSISTANCE

Will rising levels of tuition and fees restrict access to the medical profession?

Medical schools aspire, as a matter of principle, to accept the most worthy candidates for admission, regardless of ability to pay. The realization of equality of access to medical education is influenced by tuition levels and the availability of student financial assistance.

The costs of attending medical school rose steeply in the 1970s, driven substantially but not entirely by the rapid inflation of that decade. Increases in tuition and fees have continued unabated in the 1980s. The median annual tuition at a private medical school is estimated to be $16,965 in 1989-90; at a public medical school, $5,463 for state residents and $11,848 for nonresidents. Behind these figures is an enormous variability among medical schools in the total level of tuition and fees, from $1,425 per year for state residents at one public institution to $23,749 per year at a private institution. One result of the large tuition differentials is an increase in medical student applications for transfer from more to less expensive schools, a practice which can disrupt institutional planning.

Preserving equality of access to medical education under conditions of increasing tuition and fees requires an adequate base of scholarship funds and the availability of low interest, subsidized loans to assist those most in need. In the ten-year period 1977-1987, available scholarship money grew, from $79 million to $145 million, but its proportional contribution to student financial assistance declined, from 38 percent to 23 percent. Sources of scholarships also changed dramatically. In 1977-78, Armed Forces Health Professions Scholarships and the National Health Service Corps Scholarships, two programs with a service commitment, accounted for 62 percent of scholarship funds. In 1987-88, due to a drastic reduction in the latter program, their contributions had shrunk to 38 percent. Institutional funds accounted for 34 percent of the scholarship funds available in 1987-88, up from eight percent a decade earlier.

Loans constituted the major portion of the $642.4 million in student financial assistance awarded in 1987-88. Over half of the total loan revenues, $277.6 million, was in Stafford Student Loans (SSL), formerly the Guaranteed Student Loan (GSL) program. This program with its deferred interest provision and subsidized rate has grown in popularity. The Health Professions Student Loan (HPSL) and Perkins (formerly National Defense) Loan programs, two other need-based, federally subsidized programs, each accounted for five percent of the loan awards in 1987-88. Most of the remaining loan requirements have had to be met by market-based programs, including the Health Education Assistance Loan (HEAL) program, with 17 percent of the loan activity and the Supplemental Loans for Students (SLS) program, with eight percent. In these programs interest accrues throughout the life of the loan, presenting medical students with a formidable debt to be repaid.

In 1986 the AAMC introduced MEDLOANS, a comprehensive loan program that guarantees all enrolled medical students in good academic standing access to $30,000 of loan capital each year for the four years of medical education. MEDLOANS utilizes the existing federal SSL, HEAL, and SLS programs, as well as its own Alternative Loan Program (ALP), with terms and conditions that make it the least expensive, privately insured loan

available for medical student borrowing. MEDLOANS has greatly eased campus administration of student financial assistance while having many desirable features for students: a single loan application, consolidation options pursuant to federal statute, and repayment geared to the earning patterns of physicians.

The major consequence of rising tuition and fees, the failure of scholarship revenues to keep pace, and limitations on subsidized loans, has been the growing indebtedness of medical school graduates (**Figure 10**). Among the class of 1988, 83 percent incurred some debt to finance their medical education. These debts averaged $38,489 per student, although they extended to more than $100,000 for some students. Twenty-four percent had debts over $50,000. Underrepresented minority medical graduates in 1988 particularly have been affected by the increased costs of medical education. Nearly 37 percent of this group had debts over $50,000.

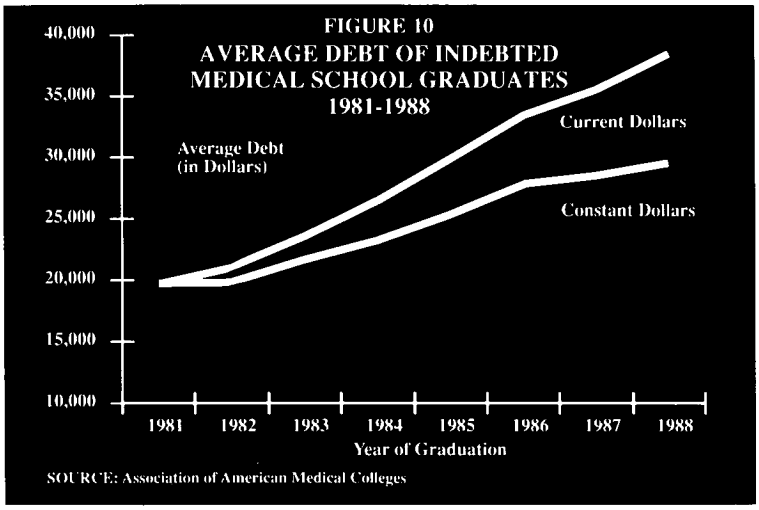


FIGURE 10
AVERAGE DEBT OF INDEBTED MEDICAL SCHOOL GRADUATES 1981-1988

SOURCE: Association of American Medical Colleges

The disincentive effect of high tuition levels and increases in expected debt levels on young people, particularly minorities, applying to medical school has been mentioned. Another possible adverse consequence is the subtle but pervasive influence that high debt levels may have on the specialty choices of medical school graduates in favor of high-earning specialties. Already there is evidence that when debt consists disproportionately of nonsubsidized, market-rate loans, students are less inclined to enter the under-supplied primary care specialties. A third deleterious consequence is a potential increase in the incidence of default among medical school graduates. Medical school graduates traditionally have had a low default rate compared to other health professions. Nevertheless, the rate of default on HEAL loans by medical school graduates increased from 3.8 percent in 1987 to 4.9 percent in 1988.

EDUCATIONAL PROGRAM

Despite the tremendous changes in size, scope, and institutional context of medical education programs, the basic structure remains remarkably similar to that outlined by Abraham Flexner in his prescription for reform at the beginning of the twentieth century. In the first two years, medical students receive a solid grounding in the biomedical sciences of anatomy, biochemistry, physiology, and microbiology, followed by clinically relevant transition courses such as pharmacology, pathology, and introduction to clinical medicine. Courses in behavioral science are also standard. Integrated basic and clinical science topics, for example, genetics, immunology, molecular biology, are covered as separate courses or parts of existing courses. Courses and seminars in public health/preventive medicine, epidemiology, geriatrics, and biomedical ethics complete a comprehensive program of instruction. The third and fourth years of the program are reserved for supervised clinical experiences known as clerkships, the sites for which traditionally have been the inpatient units of affiliated teaching hospitals. Clerkships are mandated in internal medicine, surgery, obstetrics/gynecology, pediatrics, and psychiatry. A clerkship in family practice or other primary care experience is also frequently required by schools. Students generally have the option to elect additional training opportunities. Upon satisfactory completion of this four-year curriculum, the student is awarded an M.D. degree by the institution. However, graduating students are not considered to have the skills necessary for independent practice. A period of graduate training follows, which leads to certification in a chosen specialty or subspecialty.

Throughout the century there have been periodic national reviews of medical school curricula and educational programs, resulting in recommendations for change. These include the recent and widely publicized *Physicians for the Twenty-First*

At what point will increasing debt levels influence the specialty choices of medical school graduates?

Can greater institutional emphasis on the education of medical students be accomplished through revised faculty incentives and redesigned programs?

Will medical school faculties be able to adopt instructional methods that more actively involve students in the learning process?

Century, an AAMC-sponsored 1984 Report of the Panel on the General Professional Education of the Physician (GPEP) and College Preparation for Medicine. Despite sometimes broad consensus in these reports on desired elements of medical education programs, the implementation of some of the recommended changes has proven difficult. The Association is presently undertaking a study to determine how change in medical education programs has occurred in response to the GPEP Report and other major commission reports and the obstacles to implementing some of the recommendations. The major elements of most of these reports have centered on issues of *organization and governance* of the program, *methods of instruction*, *content of curricula*, and various aspects of the *clinical education* phase of training. The Charles E. Culpeper Foundation, Inc.- sponsored project that the Association has undertaken, *Assessing Change in Medical Education*, is expected to be completed in 1991.

Technological advances arising from the research discoveries of the post-war period gave rise to increased specialization in clinical medicine and the sciences basic to medicine. As a result, responsibility for both planning and implementing a program of education for medical students has become more widely dispersed among medical school departments and faculty members.

How can faculty develop in medical students habits of self-directed, independent learning?

Organization and Governance. Technological advances arising from the research discoveries of the post-war period gave rise to increased specialization in clinical medicine and the sciences basic to medicine. As a result, responsibility for both planning and implementing a program of education for medical students has become more widely dispersed among medical school departments and faculty members. The chief interest of faculty is often the training of graduate students and residents within their fields of specialization and research. Medical student education must compete with these other activities. The result has been a dilution of the effort focused on general professional education. The structuring of general professional education as an instructional continuum is further hindered by differences in the controlling influences on medical student versus resident education. The former is quite directly the responsibility of the medical school, while the latter is more directly controlled by clinical departments responding to the requirements of national specialty boards, residency review committees, and local service needs. These structural differences impede articulation of the clinical training experiences in medical school and the first years of residency.

Schools have adopted various strategies to counter these influences and redirect faculty energies toward medical student education. These include modifying faculty promotion and reward systems to place greater value on medical student teaching and defining, adopting, and implementing systems for evaluating medical students on a detailed set of educational objectives. A few schools have developed experimental programs which move the authority and responsibility for medical student education to specially created organizational units. The results of these experiments should be useful in the further evolution of programs.

Improving the articulation of medical student and resident clinical training programs is a particularly challenging problem. One recent proposal, to link the last two years of medical school with the first two years of residency in an integrated clinical training program, raises the possibility that the long period of training even for generalist physicians, and its attendant costs, could be reduced. The coming years may see cooperating institutions experiment along these lines.

Methods of Instruction. Medical student educational programs have been criticized, particularly by the GPEP panel, for relying too heavily on lectures in the first two years, overloading students with information, emphasizing facts over concepts and principles, and rewarding memorization over problem-solving and analysis. There is validity in each of these criticisms although they require some perspective. The decline in the use of laboratory exercises to demonstrate biological phenomena and the subsequent rise in popularity of the lecture format was in part a natural consequence of teaching efficiencies sought with the expansion of class size that occurred in the 1960s and 1970s. Curriculum density and information overload reflect the explosion in bioscientific knowledge and an outmoded assumption, that one could learn all there is to know in the four-year period traditional for the M.D. program. Evaluation methods and assessment techniques which are better at measuring the knowledge base of students than thinking and reasoning skills have contributed to a focus on facts.

There is general agreement that medical education must be an active process, that problem-solving and reasoning skills must be fostered, that biomedical sciences must not be taught as disembodied facts but as the basis of understanding clinical phenomena, and, most importantly, that habits of self-directed, independent learning which prepare students for a lifetime of continuing medical education should be developed. Research projects, independent study assignments, and computer-assisted instruction are methods traditionally used to achieve these objectives. A promising approach taken by several schools is the problem-based curriculum. This refers to a student-centered, small-group approach in which basic and clinical science topics are introduced in the context of patient problems. Discussion of these cases is supplemented by independent research, reading materials, and occasional lectures and demonstrations. The Association sponsors educational workshops to introduce medical schools to these innovative teaching methods.

Content of Curricula. While accreditation standards specify a set of broad guidelines for the content of medical education programs, curriculum is the responsibility of individual faculties. Faculties update curricula continually in response to the evolution of science and the changing demands of modern medical practice. They strive to avoid contributing to curriculum density by limiting popular topics that serve only as digressions from fundamental knowledge and skills.

Medical schools attempt to balance presentation of the biological and scientific basis of clinical phenomena with an understanding of psychological, social, and behavioral aspects of disease and disability and the development of interpersonal skills necessary for effective caregiving. The latter dimensions of medical education are especially relevant in preparing students to care for future patient populations that will likely be older and beset with various sociomedical conditions, such as the burgeoning problem of drug abuse. These skills are demanded particularly by the emergence of the human immunodeficiency virus (HIV) epidemic and its clinical manifestation, AIDS. A recent report by the AAMC Committee on AIDS and the Academic Medical Center urged medical schools to re-examine their curriculum in light of the epidemic, particularly with respect to knowledge of infection control procedures, human sexuality, health promotion and disease prevention, physician-patient communication skills, psychosocial aspects of disease, and medical ethics. AAMC studies have indicated that medical schools have actively introduced HIV-specific subject matter and training experiences into their curricula in recent years.

Perhaps the greatest challenge to medical school curricula in the coming years is preparing students for the transformation of medical practice and health care delivery driven by advances in information technology. The storage, retrieval, and management of information is an essential function in the support of medical decision making. In the past, the knowledge base of medicine was stored in textbooks and journals and patient information in hospital and office records. Physicians were expected to use their memories to make correlations between information in the literature and information about their patients and reach diagnostic and therapeutic decisions. Most physicians and students continue to use this memory-dependent mode of decision making. However, the computer technology, databases, and expert systems currently available to hospitals and physician offices, and others coming on-line within the next decade, will demand a fundamental behavioral change.

Perhaps the greatest challenge to medical school curricula in the coming years is preparing students for the transformation of medical practice and health care delivery driven by advances in information technology.

How can students be best prepared for the new demands of medical practice, such as the aging population and the HIV epidemic?

In 1982 the AAMC published a report on the role of the library in information management. In 1985 it sponsored a conference on medical information science, or medical informatics. Both projects emphasized the need to integrate medical informatics in medical education programs. This requires faculties to invest the time and effort to modify curriculum methods and institutional resources to develop information management systems. The 1982 Association report proposed the concept of an Integrated Academic Information Management System (IAIMS) program for biomedical institutions. The National Library of Medicine (NLM) has assumed a strong leadership role in advancing the concept and funding implementation efforts. IAIMS has been shown to be remarkably successful, not only in transforming how faculty and student access and exchange information, but in promoting greater interaction and cooperation. In the next decade, medical students using computers to access patient records, medical literature and medical databases, and consulting colleagues and expert systems as aids in patient diag-

nosis and therapeutic interventions, should become a commonplace occurrence.

Clinical Education. A fundamental characteristic of medical education is its provision of supervised clinical experiences for medical students and residents. The inpatient services of the nation's teaching hospitals have traditionally been the site for these activities and have provided an ideal educational milieu. Medical students have been able to observe, discuss, and participate in diagnostic and therapeutic activities in the company of and supervised by residents, fellows, and faculty physicians. Residents and fellows in turn assume greater patient care responsibilities and contribute to medical student education. The concentration of students and residents in a small number of inpatient settings has allowed close quality control of the educational program by department and division chairpersons. Because of the availability of the patient throughout the period of hospitalization, inpatient educational programs have been efficient as well as effective. Teaching at the patient's bedside can be conducted for groups of students at specified times in the teaching physician's schedule.

Paramount among the obstacles facing a transition from inpatient to outpatient education is the absence of a financial structure to accommodate this change.

How can clinical training in medical school and residency be better articulated?

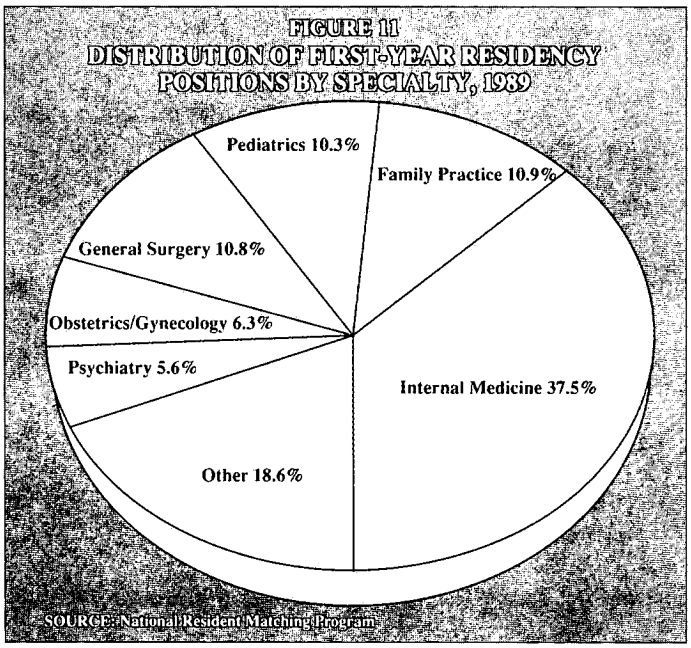
Several factors now conspire to make inpatient services less ideal as educational sites, particularly for the training of medical students. Technological advances in various specialties and the financial incentives inherent in alternative systems for health care delivery have narrowed the scope of medical conditions for which patients are now hospitalized. As a consequence of incentives in newer reimbursement schemes, those who do receive hospital care tend to stay for a shorter period. Much of the initial diagnostic workup and post-treatment follow-up occurs in the ambulatory setting. As a result, medical students now have little time to get to know hospitalized patients, study their medical conditions, and follow the course of treatment and care. The patients themselves suffer from more acute and complex illnesses, which resemble little the medical conditions students will confront later in the office or clinic setting. The need to extend clinical training further into the ambulatory setting to balance these changes was a consistent theme both of a 1985 AAMC-sponsored conference on clinical education and of a 1986 AAMC-sponsored invitational symposium on ambulatory care education. In 1987, with the assistance of the Health Resources Services Administration, the AAMC surveyed medical schools on the extent to which they had adapted their training programs to include more time spent in outpatient settings. The results on the whole were not encouraging. Despite widespread agreement that more ambulatory care training was desirable, little progress had been made to effect changes in this direction.

Paramount among the obstacles facing a transition from inpatient to outpatient education is the absence of a financial structure to accommodate this change. The presence of students in outpatient delivery settings incurs a number of special costs to the practice operation, for example, larger examining rooms to accommodate physician, patient, and student, and increased use of supplies and tests for educational purposes. It also has an impact on the efficiency and productivity of the practice. As a consequence of the student's need for supervision and consultation, the attending physician is able to see fewer patients. Increased costs together with diminished productivity leave a financial gap to be bridged. Outpatient environments promise to be educationally productive. However, until a source of funds is identified to cover these new educational costs, medical schools will continue to find it difficult to move student clerkships into these practice settings.

GRADUATE MEDICAL EDUCATION

Graduate medical education or residency training, varying in length from three to seven years, is essential to prepare physicians for independent practice. In 1989, 98 percent of all graduates of U.S. medical schools entered residency programs; 92 percent intended to complete the education and training required for certification by a specialty certifying board.

The complex and elaborate process by which medical school graduates secure residency positions is facilitated by the National Resident Matching Program (NRMP), a computerized process that links student choices for specialty training programs with available positions and preferences of program directors for candidates. The AAMC recently agreed to assume the management of the NRMP, under contract to its independent governing board. In 1989, 14,117 fourth-year students at



U.S. medical schools, 91 percent of all U.S. seniors, sought graduate training through this program. A total of 13,215 (94 percent) was successfully matched by NRMP to a program of their choice. Underrepresented minority medical school graduates have less success in obtaining desired residency positions. Although nearly all minority graduates eventually obtain a residency, they are less likely to match to their programs of choice.

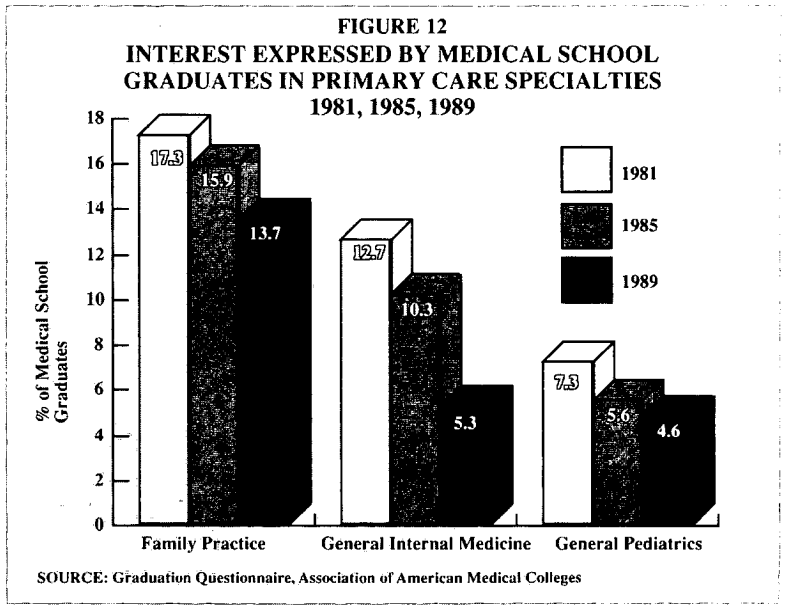
Nearly 38 percent of first-year residency positions obtained by students through the NRMP in 1989 were in internal medicine programs (**Figure 11**). However, many of these students are seeking to satisfy a requirement for advanced training in one of the other specialties. Eleven percent obtained positions in family practice programs, 11 percent in general surgery programs, and 10 percent in pediatrics programs. Despite a consensus that more primary care physicians are needed, the interest expressed by graduating seniors in primary care specialties has declined throughout most of the 1980s (**Figure 12**). During this period, interest in the specialties of psychiatry, anesthesiology, and radiology has increased.

Financial support for graduate medical education has been largely derived from hospital revenues through charges to patients and third-party carriers, including the Medicare and Medicaid programs. The justification for this practice has been the services provided to patients by residents in the context of their learning and the need for an ongoing investment in physician education to ensure a continuing supply of qualified physicians. As the supply of physicians has increased and the medical care system has changed, the commitment to continuing the financial support of graduate medical education through hospital charges has waned.

Medicare provides its full share of the cost of residency education necessary to complete the educational requirements for primary board eligibility plus one additional year, with a limit of five years; thereafter reimbursement is at 50 percent. This limitation is evidence of an unwillingness to provide the open-ended support of graduate medical education that once prevailed. The growing federal deficit has prompted calls for even further reductions in the federal investment in medical education. There are similar efforts in the private sector to unlink the support of graduate medical education from the payment for medical services. Large scale purchasers of medical services are seeking to contract with hospitals and physician groups to provide an acceptable range and quality of services at the lowest cost. These purchasers do not accept educational costs as their responsibility.

In 1984 an Association committee conducted a major review of the status of graduate medical education financing. After a thorough examination of various alternative methods, including a proposal to establish a separate fund for this purpose through some form of taxation, the committee concluded that teaching hospital revenues from patient care payers should continue to be the principal

How can stable sources of funding for graduate medical education be secured?



source of support. The committee did agree that modifications were needed, including concurrence with Congressional intent to limit the length of training support. It also emphasized that graduate medical education must be conducted cost effectively. The Association adopted the committee's report and has advocated restraints on specialty certifying boards whose changes in certification requirements demand additional resources.

The payment structure for graduate medical education has also been an avenue in Congressional proposals to alter the specialty mix of physicians in practice. The current payment scheme provides a mild incentive to sponsor training in primary care disciplines: family practice, general internal medicine, general pediatrics, and obstetrics/gynecology. The duration of these training programs is comfortably within the fully funded time span. Proposals have been advanced to increase the incentives for primary care training, as well as to provide financial disincentives for the training of subspecialists in disciplines perceived to be in excess supply.

In 1988 the Association adopted. . . . support for a maximum 80-hour work week for residents averaged over four weeks and provisions for graded supervision. . . .

How can the educational needs of residents, the service requirements of hospitals, and fiscal realities be accommodated by residency programs?

As with the overall question of physician supply, there is continuing debate on the optimal mix of various medical and surgical specialists. The Association does not endorse the concept of a national system that would regulate training programs on the basis of forecasts of the need for physician services. Methods for estimating demand are at this point too imprecise. Public and private efforts to provide positive incentives to encourage training in specialty areas that are clearly undersubscribed do seem warranted. However, financial disincentives for training in other disciplines are inappropriate when they cover the initial period of board eligibility in those specialties. Teaching hospitals bear some responsibility for achieving a better distribution of physicians among specialties. As early as 1980, the Association's Graduate Medical Education Task Force recommended that each institution sponsoring graduate medical education adjust the size and specialty mix of its programs to be consistent with the physician needs of the region its graduates serve.

A further issue confronting institutions sponsoring graduate medical education programs is the concern about working hours of residents and provisions for supervision of their activities. The term *resident* is derived from the fact that historically physicians in training were expected to live in the hospital. They were responsible for patients 24 hours a day, seven days a week. While these austere requirements have been relaxed greatly, residents typically are on duty in excess of 70 hours per week, including hours in which they are "on call." In a few programs and specialties, residents have been expected to be available for duty even greater periods of time. There is concern that the intensity of the workload, together with inadequate supervision, may be compromising the quality of patient care in teaching hospitals. As a result, some states have begun to regulate resident hours and supervision.

With the dramatic changes taking place in medicine, hospital care, and the health care delivery system, a review of the current structure of residency programs seems welcome. Unfortunately, many of the simple and quick fixes which characterize some proposals fail to reflect the differences in educational needs among the various specialties, ignore established principles upon which residency education is based, and impose a heavy cost requirement that would threaten the viability of some teaching hospitals. In 1988 the Association adopted a series of recommendations for changes in residency programs. Among these were support for a maximum 80-hour work week for residents averaged over four weeks and provisions for graded supervision of residents leading to the ability to make independent patient care decisions. The Association has called for greater emphasis on the supervision of residents in the early years of training. Were a sharp reduction in resident hours mandated by state law or regulation, hospitals would have to adjust their staffing requirements to meet existing service needs. Since this would have considerable financial implications, the AAMC has asked that legislative and regulatory bodies consider the impact of any changes on teaching hospitals and, if they are to be made, that they be phased in gradually.

EVALUATION AND STANDARDS

Throughout the course of this century an intricate network of accreditation bodies, licensing authorities, and specialty certification boards has developed to provide assurances that physi-

cians in practice have acquired the requisite knowledge and skills to practice medicine safely and competently. For U.S. medical school graduates, this evaluation process begins with the careful and selective process by which each student is admitted to medical school and continues with the ongoing assessment by medical school faculty of the student's satisfactory progress through the curriculum. Faculty observations and judgments regarding the clinical skills and competence of medical students are particularly important in the award of the M.D. degree, indicating a readiness to enter graduate medical education. These same faculty members are involved in assessing the clinical skills of residents, in the course of their graduate medical education program.

Accreditation of medical schools by the Liaison Committee on Medical Education (LCME) provides assurances not only that faculties are competent . . . but that the educational standards and criteria which they set meet minimum national standards.

Accreditation of medical schools by the Liaison Committee on Medical Education (LCME) provides assurances not only that faculties are competent to judge the knowledge, skills, and abilities of medical students, but that the educational standards and criteria which they set meet minimum national standards. The LCME, an independent, voluntary body jointly established by the AAMC and the American Medical Association (AMA) conducts periodic site visits and reviews of U.S. medical schools for these purposes.

Similarly, the Accreditation Council on Graduate Medical Education (ACGME), of which the AAMC is a sponsor, is charged with determining the essential requirements of graduate medical education programs and ensuring their compliance by institutions in the conduct of graduate medical education programs. Discipline-based Residency Review Committees (RRC) complement these general requirements with a review of programs based on specific training requirements determined for each specialty. The involvement of specialty boards in the determination of residency program requirements is appropriate since these boards certify physicians as meeting certain standards based in part upon satisfactory completion of an acceptable training program.

While the efforts of these voluntary agencies are invaluable to the process of ensuring physician competence for practice, the legal authority to grant a license to practice medicine rests with 54 different state and jurisdictional licensing authorities. The requirements to obtain a license to practice medicine are not uniform among these jurisdictions, but at minimum they include the completion of an acceptable educational program, successful passage of an external examination, and, in all but three jurisdictions, at least one year of graduate medical education. For U.S. graduates the external examination requirement can be fulfilled in most states either by passage of a three-part examination sequence offered by the National Board of Medical Examiners (NBME) or a two-part Federation Licensing Examination (FLEX) sponsored by the Federation of State Medical Boards (FSMB).

Graduates of foreign medical schools must take FLEX to satisfy the external examination requirements of licensing authorities. However, the uncertainty with which the adequacy of their medical education program is viewed has prompted many jurisdictions to impose additional requirements at the interface between medical school and residency. Foreign medical graduates seeking entry to accredited graduate medical education programs, participation in which is required for licensure, must first obtain a certificate awarded by the Educational Commission for Foreign Medical Graduates (ECFMG). The certificate is based upon satisfactory completion of the Foreign Medical Graduate Examination in the Medical Sciences (FMGEMS) or Parts I and II of the NBME examinations, an English language proficiency requirement, and complete documentation of specified medical credentials.

While the array of agencies, associations, and authorities involved in these processes may appear bewildering to the lay public, their respective roles and interrelationships are based on several principles: the need for multiple agencies providing checks and balances on assessments of the competence of individuals and the quality of programs, the desire to complement standardized paper-and-pencil evaluations of physician knowledge with judgments of clinical skills based on observation by experienced physician-educators, and the assurances provided by completion of a documented and accredited program of studies and supervised clinical experiences. At the moment, the surrogate for accreditation of foreign medical schools is ECFMG certification. The Association has promoted a standardized testing method to assess clinical skills, a

How can the development of a standardized, practical clinical skills examination be accelerated?

means of vouching for the clinical competence of foreign medical graduates as well as medical students, residents, and practitioners seeking professional licensure or re-licensure. Both the ECFMG and the NBME have been testing such an evaluation procedure, and a Clinical Skills Assessment Alliance has been formed by the AAMC, ECFMG, NBME, AMA, and the American Board of Medical Specialties to design a standardized system that might be employed nationally.

Beyond its potential utility in assessing the readiness of foreign medical graduates for residency training, the promise of a standardized, practical examination to assess clinical skills has generated considerable interest in the medical education community.

What will be the implications of the development of a single examination for licensure?

Beyond its potential utility in assessing the readiness of foreign medical graduates for residency training, the promise of a standardized, practical examination to assess clinical skills has generated considerable interest in the medical education community. Standardized written examinations now available as outcome measures in evaluating program quality or as measures of individual competence, for example, scores on NBME examinations, are estimated to cover less than 25 percent of the competencies expected of medical school graduates. The remaining competencies can only be evaluated by direct observation of students by qualified individuals. This process is repeated daily in accredited U.S. medical schools but without a mechanism for providing comparisons at a national level that would be useful to the individual schools as well as accreditation bodies. Moreover, a persistent bias that standardized clinical assessment might correct is that the 25 percent of competencies for which students and programs are presently compared on a national basis tend to receive a disproportionate emphasis in the medical education program.

Licensing authorities and examination and certification agencies have also begun to coalesce around another objective: to replace the current multiple examination system leading to licensure with a single examination. Under a proposal made by the FSMB, the NBME, and the ECFMG, a single three-part examination sequence would be constructed and made available to students and graduates of LCME-accredited and non-accredited schools alike. The proposal has the appeal of simplifying the current maze of examination requirements and would aid in making comparisons of performance among different groups. The examination would complement and validate the rigorous and comprehensive educational program of individual medical schools. LCME accreditation would remain available to ensure that high educational standards are met.

3 Biomedical and Behavioral Research

Fundamental research across a wide range of disciplines in biomedical and behavioral sciences is the means by which knowledge that can be used to ameliorate disease and reduce suffering is acquired. Academic medical centers have provided the creative investigators and intellectually stimulating environments that have so remarkably advanced the understanding and treatment of diseases over the last half century. These institutions are now national and international resources contributing to the nation's preeminence in the biosciences. But they are heavily dependent on outside funds for their sustenance.

RESEARCH FUNDING

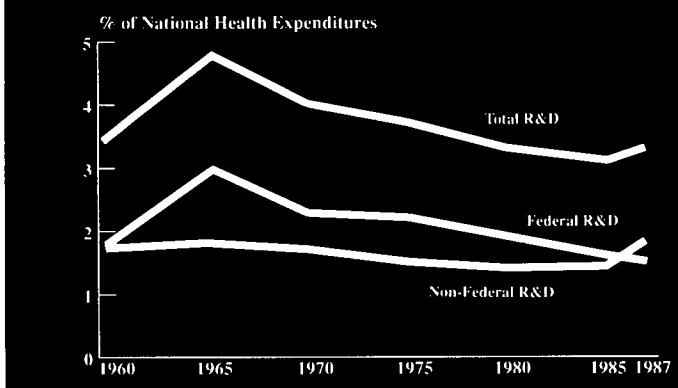
National expenditures from all sources for biomedical and behavioral research and development totaled $16.6 billion in 1987, more than eight times the level expended in 1965. However, during the same period, national health care expenses increased more than twelvefold. As a result, biomedical and behavioral research expenditures declined as a percentage of total health expenditures from 4.8 percent in 1965 to 3.1 percent in 1985 (**Figure 13**). In 1987, the proportion increased to 3.3 percent, but the federal component continued to decline. The latter figure still represents a very low rate of investment for an industry in which research must be viewed as an essential long-term strategy for the control of health care costs.

For many years, the federal government accounted for about 60 percent of the national investment in biomedical research (primarily invested in basic research) and industry for 25 to 35 percent (primarily invested in development). Recently, in large part due to the rapid expansion of the biotechnology industry, some shift has occurred with the federal share decreasing to 47 percent in 1987 and investment by industry at an all-time high of 42 percent. Federal expenditures are primarily for basic research conducted by academic institutions or in federal laboratories. Industrial expenditures are spent mainly within industry. State and private sources account for the remainder of research funds.

In 1987, U.S. medical schools reported sponsored revenues for research of $2.8 billion. Approximately $2.1 billion or 75 percent was derived from federal agencies, with the National Institutes of Health (NIH) being the single major source. As

How can the nation's investment in biomedical and behavioral research be continued in an era marked by growing federal deficits and budgetary constraints?

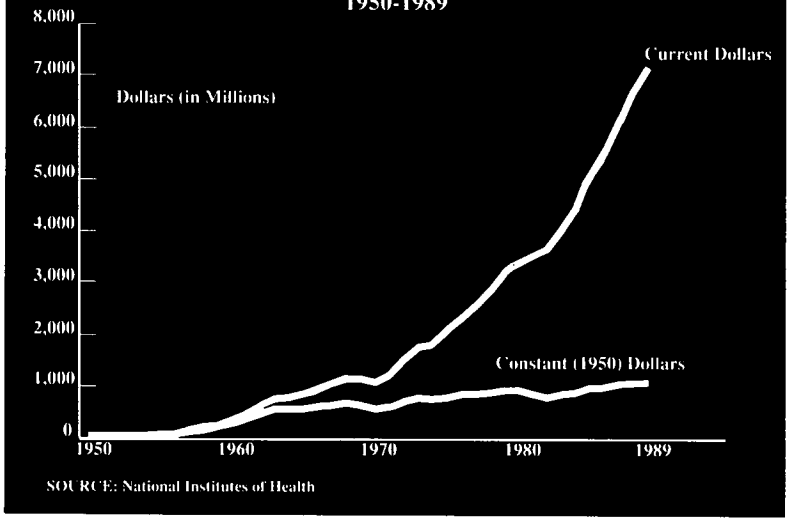
FIGURE 13
NATIONAL EXPENDITURES FOR HEALTH RESEARCH AND DEVELOPMENT AS A PERCENTAGE OF NATIONAL HEALTH EXPENDITURES BY SOURCE



SOURCE: Health Care Financing Administration and the National Institutes of Health

a result, the funding patterns for this federal agency have been a focus of intense interest by AAMC member institutions. In the 1950s and 1960s, yearly annual growth in NIH appropriations was appreciable (over 20 percent after inflation). In the 1970s growth in support continued, but in more modest terms (approximately 5 percent per annum). In the late 1980s funding increases have slowed considerably **(Figure 14)**. In addition, a substantial fraction of the recent increases for NIH and the Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA), another important source of research funds, is directly attributable to research on HIV infection and AIDS. Specific attention to the HIV epidemic is warranted, but failure to increase investment in a wide array of fundamental, undifferentiated basic research is shortsighted. Prior federal investment in basic research, particularly in the study of retroviruses, enabled scientists to make such rapid progress in identifying the etiologic agent which causes AIDS.

FIGURE 14
NIH APPROPRIATIONS
1950-1989



SOURCE: National Institutes of Health

Will a focus on specific diseases, e.g., AIDS, undermine the federal commitment to support basic research?

The predominant mechanism for NIH extramural research support is the investigator-initiated grant, whether awarded as a traditional research project grant, program project grant, or career development award. Nationally targeted programs, supported mainly by contracts, constituted a greater share of the extramural awards in the mid-1970s than they have before or since.

A major change in research funding policy in recent years is the increased length of research project grants. In 1988 more than half of research project grants awarded by NIH were for five years, compared to only 20 percent a few years earlier. The effect of the policy change is to reduce the administrative burden on researchers who otherwise would be devoting considerably more time to the preparation of applications rather than to the conduct of research itself. However, the long-term commitment of funds to these awards adds to funding demands if support for new research projects and opportunities for new investigators are to be preserved.

Over the past quarter century the proportion of research funding required to meet the indirect costs of research, for maintenance of facilities and equipment, administration, and other institutional overhead, has gradually increased. The shift in funding undoubtedly relates to the increasing complexity of modern biomedical research and its demands on institutional resources. However, it has divided administrators, who are responsible for institutional support of the research enterprise, and faculty investigators, who perceive higher indirect rates as dictating a more limited share of funds to cover direct costs. The disparity among institutions in indirect cost rates has also contributed to confusion and mistrust among faculty and research sponsors about the legitimacy of these costs. The Association believes that the true costs of research, including indirect costs, should legitimately be borne by the research sponsor. Indirect cost policies which have the full confidence and trust of the research community and government sponsors need to be developed. A 1989 report commissioned by the Association of American Universities (AAU) on indirect costs provides recommendations which may be useful in this regard.

Biomedical Research Support Grants (BRSG), an important category of award which provides formula-based research funds for use by each grantee institution at its discretion, have failed to keep pace with the allocations to project grants and inflation and have been targeted repeatedly for elimination. Frequently used by grantee institutions for start-up or transition support for new faculty and highly imaginative investigators, these flexible institutional research funds have been vital to the missions of both NIH and the medical schools. As competition for research funds has stiffened, award rates for several of the National Institutes have declined from approximately 35 to 40 percent of approved proposals ten years ago to 20 to 25 percent currently. BRSG funds have been increasingly valuable as a means for medical schools to provide continuity for highly skilled investigators during periods in which funding was reduced or temporarily not available.

In an era marked by growing federal deficits, the burgeoning cost to the federal government of

biomedical and behavioral research is a legitimate concern of those charged with the stewardship of public resources. Congress should be mindful, however, that the biomedical and behavioral research enterprise has proven to be one of the nation's wisest investments, not just as a moral obligation to improve the human condition, but as an economically sound undertaking to reduce the devastating costs of disease, disability, and premature death.

TRAINING OF RESEARCH PERSONNEL

The maintenance of America's preeminence in biomedical and behavioral research requires continuing contributions to the training of scientific personnel. Yet, when adjusted for inflation, NIH support of research training has declined over the past two decades **(Figure 15)**. Training funds accounted for 13 percent of the NIH extramural research budget in 1972 but less than four percent in 1988. Training support in behavioral research funded by ADAMHA has similarly declined.

Enrollment of pre- and post-baccalaureate students in the United States is projected to expand substantially during the early twenty-first century. The frontiers of biomedical research and development can also be expected to continue their rapid extension. These phenomena will occur simultaneously with the aging and retirement of a sizeable segment of the current faculty and senior biomedical research workforce. The imminent shortage needs to be countered as rapidly as possible if a crippling hiatus in the integrity of the U.S. biomedical research enterprise is to be averted.

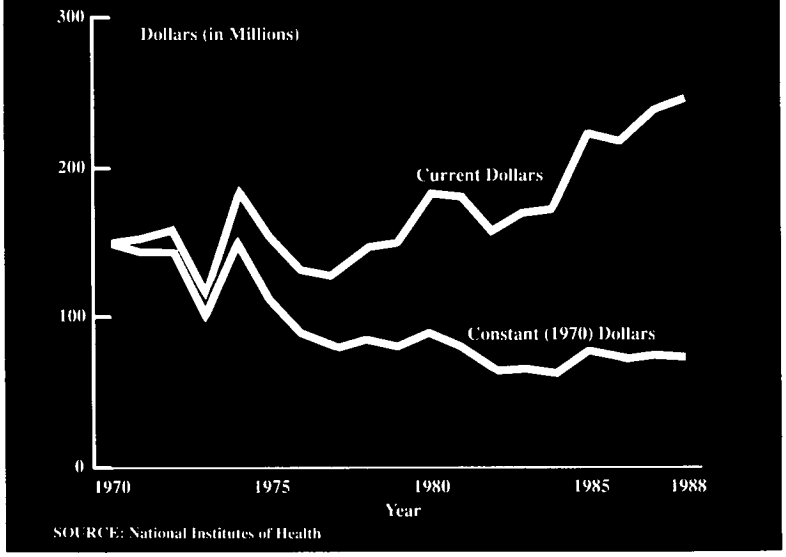
Ideally, the optimal level of biomedical research personnel for the next quarter century could be estimated and coupled to a stable training regime that would provide appropriate numbers of trainees progressing through predoctoral and postdoctoral stages. The National Academy of Sciences Institute of Medicine (IOM) has been conducting periodic estimates of training needs over a more modest future time frame. The availability of predoctoral and postdoctoral training positions funded by NIH, ADAMHA, and the National Center for Health Services Research (NCHSR) has consistently fallen short of IOM targets.

Ensuring an adequate number of qualified physician investigators has been a particular concern of the Association since the mid-1970s, when the number of M.D. and M.D/Ph.D. trainees supported by NIH began to decline. Physician researchers serve a vital role as bridges in translating basic science discoveries into clinical applications. Two NIH training programs, the Medical Scientist Training Program and the Physician Scientist Award Program, are particularly valuable in providing research training to physicians. These training opportunities need to be expanded to provide both increased numbers and duration of training. Such a measure is required to correct the current serious shortage of competent clinical investigators that has been promulgated by too few traineeships, each of which amounts to but a fleeting glimpse of the complexities, objectivity, and vigor characteristic of modern biomedical research.

How can an adequate and stable federal commitment to the training of future research investigators be ensured?

In recent years the Veterans Administration (VA) has emerged as a major federal source of

FIGURE 15
NIH SUPPORT FOR RESEARCH TRAINING
1970-1988



SOURCE: National Institutes of Health

funds for the training of young physicians, both as clinicians and investigators. It is estimated that some 400 young physicians are supported yearly through the VA advanced residency training and career development programs. Private-sector funds for research training have appreciably increased over the last decade, although the sources and amounts of this support are difficult to assess and collate nationally. These are welcome additions to the resources for support of research training. However, NIH and ADAMHA must continue to bear the primary responsibility for ensuring that the overall supply of properly trained investigators, both Ph.D. and M.D., is adequate to the need.

The future availability of research personnel rests ultimately on the attractiveness that research careers hold for young people. Currently, the prom-

What measures can be taken to expand the pool and improve the qualifications of physician-investigators upon whom the continuity and productivity of clinical research depend?

How can careers in biomedical research be made more attractive and the number of minorities in research increased?

ise offered by continuing biological discoveries and technological development is great and the prestige society bestows on those who are participants in the enterprise is high. Graduate enrollment in life science fields has held steady in recent years, despite increasing student interest in business, engineering, and computer science.

Racial-ethnic minorities continue to be underrepresented in biomedical research, a cause for concern. Two NIH-sponsored programs have been particularly successful in addressing this problem and need to be supported. The Minority Access to Research Careers program provides special research training opportunities for minorities and incentives to pursue research careers. The Minority Biomedical Research Support program is designed to improve the research capabilities of institutions that enroll large numbers of minority students. In the long term, improved and expanded science education programs at the elementary and secondary level are the key to expanding the pool of qualified minority students interested in scientific careers.

RESEARCH INFRASTRUCTURE

How can the longstanding inattention to the aging and deterioration of biomedical research facilities be reversed?

The aging and deterioration of research facilities and limitations on access to needed equipment and research instrumentation further hinder continuing accomplishments in biomedical and behavioral research. In a 1988 study sponsored by NIH, 45 percent of the medical schools surveyed described their facilities as inadequate to support their medical research needs. The study results indicated that for every dollar budgeted by academic institutions for planned new research construction, another $1.63 in needed construction is deferred. In addition to the deficit of needed new space is the deteriorating condition of that which exists. For every dollar budgeted by academic institutions for repair and renovation of biomedical research facilities, NIH estimates that $2.18 of needed work is deferred.

Amid the expressed concern about the lack of new facilities, it is apparent, although not documented, that there is considerable new construction of biomedical research facilities taking place. Much of this is made possible by foundation or corporate support, particularly at established and otherwise well-funded research universities. Institutions of lesser standing have found construction dollars more difficult to obtain.

Many academic medical centers aspire to a high level of research activity exhibited currently by only a relatively small number of research institutions. Others define their research mission in more limited terms, but they too have finite needs for research infrastructure to support that mission properly. Hence, although the type and degree of infrastructural support vary, the emerging need appears universal.

Whether or not more institutions should be encouraged to achieve a high level of research intensity, with concomitant implications for expansion of infrastructure, is a matter of continuing debate. The magnitude of deferred maintenance and of current and anticipated needs for physical plant renovation alone prompts an urgent need for assessment.

In contrast to facilities, the status of the national stock of biological scientific equipment has improved substantially in recent years. Between 1984 and 1987, a real, inflation-adjusted increase of 48 percent was observed, according to an NIH-sponsored study. Over half of this instrumentation is located in the nation's medical schools. NIH was the source of 44 percent of dollars spent by medical schools to purchase equipment in use in 1987. Despite these advances, the need for sophisticated instrumentation to support research continues unabated. Academic department heads indicated in the NIH study that access to more costly equipment items (over $50,000) was their top priority.

PROFESSIONAL AND ETHICAL ISSUES

Many of the recent advances in the understanding and treatment of various medical disorders have been made possible by the use of animal models in the laboratory. Research with animals is a mandatory prelude to human investigation in many medical disciplines. Restrictions on the use of animals would seriously hamper the further development of many human life-saving treatment methods. Despite this, the practice of using animals in research has come under strong attack in the past decade by small but well-organized groups whose ultimate objective is stop all use of laboratory animals. The more extreme of these groups has resorted to dangerous tactics — vandalism, theft, bombings, and threats — in an attempt to bring an immediate halt to research activities. Others have worked to exert influence on local, state, and federal policy makers, resulting in various statutes and proposals for regulations on institutional care and treatment of research animals, many of which are or would be cumbersome, unnecessary, and costly.

A further tactic of these groups has been to seek membership on institutional animal use committees, thereby giving themselves a role in the evaluation of scientific proposals.

The AAMC, cooperating with the Association of American Universities, has provided its member institutions with recommendations for responsible policies and procedures in the management of animal resources. These complement guidelines on animal care and treatment issued by NIH and the Public Health Service. Most medical school animal care facilities now meet the high standards necessary for accreditation by the American Association for the Accreditation of Laboratory Animal Care. Public trust and support will be essential to continuing the vital role played by laboratory animals in biomedical research accomplishments.

AAMC member institutions engaged in biomedical and behavioral research face another professional challenge as a result of recent widely publicized instances of scientific fraud and misconduct. Although infrequent, such cases are serious threats to the integrity of science and undermine public trust and confidence. Institutions supporting research have a responsibility to ensure that allegations of fraud and misconduct are dealt with effectively and expeditiously. In 1982 the Association published *The Maintenance of High Ethical Standards in the Conduct of Research*, which set forth guidelines and recommendations for dealing with scientific fraud. More recently, in 1988, the Association collaborated with a number of other educational associations and professional societies to produce the report *Framework for Institutional Policies and Procedures to Deal with Misconduct in Research.* The latter document builds upon the earlier one, incorporating more current regulatory developments. It provides a model policy for handling allegations or evidence of scientific misconduct, including procedures for inquiry, investigation, appeal/final review and resolution.

A related and more difficult set of issues for institutions is the growth of academia-industry relationships and the potential for conflicts of commitment and interest on the part of the academic researcher. The spectacular research accomplishments of the past four decades have not only expanded the frontiers of science, but have also created significant opportunities for translating basic research findings into commercially viable products. With this development has come an expansion of research relationships between industry and academia, the former drawing from the collective intellectual and creative talents of medical school faculty, the latter benefitting from an additional source of funding. As such relationships expand, faculty members find themselves with obligations and responsibilities that extend beyond the institution. Time available for their institutional responsibilities may be reduced as they attempt to live up to the expectations of their industrial sponsors. Beyond this potential conflict of commitment from faculty involvement with industrial sponsors is an even more serious concern: that faculty may develop financial and managerial interests in organizations sponsoring the research they are conducting, thus at least potentially compromising their objectivity. The Association is currently at work on a guidance document comparable to that written on the issue of scientific misconduct. It will identify situations that might pose a conflict of faculty commitment or interest and recommend policies and procedures for managing them.

A . . . difficult set of issues for institutions is the growth of academia-industry relationships and the potential for conflicts of commitment and interest on the part of the academic researcher.

Can rising public expectations of further research advances be met in the face of growing attacks on the essential use of laboratory animals?

The inherent nature of certain types of research, such as recombinant DNA or fetal tissue research, raises social and philosophical questions. Research designed to push the limits of human understanding and capability makes such questions inevitable. Institutions must recognize the legitimacy of lay concerns about the character of biomedical and behavioral research and about the processes by which bioethical issues are resolved and the objectivity and validity of the research are ensured. Open discussion of these issues and the assumption of responsibility by institutions for appropriate oversight and review of socially controversial research programs are important to preserve and expand the public trust and confidence now enjoyed by academic medical centers. Commitment to this policy may be critical to forestall governmental efforts to impose further restrictions on researchers and regulations on the research process that would dampen the creative process.

4 Patient Care

How should the unique services of teaching hospitals be recognized and supported in payment systems?

Medical school clinical faculties differ from many other professional school faculties, for example, in law or business, in the extent to which they are directly involved in the practice of their profession, in addition to teaching and research responsibilities. Teaching hospitals, which provide the venue for many of these clinical services, have as their primary mission the provision of high quality patient services. Together, they play a major and vital role in the nation's health care delivery system. Their unique contributions need to be understood, particularly by those fashioning proposals to control the escalating costs of health care.

PAYMENT FOR HOSPITAL SERVICES

Because of their unique service program characteristics, the scope of services, the severity and complexity of illnesses in their patients, and the availability of a specialized professional staff, teaching hospitals incur operating costs above those of routine patient care. Education and clinical research and applied technology programs add further to these costs. Educational programs require funding for residents and fellows, faculty, support staff, and overhead costs. They demand additional staff time and hospital resources to involve trainees in the diagnosis and treatment of patients. Clinical research adds to the cost of care because patients receiving innovative diagnostic and treatment approaches in a controlled environment require close monitoring. Also, the need to accommodate the complex requirements of developing medical technologies and services generates higher capital costs. Because of their well-developed capabilities and reputation for being in the vanguard of medical knowledge and technique, teaching hospitals attract more severely ill patients. Their commitment to local and regional needs requires them to provide certain special low-volume patient services that are costly to maintain. Finally, their historic role in serving the poor and indigent adds a further financial burden.

Under traditional systems of reimbursement, the special costs of teaching hospitals were met by cost reimbursement and internal cross-subsidies allowed by the payment system. In 1983, Congress approved a new reimbursement system for inpatient services under Medicare based on prospective pricing. Patients were classified into one of 468 diagnosis-related groups (DRG) and hospitals were reimbursed the average historic costs of patients with that diagnosis. The reimbursement system now also includes special payment for cases that represent statistical outliers in terms of costs or length of stay, as well as a payment adjustment for hospitals that bear a disproportionate share of care to the poor and indigent. Congress also recognized the need to support clinical education of health care professionals by including special payments for Medicare's share of direct medical education expenses, including trainee stipends and benefits, faculty supervision and administration, support staff, space, and allocated overhead costs.

The AAMC favored the change to this prospective payment system (PPS) as a measure to control health care costs but had major concerns about the

adequacy of the DRG approach to reflect the special costs of teaching hospitals. Because they offer specialized tertiary care services and serve as referral centers for other hospitals, teaching hospitals tend to attract the more severely ill patients within each DRG. These patients need to be cared for more intensely than the average patient, with a greater need for nursing and other support services, diagnostic tests, and aggressive treatment approaches. Payments based on the average DRG cost place teaching hospitals at a distinct disadvantage.

Congress recognized these concerns and attempted to deal with them through an adjustment labeled "the indirect costs of medical education." The Senate report stated:

> *This adjustment is provided in the light of doubts...about the ability of the DRG case classification system to account fully for factors such as the severity of illness of patients requiring the specialized services and treatment programs provided by teaching institutions and the additional costs associated with the teaching of residents...the adjustment for indirect medical education costs is only a proxy to account for a number of factors which may legitimately increase costs in teaching hospitals.*

The label for this adjustment is misleading, since the adjustment is intended to compensate for a teaching hospital's higher patient costs, not its educational costs. The indirect medical education adjustment represents on average 20 percent of the PPS-related Medicare payments to teaching hospitals (**Figure 16**). Without it, few teaching hospitals could recover the costs associated with their care of Medicare patients. This point is illustrated by data from an ongoing AAMC survey of 65 academic medical center hospitals. In 1986, only two of the hospitals in the sample reported Medicare inpatient costs that exceeded PPS-related Medicare revenues. By 1988, this number had grown to 19, due in part to modifications to the formula used to compute the indirect medical education adjustment leading to reductions in revenues. The number of hospitals failing to cover their Medicare inpatient costs in 1989 is expected to increase still, as a result of further reductions.

The inclusion of the indirect medical education adjustment in the prospective payment system signals an appropriate recognition by the federal government of the special services provided by teaching hospitals and their unique contributions to the health care delivery system. The same cannot be said of payments from other large-scale purchasers of care. Teaching hospitals have had to cope in recent years with a variety of new payment arrangements, including negotiated charges, fixed per diem or per capita payments, and competitively bid prices. This shift in the attitudes of payers has put all hospitals at financial risk for atypically long lengths of stay and above average use of diagnostic and treatment services. It presents a particular problem for teaching hospitals for the reasons stated above. When price is the determining factor, teaching hospitals, however efficient, are likely to remain at a serious disadvantage to other hospitals.

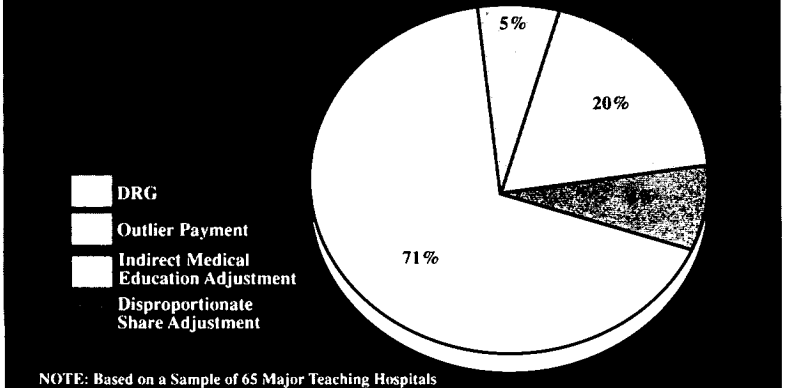
What impact will expanded ventures in new services and delivery systems have on teaching hospitals as a venue for health professions education?

The reputation of the teaching hospital for providing high-quality care at the cutting edge of medical knowledge and skill is its primary asset in the competitive health care environment .

To ensure a continued patient base for educational and research programs and financial viability in an increasingly competitive and cost-conscious health care environment, many teaching hospitals have begun new ventures, many in conjunction with the organized practice of the clinical faculty. These include the development of or contracting with health maintenance organizations, the establishment of primary care community clinics, ambulatory surgery centers, and other non-hospital delivery sites, and the creation of new services, such as rehabilitation, home health care, and long-term care services. The reputation of the teaching hospital for providing high-quality care at the cutting edge of medical knowledge and skill is its primary asset in the competitive health care environment. The contributions of teaching hospitals

Can further reductions in the indirect medical education adjustment for teaching hospitals be prevented?

FIGURE 16
PPS-RELATED MEDICARE PAYMENTS TO TEACHING HOSPITALS BY TYPE



NOTE: Based on a Sample of 65 Major Teaching Hospitals
SOURCE: 1988 COTH Survey, Association of American Medical Colleges

in specialized care, regional medical services, and the training of health care professionals make their success a goal with which all should be concerned.

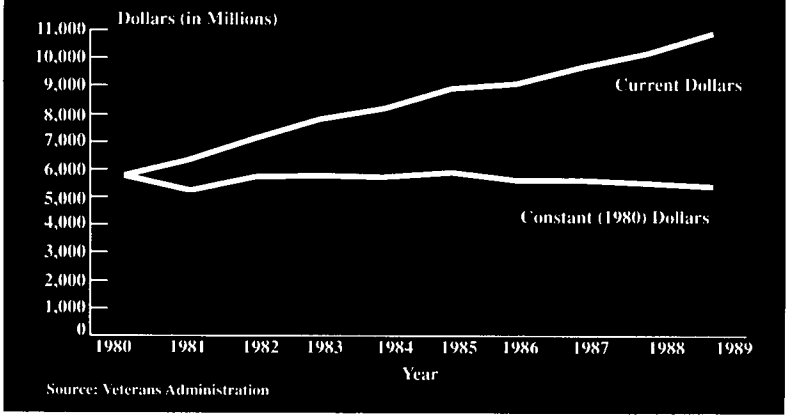
The VA's contribution to medical education is significant: more than one out of every two practicing physicians has received some training in a VA medical center.

How can the VA system be properly financed to meet growing service demands and to continue its historic contributions to medical education and research?

Veterans Administration (VA) medical centers, many of which serve as teaching hospitals, face serious challenges in meeting their commitment of quality patient care for the nation's veteran population. The scale of VA contributions to health care delivery is difficult to overstate. The VA operates the largest organized health care system in the United States. Under current eligibility requirements, nearly half of the veterans with the highest priority for care are in a low-income category. Approximately 45 percent of those hospitalized in VA medical centers have no health insurance coverage of any kind. Thus, the VA system absorbs a large part of the burden of uncompensated care that would otherwise fall on other segments of the health care delivery system.

The population of veterans over age 65 is expected to increase by more than 60 percent before the turn of the century and with it the demand for services. VA medical centers have witnessed sizeable increases in their workload in the last decade. Since 1980 they have conducted an additional 60,000 inpatient treatments and five million outpatient visits, as well as provided for 38,000 more nursing home stays. Yet, VA appropriations for medical care, in real, inflation-adjusted dollars, have not increased during this period (**Figure 17**). The result has been a stretching of VA resources beyond reasonable limits.

FIGURE 17
VA MEDICAL CARE APPROPRIATIONS
1980-1989



Source: Veterans Administration

Shortfalls in VA funding are felt particularly in the inability to recruit and retain adequate numbers of trained staff. Often staffing needs are met only at the expense of forgoing the purchase of new diagnostic equipment and of deferring maintenance and renovation of facilities. If the grave inadequacy of VA funding is not soon addressed, maintaining high standards of patient care in VA medical centers will become extremely difficult.

The close partnership between the VA and academic medicine, which began in 1946 with the first formal affiliations between medical schools and VA medical centers, makes these current funding problems a cause for concern in the academic medical community. The VA's contribution to medical education is significant: more than one out of every two practicing physicians has received some training in a VA medical center. The VA currently provides support for one-eighth of the residents in training. Like other teaching hospitals, VA medical centers contribute greatly to biomedical and behavioral research, particularly in its clinical applications. The patient population of VA medical centers has allowed physician investigators to focus specifically on research in diabetes, immunology, mental health and dementia, infectious diseases (including AIDS), geriatrics, endocrinology, and alcohol and drug abuse. Yet, VA funding for these clinical research activities has fluctuated dramatically and, like funding for patient care services, not kept pace with inflation. The uncertainty of VA research funding patterns has a discouraging effect on personnel recruitment efforts, particularly in attracting highly qualified physician-investigators to staff positions, and thereby further contributes to a threatened decline in the quality of care and services.

PAYMENT FOR PHYSICIAN SERVICES

Medical school clinical faculty members have always provided direct patient care, but before the advent of Medicare and Medicaid in the mid-1960s, this care was largely unreimbursed. Since that time, medical schools have developed faculty practice organizations for billing and collection for patient care services. The redistribution of these revenues supports faculty salaries and contributes to educational and research programs.

As described earlier, patient care revenues have become a major source of financing for medical school operations. As a result, current proposals to change methods by which physicians are paid are of considerable interest to medical schools.

The push for physician payment reform is a natural accompaniment to changes in payment for hospital services. Physician expenditures have been a major component to rising health care costs. The Health Care Financing Administration, which administers Medicare, has for some time been interested in ways to control these costs. In 1985, it commissioned a study to develop a resource-based relative value scale (RBRVS) as an alternative approach to base payments for physician services under Medicare. The scale assigns a value to physician services, according to the technical skill, physical effort, mental effort and judgment, and psychological stress involved in each one. After factoring in the costs of practice, a conversion can be made that produces dollar estimates of a proposed resource-based fee schedule. Further studies have indicated that the implementation of an RBRVS-based system would significantly increase payments to physicians involved in patient evaluation and management, for example, family practitioners and internists, while decreasing the amount paid for physicians performing procedures, for example, ophthalmologists and thoracic surgeons.

The federal government's Physician Payment Review Commission has recommended the adoption of a resource-based relative value scale as the cornerstone for a new program to reimburse physicians under Medicare. It appears that such an approach will also quickly become the basis for other third-party reimbursement. Although the full implications of these changes for academic medicine are not clear, they are likely to be significant. Primary care specialties would be given the greatest boost. They may become increasingly attractive to medical school graduates, a salutary outcome given the broad consensus that more of these practitioners are needed, but one that may tax existing graduate training programs in these specialties and prompt a realignment of hospital training programs. Medical schools that are highly dependent on the practice revenues generated by a few procedurally-oriented departments may find a sharp decline in income that is not matched by the increased revenues of their primary care departments. Financial planning to account for these changes will be essential.

What effect will RBRVS-based payment methods have on the specialty choice of medical school graduates and the demand for graduate training programs?

Controlling the escalating costs of physician services while ensuring their quality promises to be a formidable undertaking but is one in which medical schools and teaching hospitals have begun to take an active role. Medical practice parameters or guidelines, based on a comprehensive and systematic program of studies of patient outcomes and the effectiveness and efficiency of treatments, are seen as one mechanism for achieving these aims. Medical practice parameters are designed to improve quality of care by helping physicians identify and prescribe appropriate diagnostic tests and treatment options. They promise to have an additional benefit of reducing the frequency of inappropriate or marginally effective therapeutic options. The development of medical practice parameters is now underway. Medical schools and teaching hospitals will be encouraged to take a major role in conducting the health services and patient outcome assessment research that provides the basis of these parameters.

How will physician payment reform alter the financial structure of medical schools?

The Association of American Medical Colleges

Twenty-two medical school deans founded the American Medical College Association in 1876 to work for much-needed reform in medical education. In 1890, 66 medical college deans, again united by a common desire to elevate the standards of medical education, met to revitalize the group under its present name. The 1910 Flexner report provided the impetus for consolidating major reforms in academic medicine, including the rise of university medical education. The Association thereafter turned its attention to improving the process of medical education, still a primary focus.

In the late 1960s the Association reorganized to support better the full range of concerns — education, research, and service to patients — giving teaching hospital executives, medical school faculty members, and medical students a voice in its governance. Today, it includes in its membership the 127 accredited U.S. medical schools; the 16 accredited Canadian medical schools; 92 academic and professional societies with over 62,000 members; 420 teaching hospitals (including 72 Veterans Administration medical centers); and the nation's medical students.

The Association is governed by an Executive Council, whose members are elected from the Council of Deans (COD), the Council of Teaching Hospitals (COTH), the Council of Academic Societies (CAS), and the Organization of Student Representatives (OSR). The Association's legislative body is its Assembly, comprising the 127 members of the COD, 63 members each of COTH and CAS, and 10 percent of the institutionally appointed members of the OSR.

At the sub-councillor level, members of the faculties and administrations of academic medical centers are organized into six professional development groups: Business Affairs, Faculty Practice, Institutional Planning, Educational Affairs (formerly Medical Education), Public Affairs, and Student Affairs. These groups meet regularly and serve the AAMC's governing bodies and staff and each other as a source of information and expertise.

The various constituencies and vast expertise contained within the Association's membership allow it to contribute greatly to policy development in medical education, biomedical and behavioral research, and health care areas. Through task forces and committees drawn from the membership, the Association has provided thoughtful commentary and reflection on major public policy issues. It is uniquely positioned to speak for academic medicine on major governmental proposals and legislative initiatives. With the American Medical Association (AMA), the Association sponsors the Liaison Committee on Medical Education (LCME), an accrediting body for U.S. medical education programs leading to the M.D. degree. It also participates in the accrediting bodies for graduate and continuing medical education.

The Association is administered by a full-time appointed president, assisted by a staff of over 180 individuals. The large complement of staff permits the Association to sponsor a number of service programs for its members. Among these is the Medical College Admission Test (MCAT), a nationally standardized examination used to assess applicants' basic knowledge and problem-solving skills. The American Medical College Application Service (AMCAS) is a centralized system that

enables applicants to file a single standardized form for application to participating medical schools.MEDLOANS is a comprehensive loan program developed to provide financial assistance to enrolled medical students. The National Resident Matching Program (NRMP) matches candidates to residency positions according to their preferences and those of the teaching hospitals.

The various divisions of the Association conduct periodic and episodic surveys of segments of the AAMC constituency. The information is published in regular and occasional reports. Major data and information systems on students, faculties, and institutions are maintained by the Association. The Student and Applicant Information Management System (SAIMS) includes data collected on individuals beginning with their application to medical school and continuing through residency training. The Faculty Roster System (FRS) contains information on the background, current academic appointment, employment history, education, and training of all full-time faculty members at U.S. medical schools. The Institutional Profile System (IPS) has information drawn from the annual LCME questionnaire on medical school revenues and expenditures, faculty counts, curricula, student enrollment, and student financial aid.Additional data files are maintained on the characteristics of teaching hospitals.

The Association publishes a monthly peer-reviewed journal, *Academic Medicine*, containing study reports, book reviews, editorials, and papers on national and international developments in academic medicine. Other regular publications include *Medical School Admission Requirements, United States and Canada; Minority Student Opportunities in United States Medical Schools; AAMC Curriculum Directory;* and the *AAMC Directory of Medical Education.*The Association sponsors an annual meeting each fall that attracts national leaders in academic medicine and that promotes the professional growth of individuals involved in medical education. The Association also sponsors various other symposia, meetings, and conferences of specific groups or formed around topics of interest.

For more than a century, the Association of American Medical Colleges has worked to serve its members and advance their interests: quality in medical education, achievements in biomedical and behavioral research, and excellence in patient care. Into the next century its efforts continue in pursuit of its mission — improving the nation's health through the advancement of academic medicine.