Results of the 2006 National Resident Matching Program: Family Medicine

Perry A. Pugno, MD, MPH, CPE; Amy L. McGaha, MD; Gordon T. Schmittling, MS; Gerald T. Fetter, Jr; Norman B. Kahn, Jr, MD

The results of the 2006 National Resident Matching Program (NRMP) reflect a currently stable level of student interest in family medicine residency training in the United States. Compared with the 2005 Match, 26 more positions (with the same number of US seniors) were filled in family medicine residency programs through the NRMP in 2006, at the same time as four more (five fewer US seniors) in primary care internal medicine, one fewer in pediatrics-primary care (12 more US seniors), and four more (19 more US seniors) in internal medicine-pediatric programs. Many different forces, including student perspectives of the demands, rewards, and prestige of the specialty; the turbulence and uncertainty of the health care environment; lifestyle issues; and the impact of faculty role models continue to influence medical student career choices. Two more positions (nine more US seniors) were filled in categorical internal medicine. Two fewer positions (11 fewer US seniors) were filled in categorical pediatrics programs. The 2006 NRMP results suggest that interest in family medicine and primary care careers continues to be stable. With the needs of the nation calling for the roles and services of family physicians, family medicine matched too few graduates through the 2006 NRMP to meet the nation’s needs for primary care physicians.

(Fam Med 2006;38(9):637-46.)

Family physicians meet the medical needs of people in American society. According to the recent Future of Family Medicine study, the care that family physicians are prepared to deliver is just what Americans want. Family physicians are the only medical specialists who distribute themselves throughout America’s communities in the same proportion as the population. The American Academy of Family Physicians (AAFP) is dedicated to assuring that there is a well-trained family physician available for everyone in America who wants and needs one. The AAFP is committed to assuring high-quality, innovative education for residents and medical students that embodies the art, science, and socioeconomics of family medicine.

Through its comprehensive Student Interest Initiative, the AAFP has developed and implemented numerous projects since 1988 to increase student awareness of and interest in family medicine. Student activity on campuses, in family medicine interest groups and as student members of the AAFP, continues each year. In 2006, student AAFP membership was 17,500, nearly one third of all US medical students. The presence of departments of family medicine in all but 11 US medical schools, the establishment of required clinical clerkships in family medicine in more than 80% of medical schools, and increased opportunities for family medicine elective experiences have improved the environment of medical education.

Despite those efforts, from the results of the 2006 National Resident Matching Program (NRMP), however, it is clear that US student interest in primary care, particularly in family medicine, remains of concern. Student perceptions of the demands, rewards, and prestige of the specialty; market changes; lifestyle priorities; and the influence of faculty role models appear to be drawing
medical students away from family medicine as a career choice.

2006 NRMP Results: Family Medicine

Family medicine residency programs offered 2,727 first-year positions through the 2006 NRMP, a decrease of 55 from 2005. On Match Day 2006, 2,318 of these positions were filled through the Match, an increase of 26 from 2005 for a fill rate of 85.0%, compared with 82.4% in 2005, 78.8% in 2004, 76.2% in 2003, 79.0% in 2002, 76.3% in 2001, and 81.2% in 2000 (Figure 1). The same number of US seniors matched into family medicine residencies in 2006 as in 2005 (1,132)\(^5\)\(^6\) (Figure 2).

Of those US seniors who successfully matched in 2006, 8.1% matched in family medicine, compared with 8.2% in 2005, 8.8% in 2004, 9.2% in 2003, 10.5% in 2002, 11.2% in 2001, and 13.6% in 2000. Of all participating US seniors in the 2006 NRMP, 7.5% matched in family medicine, compared with 7.7% in 2005, 8.2% in 2004, 8.6% in 2003, 9.9% in 2002, 10.5% in 2001, and 12.8% in 2000.\(^5\)\(^6\) In 2006, the Pacific region had the highest fill rate in family medicine (93.8%), while the East South Central region had the lowest fill rate in family medicine (69.6%)\(^5\)\(^6\) (Figure 3).

In addition to US MD seniors in 2006 who filled 41.5% of matched positions in family medicine, 1,186 other graduates matched in family medicine in 2006, compared with 1,160 in 2005, 1,075 in 2004, 1,005 in 2003, 944 in 2002, 847 in 2001, and 770 in 2000. These include 577 (558 in 2005) non-US citizens educated internationally (24.9%), 223 (242 in 2005) graduates of colleges of osteopathic medicine (9.6%), 311 (280 in 2005) US citizens educated internationally (13.4%), 68 (60 in 2005) physicians who graduated from US medical schools prior to 2005 (2.9%), six (16 in 2005) “fifth pathway” students (0.3%), and one (six in 2004) Canadian medical school graduate (0.04%)\(^5\)\(^6\).

Comparison With Other Disciplines

More US seniors matched in categorical internal medicine residencies, increasing by nine from 2,659 in 2005 to 2,668 in 2006. Also, 57 fewer US seniors chose preliminary internal medicine positions (students
who choose to complete 1 year of internal medicine before continuing in another specialty): 1,469 in 2006, compared with 1,526 in 2005, 1,471 in 2004, 1,468 in 2003, and 1,398 in 2002.\textsuperscript{6} (Figure 4).

Five fewer US seniors chose careers in primary care internal medicine through the 2006 Match (165), compared with 2005 (170). Nineteen more US seniors chose combined internal medicine-pediatric training in 2006 (294) compared with 2005 (275).\textsuperscript{6} (Figure 5). Four fewer positions were filled in 2006 (2,323) in pediatrics (all types) compared with 2005 (2,327), and the number of US seniors increased by two from 1,748 in 2005 to 1,750 in 2006. Categorical pediatrics programs matched 1,668 US seniors in 2006, 11 fewer than the 1,679 matched in 2005 (Figure 4). In 2006, 86 positions were offered in pediatric-primary care programs, down from 87 in 2005, of which 57 were filled with US seniors, compared with 45 in 2005.\textsuperscript{5,6}

More international medical graduates (IMGs) continue to match in internal medicine (1,976 into categorical, preliminary, primary care, and internal medicine-pediatrics), compared with pediatrics (397) and family medicine (888). Similarly, among the matched IMGs, the percentage of non-US citizens is higher in internal medicine (78.3%) compared with pediatrics (74.3%) and family medicine (65.0%).\textsuperscript{5} Among the 24 major specialties of medicine, family medicine ranks sixth in the percentage of IMG residents (Figure 6). Compared with the 15 subspecialties of internal medicine, family medicine would rank 10th in the percentage of IMG residents (Figure 7).

July Fill Rate
Since 1987, more positions have been offered in family medicine residencies in July than are offered through the NRMP in March. This July increase was due to program expansion between 1990 and 1998 and to the net addition of newly accredited programs that became ready to accept first-year residents (Figure 8). Since 1998, this difference may be partially due to the number of positions filled outside of the NRMP process. The highest July fill rate (98.7%) was in 1984, after which July fill rates decreased to 88.3% in 1991.\textsuperscript{6} The 2006 July fill rate in family medicine residencies was 97.2% (3,429 of 3,527), an increase of 138 positions offered and an increase of 147 positions filled compared with 2005, when the July fill rate was 96.8%.\textsuperscript{7}

On July 1, 2006, 9,997 residents were training in 460 programs, an average of 21.7 per program, compared with 9,780 (21.3 per program) in 2005, 9,825 (21.2 per program) in 2004, 9,995 (21.1 per program) in 2003, 10,130 (21.7 per program) in 2002, 10,262 (21.9 per program) in 2001, 10,503 (22.3 per program) in 2000, 10,632 (22.4 per program) in 1999, 10,687 (23.0 per program) in 1998, 8,513 (20.8) in 1994, and a nadir of 7,279 (19.1) in 1988. There are currently 3,429 first-year residents, an average of 7.5 per program, compared with 3,282 (7.2 per program) in 2005, 3,275 (7.1 per program) in 2004, 3,329 (7.2 per program) in 2003, 3,360 (7.2 per program) in 2002, 3,399 (7.2 per program) in 2001, and 3,475 (7.4 per program) in 2000.\textsuperscript{7}

Graduates of US allopathic medical schools filled 1,535 first-year positions (44.8%) in July 2006, compared with 1,463 (44.6%) in 2005, 1,520 (46.4%) in 2004, 1,607 (48.3%) in 2003, 1,812 (54.1%) in 2002, 1,926 (56.8%) in 2001, 2,293 (66.3%) in 2000, 2,520 (71.3%) in 1999, 2,686 (75.2%) in 1998, 2,762 (77.5%) in 1997, and 2,765 (79.4%) in 1996. Graduates of colleges of osteopathic medicine filled 445 first-year positions (13.0%) in July 2006, compared with 520 (15.8%) in 2005, 498 (15.2%) in 2004, 481 (14.4%) in 2003, 452 (13.5%) in 2002, 461 (13.6%) in 2001, 378 (10.9%) in 2000, 355 (10.0%) in 1999, 362 (10.1%) in 1998, and 232 (7.6%) in 1994.\textsuperscript{7} In 1981, the DO fill rate was 2%.\textsuperscript{5,6} This decrease in osteopathic graduates selecting allopathic family medicine programs is unexpected given the recent increase in dually accredited residency programs from 26 in 2003 to 51 in 2005.\textsuperscript{8}
In July 2006, 1,443 (42.1%) of the 3,429 first-year family medicine residents were IMGs, compared with 1,299 (39.6%) in 2005, 1,257 (38.4%) in 2004, 1,241 (37.3%) in 2003, 1,087 (32.4%) in 2002, 1,001 (29.4%) in 2001, 789 (22.7%) in 2000, 659 (18.6%) in 1999, and 523 (14.7%) in 1998. A total of 720 (21.0%) first-year residents were non-US citizen IMGs, compared with 698 (21.3%) in 2005, 618 (18.9%) in 2004, 579 (17.4%) in 2003, 466 (13.9%) in 2002, 430 (12.6%) in 2001, and 351 (10.1%) in 2000. A total of 723 (21.1%) were US citizen IMGs, compared with 601 (18.3%) in 2005, 639 (19.5%) in 2004, 662 (19.9%) in 2003, 621 (18.5%) in 2002, 571 (16.8%) in 2001, and 438 (12.6%) in 2000.6,7 Interestingly, of the 555 IMGs (compared to 461 in 2005) who entered PGY-1 positions in family medicine residencies after the 2006 Match, 74.2% (compared with 69.6% in 2005) were US citizens. Factors affecting this year’s differences are likely to be the continued challenges associated with non-citizens obtaining visas to train in the United States (Figure 9).

Discussion


By comparison, family medicine had increased steadily for 6 years from 1991 through 1997. Family medicine gained 966 US seniors in the Match over that period. However, although the overall Match numbers increased again in 2006, over the past 9 years, family medicine has lost 1,208 US seniors in the Match or 51.6% of the record number of US seniors matching in 1997.5,6
Family medicine's primary care colleagues experienced varied trends in the 2006 Match as well. Internal medicine-primary care offered 5 more positions this year and, after 8 years in a row of steady decline in positions filled (528 in 1998, 505 in 1999, 445 in 2000, 369 in 2001, 321 in 2002, 298 in 2003, 284 in 2004, and 280 in 2005), increased the number of total positions filled to 284 in 2006, but continued to decline in positions filled by US seniors (376 in 1998, 347 in 1999, 281 in 2000, 234 in 2001, 204 in 2002, 192 in 2003, 188 in 2004, 170 in 2005, and 165 in 2006). Combined internal medicine-pediatrics residencies filled four more positions (344 in 2006 versus 340 in 2005) and with 19 more US seniors (294 in 2006 versus 275 in 2005). In combined internal medicine-pediatrics, the fill rate was higher than in 2005 for both total positions (91.5% versus 87.2%) and for positions filled with US seniors (78.2% versus 70.5%). In internal medicine categorical, fewer positions were offered in 2006 compared with 2005 (4,735 versus 4,768), with a higher fill rate than in 2005 for total positions (97.9% versus 97.2%) and a higher rate for positions filled with US seniors (56.4% versus 55.8%).5,6

In the 2006 Match, pediatrics similarly had variable results in both positions filled and those filled with US seniors. Pediatrics-primary care decreased its positions filled from 87 in 2005 to 86 in 2006. Its overall fill percentage remained 100% in 2006, and with an increase in positions filled with US seniors from 51.7% in 2005 to 66.3% in 2006. Pediatrics-categorical decreased both its overall positions filled in 2006 from the prior year (2,209 versus 2,211) and in those positions filled with US seniors (1,668 versus 1,679).5,6

Internal medicine-preliminary, after eight increases in a row, decreased its number of positions offered (1,943 versus 1,987) as well as the positions filled (1,749 versus 1,803) and those filled with US seniors (1,469 versus 1,526). Consequently, for internal medicine-preliminary, the overall fill percentage decreased in 2006 (90.0% versus 90.7%), and the percentage filled with US seniors decreased (75.6% versus 76.8%). It is noteworthy that for transitional residency programs, the same number of positions was offered this year as last (1,017), with more positions filled overall (972 versus 967) but fewer filled with US seniors (888 versus 891). The percentage of transitional-year residencies
filled with US seniors decreased from 87.6% in 2005 to 87.3% in 2006.5,6

In 2006, there is a movement of US seniors away from internal medicine-primary care and toward internal medicine-pediatrics and pediatrics-primary care. For categorical internal medicine, where four of five students choose a subspecialty, the number of US seniors increased. US students are also choosing preliminary positions where they are more likely to be headed for subspecialty careers. Students entering pediatrics residencies may be responding to the published need for more pediatric subspecialists.9


In the 2006 NRMP, of all the primary care programs, only pediatrics primary care experienced a decrease in filled positions since 2005. All primary care programs except internal medicine-primary care experienced an increase in the rate of positions filled of those offered in 2006. The fill rate for family medicine increased 2.6%, internal medicine-pediatrics increased 3.3%, pediatrics-primary care remained 100%, but internal medicine-primary care decreased 0.3%.

**Contributors to Recent Trends**

**Evidence-based Student Interest**

A study of the factors influencing medical students in their choice of family medicine was commissioned by the AAFP and conducted in 2002 by faculty of the University of Arizona Department of Family and Community Medicine. The “Arizona Study” provided a new evidence-based foundation from which to plan responses to declining student interest. Numerous studies continue to attempt to identify and understand drivers of student interest in family medicine.10,11

**Perceptions of Medical Students**

Multiple factors appear to contribute to the current trend of decreased interest by US seniors in family medicine. Increasingly apparent is
the perception by students that family medicine lacks the prestige of other specialties within academic health centers.\textsuperscript{1,12} Disparaging remarks made to medical students about an interest in family medicine by faculty and residents is a commonly cited experience.\textsuperscript{13,14} This is unfortunately aggravated by the experiences of some students who indicate that their third-year clerkships in family medicine lack some of the intellectual rigor and direct clinical experience of other core clerkships.\textsuperscript{3} This supports the misconception that being a family physician is “too easy” for the typically motivated medical student. Frequently, the additional set of knowledge, skills, and attitudes required to provide patient-oriented care is not captured and valued in a subspecialist-oriented medical curriculum.\textsuperscript{15}

At the other end of the spectrum, some medical students report concerns associated with family medicine because it is “too hard,” questioning physicians’ capacity to master the content needed to practice comprehensive, evidence-based medicine.\textsuperscript{1,12} In part, these concerns may explain the observation that students selecting internal medicine-pediatrics share many values with those selecting family medicine.\textsuperscript{16} This perspective has been exacerbated by the challenges of primary care practice in an environment of increased penetration of over-managed care and burdensome regulatory oversight. Often, the inability to successfully translate the realities of a motivating and successful practice into medical students’ experiences results in student experiences with family physicians that make their practices appear unattractive to students.\textsuperscript{17-22} The extent to which physicians voice dissatisfaction can dissuade medical school graduates from choosing careers in primary care.\textsuperscript{23}

\textbf{Medical Student Debt}

As medical school indebtedness continues to escalate to an average of more than $100,000 at graduation, consideration must be given to the motivation of the applicant pool toward primary care careers.\textsuperscript{24} This may be especially true from the perspective of older nontraditional students, minorities, or students from disadvantaged backgrounds, all of whom have been more likely to choose careers in family medicine. As a result of the perception of nearly insurmountable debt, these potential applicants may be unwilling to even consider a career in medicine, thereby decreasing diversity in the workforce and exacerbating disparities in health care.\textsuperscript{25} Except for a few model programs that preferentially select students likely to enter rural or medically underserved areas of practice, medical school admission committees may therefore be less often prioritizing among applicants whose characteristics are associated with the selection of primary care careers, particularly family medicine. The effect of this pipeline drain may minimize the apparent impact of educational debt on medical student specialty choice.\textsuperscript{26-31}

\textbf{Infrastructure of Medical Schools}

The infrastructure of US medical education continues to play a powerful role in determining how many graduates enter family medicine residencies. The presence of a well-funded department of family medicine and the number of faculty are correlated with the higher percentage of medical students entering family medicine residencies\textsuperscript{25-27,32-36} as well as internal medicine and pediatric residencies.\textsuperscript{32} One of the most important variables for predicting the proportion of students at a medical school who choose family medicine is the proportion of faculty who are family physicians.\textsuperscript{33} In 2006, 11 US medical schools remain without a department of family medicine. Similarly, the presence in the curriculum and the duration of a required clinical clerkship in family medicine are correlated with more students choosing family medicine residencies.\textsuperscript{26,27,32-36}

Medical school characteristics such as family medicine clerkships, communications skills courses, and curricula in medical ethics, humanities, and social sciences in medicine play a central role in the development of physicians committed to the well-being of others.\textsuperscript{37} In February 1993, the Liaison Committee on Medical Education (LCME), which accredits US medical schools, created parity by recommending clinical curricula in family medicine along with the other five core disciplines (internal medicine, OB-GYN, pediatrics, psychiatry, and surgery).\textsuperscript{38} More than a decade later, at least 13 LCME-accredited US medical schools still do not have required clinical clerkships in family medicine.\textsuperscript{30,39}

\textbf{Match Positions}

The year 2006 is now the eighth in a row in which fewer positions were offered in family medicine through the Match than the year before (2,727 versus 2,782). For 2006, there was an increase in the number of positions offered in July (3,527 in 2006 versus 3,389 in 2005), despite the continued decline in the number of functioning family medicine programs (451 in 2006 versus 459 in 2005). This decrease in programs is the result of a complex interplay of transitional forces in the marketplace. Among those changes are the continued reductions in federal support for GME through the Medicare program. Such financial pressures have been identified as pivotal in the closure of many family medicine residencies over the past several years.\textsuperscript{40}

\textbf{Income}

Finally, the turbulence of the US health care environment\textsuperscript{41-46} and increasing student debt\textsuperscript{47} support the appearance of medical students selecting careers that provide them both economic and practice security. High Match percentages in diagnostic radiology, anesthesiology, and emergency medicine support trends toward physician practice with a high income coupled
with predictable work hours and lifestyle. For many students, the level of compensation within a discipline may serve as a proxy for the prestige and market demand for that specialty. While greater than $140,000 per year on average, the current reported net income for family physicians remains significantly lower than for most other specialists.

Workforce

The AAFP continues to focus efforts on analyzing the current generation of premedical and medical students, reflecting their interests, and addressing their concerns. The current number of family medicine residencies has decreased from 459 in 2005 to 451 in 2006, with about 3,300 residents in each of the 3 years of training. This is still below the number of annual graduates needed to achieve the projected family physician workforce needed for the nation. Evidence is mounting that a health system built on a foundation of primary care is not only ideal in terms of patient care outcome, but it is also what patients want. In a recent national study, 30% of medical school deans and 54% of medical societies agree that there is a national shortage of family physicians and general internists. The 2004 reports from the federal Council on Graduate Medical Education, the 2004 Workforce Report from the Robert Graham Center, and the 2006 Workforce Statement from the Association of American Medical Colleges all suggest an impending national physician shortage. The United States continues to cope with persistent pockets of underserved populations in rural areas, those populated by ethnic minority groups, and in areas of relatively low socioeconomic status. Generalists make up fewer than 40% of total physicians, while family physicians represent 40% of generalist physicians in the United States. However, family physicians are the most likely specialty to practice as generalists, as well as to serve rural and underserved populations. If all family physicians were withdrawn, 58% of all US counties would become Primary Care Health Professions Shortage Areas (PCHPSAs). By contrast, if all general internists, pediatricians, and obstetricians-gynecologists combined were similarly withdrawn, fewer than 8% of counties would become PCHPSAs.

Subspecialists providing care to Medicare patients are less likely than generalists to provide comprehensive primary care services and focus on the management of a narrower range of diagnoses. In addition, patients value the role of primary care physicians in providing first contact and continuous management of their care in complex integrated delivery systems. The current imbalance of subspecialists versus generalists in the United States compromises the achievement of universal health care access for all and limits the nation’s capacity to meet not only the demands of today’s health care marketplace but also to meet the needs of the nation’s most vulnerable populations.

Value Proposition

Notable among the findings of the national market research conducted in the Future of Family Medicine project are that people in America value what family physicians offer, namely a personal medical home wherein they experience a continuous relationship with a primary care physician. Within that primary medical relationship, people want, expect, and value a set of services, including acute care, chronic care, disease prevention, care in the hospital setting, and primary mental health care. Family physicians are both prepared to deliver what people want, expect, and value and are satisfied with their abilities to deliver it. The discipline faces a handful of now clearly identified challenges as it prepares for the next generation of care: clearly communicating the specialty of family medicine to the public, organizing individual practices into a recognized brand, challenging the disrespectful climate of academia, enhancing reimbursement, and communicating the attractiveness of a career in family medicine.

Conclusions

In 2006, the same number of US seniors chose family medicine through the NRMP as during the previous year, while more US seniors chose internal medicine-categorical and primary care-pediatric residencies. High Match rates in transitional residencies and preliminary internal medicine programs provide trainees with the opportunity to further observe the health care environment and to take advantage of the career options those preliminary training programs provide. This trend also appears to be impacting other nations, with the British Medical Association and Canada predicting a shortage of general practitioners and family physicians for many of the same reasons.

As the specialty most identified with and attracting the largest number of students interested in primary care, it’s not surprising that family medicine has experienced the largest share of the shift in interest among US medical students. The magnitude of this shift represents the 1,208 fewer US seniors choosing family medicine residencies in 2006 compared with 1997 or an average of 9.6 students per medical school.

Over the past 9 years, 13,661 US seniors did match to family medicine residencies in spite of the often-negative influences from within and outside of the medical education environment. Thus, the 1,132 US seniors who chose family medicine in the 2006 Match appear to be resistant to conflicting environmental messages and clear in their commitment to serving the nation as family physicians, perhaps because of both personal characteristics and medical school features that support their choice.
In May 2004, in conjunction with the organizations of family medicine and other stakeholders, a Student Interest Summit was conducted to develop strategies aimed at affecting the modifiable factors associated with student interest in family medicine as defined by this evidence. The Summit resulted in recommendations that are presently being implemented. Efforts are in process to attract and retain those students who are both intellectually qualified and demonstrate the personal attributes essential to a career in family medicine. Recommendations include the identification and integration into medical school curricula of exceptional practices to strengthen the attitudes and behaviors that characterize medical professionalism. Additionally, emphasis is being placed on recruiting, developing, and retaining competent, positive family physician role models to interact with medical students interested in family medicine.

Over the course of the past 2 years, the “family” of family medicine organizations continues to carry out the recommendations to enhance student interest and initiating new programs to renew the specialty. Those strategies can be grouped into four areas of focus: (1) premedical students and medical school admissions, (2) communications and the public image of family medicine, (3) mentoring and role modeling initiatives, and (4) the medical school curriculum. Family medicine departments and residencies will soon have a new array of tools to promote the discipline and support student interest. Will the initiatives prompted by evidence from the Arizona Study, the Student Interest Summit, or guided by recommendations from the FFM project affect the current trends? As long as family physicians continue to provide compassionate, continuing, comprehensive, and quality care to their patients in the context of their families and communities, aspiring physicians who share those same patient-centered values will continue to choose careers in family medicine.

The results of the 2006 Match and the subsequent filling of residency positions in family medicine give cause for optimism that the decline in US seniors’ interest in family medicine careers has stabilized and that with the student interest efforts of the family of family medicine, and the increasing demands for family physicians in the workforce, student interest in family medicine careers will begin to increase again—to the ultimate benefit of the nation.

Corresponding Author: Address correspondence to Dr Pugno, American Academy of Family Physicians, 11400 Tomahawk Creek Parkway, Leawood, KS 66211. 913-906-6000. Fax: 913-906-6092. ppugno@aafp.org.
39. Liaison Committee on Medical Education. Functions and structure of a medical school. Accreditation and the Liaison Committee on Medical Education: standards for accreditation of medical education programs leading to the MD degree. Joint publication of the Association of American Medical Colleges (Washington, DC) and the American Medical Association (Chicago), 1993.