Trends in Career Choice by US Medical School Graduates

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METHODS

Data sources used include the Association of American Medical Colleges Graduation Questionnaire (AAMC GQ), the National Resident Matching Program (NRMP), and the national Graduate Medical Education (GME) census. These databases were used to review temporal trends in the number of USMDs entering residencies in primary care, general or subspecialty surgical, and non-primary care and nonsurgical specialties from 1987 to 2002. The AAMC GQ is an online questionnaire given to fourth-year students at US medical schools. The NRMP, better known as the match, reports the numbers of medical school graduates matching into each specialty’s residency programs. The American Medical Association has surveyed residency programs annually to solicit information about numbers and characteristics of all residents in training. This recently became an online survey (GME census) sponsored jointly by the American Medical Association and AAMC.

RESULTS

Primary Care Careers

Since the late 1980s, there have been dramatic shifts in the number of USMDs entering residencies in primary care. In 1987, 49.2% of all medical school graduates matched a generalist residency in internal medicine, family medicine, or pediatrics (FIGURE). This percentage decreased steadily to a low of 43.1% by 1991. The decline for internal medicine continued for 2 more years, resulting in the largest absolute decline of the primary care specialties from 26.5% (1987) to 20.8% (1993). There was a similar steady decline in interest in family medicine during this period as well from 12.7% (1987) to 10.6% (1991). During this time, the trend toward decreasing numbers of USMDs matching to primary care residencies did not affect the pediatric match, with the percentage remaining steady at about 10% each year.

CONCLUSIONS

Distribution of medical students’ career choices among specialties varied considerably from 1987 to 2002. The debate will continue regarding the appropriate specialty mix within the physician workforce.

CONFLICT OF INTEREST

Nothing to report.

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As a result of this decline in the early 1990s and with the increased numbers of USMDs choosing to subspecialize, there was growing concern about an undersupply of primary care physicians and an overabundance of specialists. Consequently, efforts to expose students to generalist practice and foster interest in primary care were supported by several foundations and federal grant programs. In addition, general perceptions about the improved market for primary care physicians, perhaps because of the increased role for primary care physicians in the managed care environment, may have also fostered an increased interest in these fields among medical students. As a result of these and other factors, the downward trend in student primary care specialty interest reversed in 1993. By 1998, the percentage of students matching to residencies in internal medicine, pediatrics, and family practice had reached a peak of 53.2%, surpassing the percentage of a decade earlier.

After peaking in 1998, primary care career choice began to decline (44.2% in 2002). For the past 5 years, there has been a decrease in students matching to residencies in internal medicine (24.3% in 1998 to 21.8% in 2002) and family medicine (16.0% to 10.4%), with a smaller decrease for pediatrics (12.9% to 12.0%). Although a smaller contributor to the overall number of primary care physicians, combined internal medicine/pediatric residencies also had a decrease during this same period (2.7% to 2.2%).

The numbers of students matching to these residencies overestimates the numbers that will enter primary care practice. Many residents in internal medicine, pediatrics, and a smaller number in family practice will opt to pursue fellowship training and subspecialization. Compared with 1999, students in 2002 were 1.4 times more likely on the AAMC GQ to indicate an interest in pursuing internal medicine subspecialty fellowships and 1.5 times more likely to pursue pediatrics subspecialty training. The AAMC GQ data also confirm the decreased medical student interest in primary care careers from 35.6% (1999) to 21.5% (2002), predicting an even greater decline than indicated by the NRMP numbers.

Several reasons have been suggested to explain this recent decrease in student primary care interest. The future market for primary care physicians may be decreasing because of an increase in the provision of primary care by nurse practitioners and physician assistants in the office setting and by hospitalists in the inpatient setting. Conversely, the job market for subspecialists may be improving, largely because of the increased prevalence of conditions requiring specialty care and the increased use of medical technology. Decreased career satisfaction of primary care physicians, declining income, and the widening gap in reimbursement between subspecialists and primary care physicians may all be influencing career choice.

More stability in medical student career choice has been evident in obstetrics and gynecology, which is an alternate career choice for students interested in surgical practice and primary care. The numbers of students matching to obstetrics and gynecology residencies have remained relatively stable during the last 15 years with roughly 6% to 8% of students matching to these residencies each year. However, AAMC GQ data from 1999 to 2002 show a 20% decrease in student interest in primary care obstetrics and gynecology compared with subspecialty obstetrics or gynecology. During that brief period, the percentage of students interested in the subspecialties of obstetrics and gynecology doubled (0.9% to 1.7%).

**General Surgery and Surgical Subspecialties**

Using the most recent 16 years of NRMP data, the total percentage of USMDs matching to general or subspecialty surgical residencies has remained stable at 11% to 12%. However, fewer medical students chose general surgery as a career with a slow decline from 7.8% (1987) to 5.8% (2002) (Figure). With approximately 14500 graduating students from US allopathic medical schools each year, that decrease represents almost 300 fewer future general surgeons entering training each year, raising concerns about an inadequate general surgery workforce. Some of these positions, however, are filled by in-
The decreasing number of trainees matching in pathology has raised concerns about an inadequate future workforce in this vital subspecialty.14

**Non–Primary Care and Nonsurgical Specialties**

During the last 16 years, emergency medicine has shown the most consistent increase in matches of USMDs. In 1987, less than 2% of students matched this career.2 By 2002, this percentage had increased to 6.4% of students. In contrast, psychiatry declined from more than 5% in the late 1980s to 3.1% in 1998, followed by a gradual increase to 4.2% in 2002.2 Conversely, the small recent decrease in numbers of residents in cardiothoracic surgery has raised concerns about an inadequate future workforce in this vital subspecialty.14

### Table. Specialties With Delayed Residency Entry by Year of Survey*

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*Delayed residency entry indicates numbers of US medical doctors training (total of all postgraduate years) in each residency program.

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ogy, anesthesiology, physical medicine and rehabilitation, psychiatry, or neurology.

A new and rapidly growing career choice is that of hospitalist. During the past decade, increasing numbers of physicians are choosing to provide care restricted to hospitalized patients. Most hospitalists are trained in internal medicine with some trained in family medicine, combined internal medicine/pediatrics, or pediatrics. The Society of Hospital Medicine now estimates that between 7000 and 8000 physicians deserve this appellation. It is our perception that this career choice may be more attractive because of job availability, a controlled lifestyle (shift work), and attractive salaries. Hospital administrators may seek out hospitalists because of data suggesting shorter hospital stays with equal or better patient outcomes.

Concern has also been expressed about the numbers of physician-scientists being trained. During the past decade, the percentage of USMDs interested in significant research has decreased by approximately 16%. In 2002, only 0.9% of medical school graduates received combined MD/PhD degrees, down from 2.3% only 5 years earlier. This decreased interest in research careers has occurred in both sexes but is more notable for female physicians and for schools with high levels of National Institute of Health funding. This trend has obvious implications for future research in fields that integrate clinical and basic sciences.

**COMMENT**

During the last decade and a half, the distribution of medical student career choices among specialties has varied greatly. The trends in primary care have fluctuated, decreasing steeply from 1987 until 1993, followed by record increases until 1998, and then declining again during the last 5 years. Interest in anesthesiology, radiology, pathology, physical medicine and rehabilitation, and similar fields has been inversely related to student interest in primary care. Many of these fields are now experiencing a resurgence in popularity as interest in primary care wanes. Although the total percentage of students matching to surgical subspecialties has remained stable during this period, there has been a gradual decline in students matching to general surgery as a career. Since 1987, emergency medicine and plastic surgery have shown consistent growth.

Our intent was to track the career choice trends of graduates from allopathic medical schools within the United States. In addition, between 40% and 50% of the 2500 osteopathic medical students entering allopathic residencies each year are included in the GME data. Although contributing greatly to the US medical workforce, it was beyond the scope of this report to track osteopathic graduates who entered osteopathic residencies or graduates from international medical schools who train in US residency programs. It is important to recognize that international medical graduates fill more than 25% of all US residency positions and provide a significant proportion of US health care.

The databases included in this review have some inherent limitations. The AAMC GQ reports student career preference; however, a senior student may not match to his or her desired specialty. Although the data from the NRMP show the number of students matching to a given residency at 1 point, residents may switch specialty training programs, fail to complete a residency, or use preliminary or transitional training programs as the route to further training. The final database, the GME census, is an attempt to enumerate the numbers of residents training in each residency and fellowship program in the United States. Although comprehensive in scope, some residency programs do not respond to this survey or provide complete data, thereby somewhat limiting accuracy. All of these databases have made changes in item questions and data format during the past 15 years, making comparisons over time more difficult.

With the continuing evolution of health care delivery in the United States along with advances in medical technology, the debate will continue about the appropriate specialty mix within the physician workforce. Although none of the available databases capture all physicians or all career choices, reviewing career choice trends provides important information needed to plan educational programs, set funding priorities, and plan for the provision of adequate health care.

**REFERENCES**