



Entry of US Medical School Graduates Into Family Medicine Residencies: 2010–2011 and 3-year Summary

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BACKGROUND AND OBJECTIVES: This is the 30th report prepared by the American Academy of Family Physicians (AAFP) on the percentage of each US medical school's graduates entering family medicine residency programs. This retrospective analysis based on data reported to the AAFP from medical schools and family medicine residency programs shows approximately 8.0% of the 17,081 graduates of US medical schools between July 2009 and June 2010 were first-year family medicine residents in 2010, compared to 7.5% in 2009 and 8.2% in 2008. Medical school graduates from publicly funded medical schools were more likely to be first-year family medicine residents in October 2010 than were residents from privately funded schools (9.6% versus 5.4%). The Mountain and West North Central regions reported the highest percentage of medical school graduates who were first-year residents in family medicine programs in October 2010 (14.3% and 11.3%, respectively); the New England and Middle Atlantic regions reported the lowest percentages (5.6% and 5.3%, respectively). Approximately four in 10 of the medical school graduates (40.3%) entering a family medicine residency program as first-year residents entered a program in the same state where they graduated from medical school. The percentages for each medical school have varied substantially from year to year since the AAFP began reporting this information. This article reports the 3-year average percentage from each medical school of graduates entering family medicine residencies and the number and percentage of graduates from colleges of osteopathic medicine who entered Accreditation Council for Graduate Medical Education-accredited family medicine residency programs in 2010.

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Results of the National Residency Matching Program (NRMP) reflect medical student preferences in training and may foreshadow trends in medical specialization for the United States. This is the 30th national study conducted by the American Academy of

Family Physicians (AAFP) to determine the percentage of graduates from each medical school entering family medicine residency programs. Following a decade of declining numbers of students choosing family medicine, the 2011 NRMP results demonstrate the highest number of

US seniors choosing family medicine since 2002 but substantiate medical students' overall preference for subspecialties.¹ Promotion of family medicine to US medical students is crucial for the future of the US health care system. Health care costs and outcomes are strongly linked to the availability of primary care physicians.² Whereas 20% or less of internal medicine residents plan to practice general internal medicine in 2008,³ almost all family physicians are generalists and provide first-access, comprehensive, continuity medical care. Family physicians, therefore, will be relied upon to provide the bulk of primary care, especially for adults, in the future.⁴ In addition, for older adults, family physicians distribute themselves more evenly across populations than general internists,⁵ addressing the maldistribution of physicians favoring urban/suburban over rural areas, and are key access points for medical care in rural areas.⁶

According to the 20th Council on Graduate Medical Education (COGME) report "Advancing Primary Care",⁷ a substantial shortage of primary care physicians looms in the US's future

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due to decreased production and suggests that a number of factors, such as compensation, practice environment, and medical school experiences, contribute to the lower entry of medical students into primary care. Data here demonstrate differences in family medicine residency entry rate by region and medical school structure.

Methods

Since June 1972, the AAFP has performed 30 annual censuses of all residents in family medicine residency programs by querying program directors to list all first-year residents and their medical schools, including the month and year of graduation. The residency program directors also verified the status of second- and third-year residents and the graduates originally reported in previous years. For the last 8 years, this census has been performed through an on-line survey. Repeated reminders and telephone calls resulted in 100% participation. After program directors returned all census forms by June 2010, the medical school information was coded and keyed.

To obtain percentages of graduates entering family medicine residency programs from each medical school, the AAFP used American Medical Association (AMA) data that reports graduates from each medical school based on a July 1, 2009, to June 30, 2010, graduation date.⁸ The AAFP also used data from this reference to determine the type of medical school (public or private). For 14 years, the study has included graduates of colleges of osteopathic medicine. After the data were returned by the family medicine residency program directors, the registrars of colleges of osteopathic medicine were contacted to verify the graduation month and year of osteopathic physicians who were first-year residents in Accreditation Council for Graduate Medical Education (ACGME)-accredited family medicine residency programs. The American Association of Colleges of Osteopathic Medicine

provided estimates of the number of graduates from each college of osteopathic medicine.⁹

Results

Of the 3,319 first-year residents in 2010, 1,364 (41.1%) were identified as having graduated from US Liaison Committee on Medical Education (LCME)-accredited medical schools between July 2009 and June 2010 (Table 1). In addition, there were 156 first-year residents (4.7%) who graduated from US LCME-accredited medical schools outside the reporting period. Therefore, 45.8% (1,520/3,319) of all first-year family medicine residents in October 2010 graduated from US LCME-accredited medical schools, compared with 44.93% (1,446/3,218) in 2009.

Approximately one in five graduates of the University of New Mexico (22.7%), University of East Carolina (22.1%), and Marshall University (20.3%) was in a family medicine residency program as a first-year resident in 2010 (See complete list of “Number and Percentage of Medical School Graduates Who Were Family Medicine Residents by US Medical School, 2010” at www.stfm.org/fammed_match.cfm). The University of Illinois and the Uniformed Services University graduated the highest number of medical school graduates

who chose family medicine residency programs (33), followed by Indiana University, the University of Minnesota (31), and the University of Kansas (30). Of the 17,081 graduates of LCME-accredited medical schools between July 2009 and June 2010, 8.0% were family medicine residents in 2010.

The Mountain and the West North Central regions had the highest percentage of medical school graduates who were first-year family medicine residents in October 2010 (14.3% and 11.3%, respectively) (See complete list of “Number and Percentage of Medical School Graduates Who Were Family Medicine Residents, by Census Region and State of Medical School, 2010” at www.stfm.org/fammed_match.cfm). The New England (5.6%) and Middle Atlantic (5.3%) census regions reported the lowest percentages. Texas (101), Illinois (90), California (88), Pennsylvania (77), New York (75), and Ohio (57) produced the highest number of medical school graduates who entered family medicine residency programs (Table 3).

A total of 620 graduates of American Osteopathic Association (AOA)-approved colleges of osteopathic medicine were first-year residents in ACGME-accredited family medicine residency programs (18.7%) in

Table 1: Number of First-year Family Medicine Residents, by Type of Medical School, 2010

US medical school graduate, 7/09–6/10*	1,364	41.1
US medical school graduate, outside 7/09–6/10	156	4.7
Osteopathic school graduate, 7/09–6/10	566	17.1
Osteopathic school graduate, outside 7/09–6/10	54	1.6
International medical school graduate	1,179	35.5
TOTAL	3,319	100.0

* Tables 2–4 relate to 1,364 residents who graduated within the time period.

Source: American Academy of Family Physicians

October 2010 (Table 1); however, not all of them completed their medical education in the previous year. Of the 3,629 graduates of colleges of osteopathic medicine between July 2009 and June 2010, 566 (15.6%) were in ACGME-accredited family medicine residency programs in October 2010 (See complete list of “Number and Percentage of Graduates of Colleges of Osteopathic Medicine Who Were Residents in ACGME-accredited Family Medicine

Residencies, by US Osteopathic Medical College, 2010” at www.stfm.org/fammed_match.cfm).

Approximately two in five of the US medical school graduates who entered a family medicine residency program in October 2010 stayed in the same state for their residency as their medical school (40.3%) (Table 2). Large proportions of graduates of the medical schools in Texas (76.3%) and Louisiana (73.5%) who entered a family medicine residency

remained in the same state. A total of 1,179 first-year family medicine residents (35.5%) in October 2010 were international medical graduates (Table 1), compared with 1,155 (35.9%) in 2009.

Medical school funding and structure may influence medical student choice of specialty. Graduates from the 78 publicly funded medical schools were more likely to be family medicine residents than were graduates from the 48 privately funded

Table 2: Percentage of 2009–2010 Medical School Graduates by State or Territory Who Entered a Family Medicine Residency Program in the Same State, 2010

State of Medical School	Percent Entering Family Medicine Residency in the Same State	State of Medical School	Percent Entering Family Medicine Residency in the Same State
Alabama	61.1	Montana	NA
Alaska	NA	Nebraska	51.7
Arizona	33.3	Nevada	24.2
Arkansas	69.2	New Hampshire	0.0
California	64.3	New Jersey	11.4
Colorado	50.0	New Mexico	47.1
Connecticut	25.0	New York	36.4
Delaware	NA	North Carolina	50.0
District of Columbia	3.0	North Dakota	0.0
Florida	39.1	Ohio	56.8
Georgia	35.0	Oklahoma	63.5
Hawaii	28.6	Oregon	20.0
Idaho	NA	Pennsylvania	50.8
Illinois	39.7	Puerto Rico	22.2
Indiana	83.9	Rhode Island	40.0
Iowa	36.3	South Carolina	70.6
Kansas	46.7	South Dakota	50.0
Kentucky	44.8	Tennessee	36.4
Louisiana	73.5	Texas	76.3
Maine	39.2	Utah	52.9
Maryland	8.3	Vermont	33.3
Massachusetts	34.1	Virginia	32.4
Michigan	50.5	Washington	44.4
Minnesota	69.7	West Virginia	29.6
Mississippi	30.0	Wisconsin	39.3
Missouri	28.2	Wyoming	0.0
		OVERALL	40.3

Source: American Academy of Family Physicians

medical schools (9.6% versus 5.4%) (Table 3). Medical schools with family medicine departments produce graduates who are more likely to enter family medicine residency programs than medical schools with other or no administrative structure in family medicine. All medical schools were ranked in descending order based on the average percentage of their graduates who entered family medicine residency programs in the prior 3 years (See complete list of "Ranked Order of Medical Schools Based on the Last 3 Years' Average Percentage of Graduates Who Were Family Medicine residents, by Type of Administrative Structure, 2010" at www.stfm.org/fammed_match.cfm). All medical schools without a department or division of family medicine fell in the lowest quartile. In October 2010, 8.5% of all graduates of medical schools with departments or divisions of family medicine were family medicine residents (Table 4), whereas approximately 2.2% of graduates from the nine medical schools without departments or divisions of family medicine and 0.6% of graduates from the one medical school with a center of family medicine were family medicine residents.

Discussion

The family medicine residency fill rate should be of interest not only to family medicine administrators and educators but to all persons with interest in the sustainability of the US health care system. Increasing the supply of family physicians is the key to decreasing health care costs² and improving access for future generations, especially for adults.⁷ According to Robert Phillips, Health Resources and Services Administration (HRSA) data shows 95% of graduates from family medicine residencies practice primary care 5 years after graduation from medical school (written communication July 5, 2011 with Robert Phillips, MD, MSPH, The Robert Graham Center, calculation based on HRSA data), whereas only 21% of internal medicine residency graduates do.³

Incentives must align to increase the supply of family physicians. One of medical schools' functions is to educate physicians to care for the national population. Producing primary care physicians, physicians for underserved areas and minority populations should be an important social mission for medical schools. One study in 2010 developed a ranking

system to identify medical schools that best fulfilled these three dimensions of social mission.¹⁰ All the schools listed among the top 20 with the highest social mission score had a department of family medicine, whereas of the 11 schools that did not have a department of family medicine, five schools appeared on the listing of schools with the lowest social mission score.¹¹ Our residency data continue to support the correlation between departments or division of family medicine and graduates into family medicine programs.

A recent commentary describes a recipe for medical schools to produce primary care physicians.¹¹ New medical schools are being established with a mission to produce more primary care physicians, but commitment to that mission is necessary. Medical school admission policies should favor students more likely to enter primary care, such as the desire to serve the underserved, demonstrate altruism, and commit to social responsibility.¹² Students from lower income families or underrepresented minorities appear more likely to enter primary care but also are more likely to have high educational debt.¹³ However, as the average

Table 3: Number and Percentage of Medical School Graduates Who Were Family Medicine Residents, by Type of Medical School, 2010

Programs*	Number of Graduates July 2009 to June 2010**	First-year Family Medicine Residents Number ³	First-year Family Medicine Residents Percent
Public (78)	10,610	1,015	9.6
Private (48)	6,471	349	5.4
TOTAL (126)	17,081	1,364	8.0

* American Medical Association. Medical Schools in the United States. JAMA 2010;304:1247-54.

** American Academy of Family Physicians, Annual Survey of Medical Schools

Table 4: Number and Percentage of Medical School Graduates Who Were Family Medicine Residents, by Family Medicine Administrative Structure

Administrative Structure	Number of Graduates July 2009 to June 2010*	First-year Family Medicine Residents Number**	First-year Family Medicine Residents Percent
Department or Division of FM (116)	15,724	1,337	8.5
None (9)	1,190	26	2.2
Center (1)	167	1	0.6
TOTAL (126)	17,081	1,364	8.0

* American Medical Association. Medical Schools in the United States. JAMA 2010;304:1247-54.

** American Academy of Family Physicians, Annual Survey of Medical Schools

medical school debt for indebted students approaches \$150,000,¹³ concern rises that high debt load dissuades students from entering primary care. Although one recent survey noted no statistically significant relationship between the absolute amount of debt and intentions to practice primary care, even after adjusting for year in medical school and race/ethnicity, sub-analysis showed students from middle-income families appeared less likely to pursue a primary care career as their debt rose.¹³ More than 50% of the medical students in this study originated from families with an annual income greater than \$100,000.¹³ Considering all medical schools, one in four graduating medical students in 2010 planned to enter a loan forgiveness program, such as the US Department of Education Public Service Loan Forgiveness (PSLF) or National Health Service Corps (NHSC).¹⁴ The Patient Protection and Affordable Care Act of 2010 authorized more NHSC scholarships but did not guarantee or appropriate funds, and the number of available scholarships unfortunately is sufficient for only a small fraction of the medical student population. More scholarships or innovative

programs, such as combining the final year of medical school with residency training, should be considered to facilitate indebted medical students, especially those from middle to upper class backgrounds, to enter primary care.¹⁴

Students from rural backgrounds are more likely to practice in rural areas.⁶ To emphasize rural needs and focus on primary care medicine, medical school curriculum changes are needed to allow increased training in community-based and rural settings.¹⁵ Medical schools should also focus on educating students about the concept and implementation of the Patient-centered Medical Home (PCMH), which relies heavily on a strong family medicine and primary care infrastructure, as a way to improve health care quality and access. Medical schools should increase emphasis on skills necessary for successful teamwork as primary care embraces and moves to the PCMH model.¹²

Increased mentoring and promotion of student activities focusing on the value of primary care, such as student-run free clinics,¹⁰ family medicine interest groups (FMIGs), or primary care collaboratives help students in their first years of medical school become

engaged in primary care. In 2010, the AAFP launched a new student interest initiative to build regional student interest collaboration and infrastructure among the various student interest stakeholder groups. With increasing the supply of family physicians an urgent need, all stakeholders need to work together in promoting the value of primary care.

Most importantly, monetary incentives to increase interest in family medicine and primary care must align. Growing evidence supports the idea that payment reform must address the growing primary care-specialty income gap to support health system reform and to ensure an adequate primary care workforce.⁷ The 20th Report from the Council on Graduate Medical Education suggests that decreasing the income disparity between primary care physicians to 70% of specialist income will be sufficient to return interest to primary care.⁷ Canada, when faced with a similar shortage of family physicians, instigated payment reforms to increase family physicians' salaries; the ensuing years demonstrated a corresponding surge of medical students entering family medicine.⁷

The family medicine residency survey conducted annually by the AAFP offers an important look into the composition of the first-year family medicine residents. The 100% response rate obtained from family medicine residency programs makes this study unique, and the process of verifying graduates and first-year residents by name further ensures reliability of data. The AAFP will continue to follow annually the number of medical students entering family medicine residencies. Those responsible for health care policy and payment reform need to recognize that increasing the number of family physicians in the United States will help alleviate our future primary care physician shortage. The AAFP believes that the nation is best served by an appropriately diverse and well-distributed physician workforce that resembles the diversity and distribution of the nation's communities. A sufficient family medicine workforce will be essential to provide effective, efficient, and equitable care for the nation.⁴

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