

► **MEDICAL REVIEW**

Trends in the Financing of United States Medical Schools: 1970-1999

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ABSTRACT

We examined 30-year trends in the financing of allopathic medical schools in the United States using data from the Annual Medical School Questionnaire administered to United States medical schools. We calculated relative proportions for total revenues derived from different sources. Federal support for teaching/training/public service represented 18.8% of total revenues in 1970-1971, but only 0.3% of total revenues in 1998-1999. The proportion of revenues derived from state/local government appropriations also declined across this period. In contrast, the proportion of revenues derived from medical services increased substantially. The proportion of revenues derived from tuition/fees, gifts, and endowments remained constant.

BACKGROUND

Medical schools and teaching hospitals in the United States face the prospect of diminishing revenues as a result of reductions in reimbursement rates and competitive market pressures. A major contributory factor has been the Balanced Budget Act of 1998. According to estimates from the Association of American Medical Colleges (AAMC), teaching hospitals may have lost up to \$23 billion of Medicare revenue since the Balanced Budget Act was enacted. While the recent changes in medical school financing have received a lot of attention, subtle changes spanning the last three decades have received less attention. This study was designed to examine 30-year trends in the financing of allopathic medical schools in the United States.

METHODS

The analyses in this study were based on data from the Annual Medical School Questionnaire administered to United States allopathic medical schools by the Liaison

Committee on Medical Education of the AAMC for the fiscal years of 1970-1971, 1980-1981, 1985-1986, 1988-1989, 1994-1995, and 1998-1999 (Peterson et al., 1981; Jolly et al., 1982; Jolly et al., 1986; Jolly et al., 1990; Krakower et al., 1996; Krakower et al., 1999; Krakower et al., 2000).

The Liaison Committee on Medical Education surveys all 125 accredited United States medical schools annually. Part I-A of this survey is an annual financial questionnaire (AFQ). The AFQ has instructions that include its purpose, "to determine, as accurately as possible, total revenue and expenditures for medical school activities and the sources that support them." Medical schools are requested to report all revenue and expenditure that support the activities of full-time faculty, including teaching, research, and patient care. In addition, the AFQ requests data on administrative activities, related support activities, and post-graduate residency programs for school affiliated and school-owned hospitals. Schools are requested to provide information on revenue and expenditure, regardless of whether the activity occurred in the medical school or at a hospital affiliated with the medical school. The AFQ does not include expenditures for hospital operations, including ancillary services, purchasing, accounting, plant maintenance, and salaries of nurses, laboratory technicians, maintenance staff, clerks, administrative assistants, and other such personnel.

The AAMC manages the collection, processing, and verification of the data collected in the AFQ. A computer-based spreadsheet system is used to check consistency in data collection. There is an elaborate and rigorous process for checking and verifying the data reported (Krakower et al., 1999).

For this study, we collected and analyzed the data from the AFQ as published annually in the Journal of the American Medical Association (Peterson et al., 1981; Jolly et al., 1982; Jolly et al., 1986; Jolly et al., 1990; Krakower et al., 1996; Krakower et al., 1999; Krakower et al., 2000). We calculated the relative proportions for total revenues

TABLE 1 TRENDS IN UNITED STATES MEDICAL SCHOOL REVENUES						
	PERCENT OF TOTAL REVENUES					
	1970-1971	1980-1981	1984-1985	1988-1989	1994-1995	1998-1999
Federal Grants/Contracts	45.5	29.3	20.7	19.4	18.7	18.8
All Grants/Contracts	60.4	41.3	35.8	23.6	30.5	30.1
Other Federal Support	18.8	6.2	4.2	2.4	0.4	0.3
State/Local Appropriations	18.9	22.6	18.2	20.3	9.6	8.2
Total Medical Service	12.2	28.8	32.9	43.2	46.8	49.1
Practice Plans	6.7	15.6	16.6	27.4	33.3	34.5
Hospitals/Programs	5.5	13.2	16.3	15.8	13.5	14.6
Tuition/Fees	3.7	5.4	5.7	4.5	4.1	3.7
Gifts	1.2	0.7	0.7	2.2	2.1	2.4
Endowments	2.1	0.9	1.2	1.8	1.6	1.8
Parent University	NA	NA	NA	1.2	0.9	0.7

derived from the following sources: federal grants/contracts; all grants/contracts; other federal support (including teaching, training, public service); state/local government appropriations; total medical service; practice plans; hospitals/programs; tuition/fees; gifts; endowment; and parent university. We calculated relative proportions within reporting years and then compared the proportions across reporting years. Since relative proportions were calculated within reporting years, there was no need to adjust for the consumer price index. Also, since we were not comparing dollar figures across years, there was no need to convert dollar values to constant dollars.

RESULTS

Table 1 summarizes the results for the comparison of fiscal years 1970-1971, 1980-1981, 1985-1986, 1988-1989, 1994-1995, and 1998-1999. Several trends are evident. First, the proportion of medical school revenues derived from federal research grants has steadily declined since 1970. Other federal support (including teaching, training, public service) to medical schools represented 18.8% of total revenues in 1970-1971, but only 0.3% of total revenues in 1998-1999. The proportion of revenues derived from state/local government appropriations also declined across this period, dropping from 19% in 1970-1971 to 8% in 1998-1999.

In contrast, there was a concomitant increase in the proportion of total revenues derived from medical services over the same period, with a marked surge in monies generated from practice plans. Revenues derived from all medical services accounted for 12% of total revenues in 1970-1971, but increased to 49% of total revenues in 1998-1999. Revenues from practice plans grew from 6.7% to 34.5% of total revenues during the same period.

The proportion of revenues derived from items such as tuition/fees, gifts, and endowments remained fairly constant across the study span. Tuition and fees have remained approximately 3-5% of total revenues, while endowments have remained at approximately 2%.

DISCUSSION

This study examined 30-year trends in the financing of allopathic United States medical schools and found that the proportion of medical school revenues derived from federal research grants has steadily declined since 1970. It would appear that when faced with fiscal challenges, medical schools responded by increasing the revenues generated from patient care. Some of this increase may have resulted from increased demands for clinical productivity placed on academic faculty. In addition, there has been more attention paid to collecting fees for serv-

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ices rendered by faculty. In the past, it was not unusual for patients to receive treatment and the faculty not bothering to complete the paperwork required for submitting a bill to the patient's insurance company. Faculty salaries often did not depend on collections from fees that were generated during the care of patients. Today, faculty members are constantly reminded and even required to demonstrate clinical productivity through billings and collections for clinical services. Additionally, there has been a substantial growth in the clinical sciences and a consequent growth in clinical practice revenues. While there were approximately 27,000 full-time faculty members in 1970-1971, that number grew to more than 105,000 in 2000-2001. Most of the growth occurred in the clinical departments. The combination of all these factors has increased significantly the proportion of revenues derived from clinical practices at United States medical schools.

The proportions of revenues derived from tuition/fees, gifts, endowments, and parent universities have remained relatively constant across the 28-year span of 1970-1971 to 1998-1999. A possible explanation is that tuition is near or at an upper limit for most medical students and dramatic increases would tend to decrease the attractiveness of such an education. It is also possible that training institutions are absorbing substantial percentages of tuition and associated costs. Regardless, the percentage of overall revenues generated for medical schools from tuition tends to be minimal.

It should be noted that this paper examined the proportions of revenues derived from different sources. Our aim was not to report on the absolute dollar amounts generated in different categories. Therefore, a decrease in a particular revenue stream, for example "other federal support," should not be interpreted to mean that there are fewer federal dollars being allocated to those activities. As discussed above for revenues derived from clinical practices, increases or decreases in revenue from a given source can result from structural changes in the medical school enterprise. This paper reports on how the United States medical school enterprise has evolved over the past 30 years, specifically in relation to proportions

of total revenues derived from different sources. The data are interpreted as showing that the structural composition of the enterprise today, is substantially different from the situation 30 years ago.

CONCLUSIONS

In recent years, some of the largest teaching hospitals and health systems in the country (the partners of medical schools) have reported losses in the tens of millions of dollars as a result of competitive market pressures and changes in reimbursements. As part of the Balanced Budget Act of 1998, Congress enacted legislation that included reductions in Medicare payments to teaching hospitals. This legislation is expected to substantially impair the financial health of many, if not most, of the allopathic United States medical schools. Our findings provide evidence that medical schools are responding by increasing the volume of medical service activities and thereby increasing the proportion of their revenues derived from this source. Given that United States medical schools are expected to face substantial financial challenges in the future, the impact of institutional strategic responses on the training of new physicians remains to be determined.

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