

Characteristics of Family Medicine Residency Graduates, 1994-2017: An Update

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ABSTRACT

PURPOSE The purpose of this study was to characterize graduates of family medicine (FM) residencies from 1994 to 2017 and determine whether they continue to practice family medicine after residency.

METHOD We sampled physicians who completed FM residency training from 1994-2017 using 2017 American Medical Association (AMA) Physician Masterfile linked with administrative files of the American Board of Family Medicine (ABFM). The main outcomes measured were characteristics of FM residency graduates, including medical degree type (Doctor of Medicine, MD vs Doctor of Osteopathic Medicine, DO), international medical school graduates (IMGs) vs US graduates, sex, ABFM certification status, and self-designated primary specialty. Family medicine residency graduates were grouped into 4-year cohorts by year of residency completion.

RESULTS From 1994 to 2017, 66,778 residents completed training in an ACGME accredited FM residency, averaging 2,782 graduates per year. The number of FM residency graduates peaked in 1998-2001, averaging 3,053 each year. The composition of FM residents diversified with large increases in DOs, IMGs, and female graduates over the past 24 years. Of all the FM residency graduates, 91.9% claimed FM as their primary specialty and 81% were certified with ABFM in 2017. FM/sport medicine (2.1%), FM/geriatric medicine (0.9%), internal medicine/geriatrics (0.8%), and emergency medicine (0.7%) were the most common non-FM primary specialties reported.

CONCLUSIONS DOs, IMGs, and female family medicine residency graduates increased from 1994 to 2017. With 9 in 10 graduates of family medicine residencies designating FM as their primary specialty, FM residency programs not only train but supply family physicians who are likely to remain in the primary care workforce.

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INTRODUCTION

Exacerbating the projected shortage of primary care physicians,¹ only 10.9% US medical students entered family medicine (FM) training in 2016.² In response, the American Academy of Family Physicians (AAFP), and 7 other family medicine organizations, started the 25x2030 initiative aiming to enroll 25% of medical school seniors in FM training by 2030 by enhancing mentoring and medical student choice of FM.³ Completing residency in primary care specialties, however, does not guarantee that residents will continue to practice primary care.^{4,5} The only comprehensive review of FM residency graduates from 1969 to 1993 found that 89.4% identified their primary specialty as family medicine.⁶ Since that report, widening income differentials relative to specialists,⁷ and rising burnout among early career family physicians (FPs)⁸ raises concerns about how well family medicine retains its graduates. Our objective is to examine the characteristics of graduates of family medicine residencies from 1994 to 2017, describe temporal trends, and determine whether they continue to identify family medicine as their primary specialty.

Conflicts of interest: authors report none.

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METHODS

Data

We used 2017 American Medical Association (AMA) Physician Masterfile (Masterfile) to obtain information on physicians' current self-designated primary specialty, residency specialty, and training duration. We linked the AMA Masterfile with the diplomate file of American Board of Family Medicine (ABFM) by national provider index (NPI) to determine ABFM certification in 2017.

Sample

We identified residents in the AMA Masterfile whose residency specialty was FM, FM/sports medicine, FM/preventive medicine, FM/psychiatry, FM/emergency medicine, or FM/internal medicine. We restricted to residents who completed 3 or 4 years of FM training (ie, the lengths of training in FM residencies) and those whose last 2 years of FM training was with the same residency (ie, an ABFM requirement). Our analytical sample included 66,778 graduates of ACGME accredited FM residencies from 1994 to 2017.

Measures

We obtained personal characteristics of FM residency graduates, including type of medical degree (MD vs DO), international medical school graduates (IMGs) vs US graduates, and sex from the AMA Masterfile. Primary specialties of FM residency graduates were obtained from self-designated specialty in the AMA Masterfile, which is updated by the AMA routinely. FPs were certified with ABFM in 2017 if they matched with ABFM administrative files by NPI and their certification expiration date was ≥ 2018 . We used last year of FM residency training as year of residency completion and captured the specialty of the most recent training.

Analysis

We examined the distributions of FM residency graduates by personal characteristics and certification status in 2017. We grouped graduates into 1 of 6 4-year cohorts, eg, 1994-1997... 2014-2017, by their year of residency completion. We listed most frequently designated primary specialties based on the percentage of FM residency graduates and then stratified the percentages by whether the last training was in FM. Lastly, we examined the characteristics of FM residency graduates by the most-designated primary

specialties. All analyses were conducted with SAS Version 9.4 (SAS Institute Inc). This research protocol was approved by the AAFP Institutional Review Board.

RESULTS

From 1994 to 2017, 66,778 residents completed training in an ACGME-accredited FM residency, averaging 2,782 graduates per year (Table 1). The number of graduates peaked during 1998-2001, averaging 3,053 each year. The percentage of DOs had increased gradually from less than 10% prior to 2002 to 12.3% in 2014-2017. The percentage of IMGs in 2014-2017 more than doubled over our study period from 18% to 37%. Females became the majority of graduates in number in 2002-2005. In 2017, 81.4% of all FM residency graduates were certified with ABFM.

The 20 most frequently designated primary specialties of FM graduates are shown in Table 2. Overall, FM was claimed by 91.9% of FM residency graduates as their primary specialty, followed by FM/sports medicine (2.2%), FM/geriatric medicine (0.9%), internal medicine/geriatrics (0.9%), and emergency medicine (0.7%). Among those whose last training was in FM ($n = 62,076$), 98% claimed FM as their primary specialty. For those whose last training was not in FM ($n = 4,702$), 29.8% claimed FM/ sports medicine, 12.1% internal medicine/geriatric, 11.8% FM/ geriatric medicine (ie, training programs that could lead to certificates of added qualifications sponsored by ABFM), and 10.6% still claimed FM as their primary specialty.

Personal characteristics and board certification status varied by self-designated primary specialty (Table 3). For example, 11.9% of FM residency graduates who designated FM as primary specialty were DOs compared to 28.9% among those who designated general practice. IMGs constituted 28.6% of residency graduates who claim FM as primary specialty, much lower than specialties such as sleep medicine (77.4%) and

Table 1. Characteristics of FM Residency Graduates, 1994-2017

Time Span	Total	% DO	% IMGs	% Female	% ABFM Certified in 2017
1994-1997	9,062	776 (8.6)	1,638 (18.1)	3,610 (39.8)	6,773 (74.7)
1998-2001	12,212	1,167 (9.6)	1,572 (12.9)	5,496 (45.0)	9,420 (77.1)
2002-2005	11,661	1,487 (12.8)	2,965 (25.4)	5,849 (50.2)	9,627 (82.6)
2006-2009	11,578	1,688 (14.6)	4,527 (39.1)	6,093 (52.6)	9,270 (80.1)
2010-2013	11,361	1,473 (13.0)	4,638 (40.8)	6,267 (55.2)	9,993 (88.0)
2014-2017	10,904	1,337 (12.3)	4,049 (37.1)	5,909 (54.2)	9,262 (84.9)
1994-2017	66,778	7,928 (11.9)	19,389 (29.0)	33,224 (49.8)	54,345 (81.4)

DO = Doctor of Osteopathic Medicine; FM = family medicine; IMGs = international medical graduates; ABFM = American Board of Family Medicine.

Table 2. Most Frequently Self-Designated Primary Specialty of Family Medicine Residency Graduates, 1994-2017, Sorted by % Overall

	Primary Specialty ^a	% Overall (n = 66,778)	% Last Training in FM (n = 62,076)	% Last Training Not in FM (n = 4,702)
1	Family medicine	91.9	98.0	10.6
2	Family medicine/sports medicine ^b	2.2	0.1	29.8
3	Family medicine/geriatric medicine ^b	0.9	0.0	11.8
4	Internal medicine/geriatric medicine ^b	0.9	0.0	12.1
5	Emergency medicine	0.7	0.5	2.4
6	General preventive medicine	0.4	0.0	5.1
7	Hospice & palliative medicine ^b	0.3	0.0	4.6
8	Obstetrics & gynecology	0.2	0.0	2.8
9	Urgent care medicine	0.2	0.2	0.1
10	Hospitalist	0.2	0.2	0.1
11	Internal medicine	0.2	0.1	1.6
12	Family medicine/psychiatry	0.1	0.0	1.9
13	Psychiatry	0.1	0.0	1.5
14	Dermatology	0.1	0.0	0.8
15	Occupational medicine	0.1	0.0	0.7
16	Anesthesiology	0.1	0.0	1.2
17	Sleep medicine ^b	0.1	0.0	1.2
18	General practice	0.1	0.1	0.1
19	Diagnostic radiology	0.1	0.0	1.0
20	Family medicine/internal medicine	0.1	0.0	0.8
	Other specialties	1.0	0.4	9.4

ABFM = American Board of Family Medicine; FM = family medicine.

^aThere were over 100 different labels of the primary specialty self-designated by FM graduates.

^bPrograms that can lead to Certificates of Added Qualifications sponsored by ABFM.

internal medicine/geriatrics (65.5%). Although female graduates comprised more than one-half of those who designated FM or a combined FM specialty as primary specialty, they were far less represented in FM/sports medicine (24.7%), emergency medicine (15.6%), anesthesiology (19%), and diagnostic radiology (4.3%). Among those who designated FM as primary specialty, 81.9% were certified with ABFM in 2017.

Discussion

With an estimated shortage of primary care physicians and rapid growth of hospitalists,^{1,9} we found that FM residency training both supplies and retains physicians in the primary care workforce, a prerequisite for the Triple Aim: better patient experience, better population health, and lower costs.¹⁰ From 1994 to 2017, 91.9% of all graduates of FM residencies (and 98% of those whose last training was in FM) self-designated

FM as their primary specialty—a 2.5% improvement on physician retention compared to 1969-1993.⁶ The number of fellowship opportunities that can lead to FM board certification is limited compared to other primary care specialties such as internal medicine,¹¹ which could contribute to the high percentage of FPs who designated FM as their primary specialty. If residency graduates continue to practice FM at a 90% level, AAFP's 25x2030 initiative could lead to a future output of 22.5% of medical students providing primary care.^{12,13}

This report continues efforts to measure outputs of FM residency training. On average, FM residencies graduated 2,782 residents each year 1994-2017, nearly 400 more than the annual average during 1969-1993.⁶ The peak supply of FM residency graduates during 1998-2001 corresponded to the brief surge in the number of primary care physicians after mid-1990s when health maintenance organizations promoted primary care physicians as gatekeepers in their care delivery model.¹⁴ Compared to 1969-1993, self-designated primary specialties of FM graduates were comparable except that FM/sports medicine has replaced emergency medicine as the second most-designated specialty.

Substantial increases in DOs, IMGs, and female graduates in our study, concurring with greater racial and ethnic diversity in FM residents documented elsewhere, shows a diversifying FP workforce.^{15,16}

Limitations

This study has several limitations. First, self-designated specialty may not represent major clinical activity. For example, FPs may not designate as urgent care yet still practice in that setting. In particular, this potential classification error may have led to a considerable undercount of FPs who work as hospitalists but have not changed their designation. We found <1% of the physicians self-designated hospitalist (0.12% as primary specialty and 0.16% as secondary specialty), much lower than 9% found in a study of 2013 FM residency graduates.⁴ Lastly, we weren't able to distinguish between combined and sequential training, eg,

Table 3. Characteristics of Family Medicine Residency Graduates by Primary Specialty, 1994-2017

Primary Specialty	No.	% DO	% IMG	% Female	% ABFM Certified in 2017
Family medicine	61,362	11.9	28.6	50.8	81.9
Family medicine/sports medicine	1,435	17.1	19.4	24.7	93.4
Family medicine/geriatric medicine	575	4.9	52.2	58.4	87.5
Internal medicine/geriatric medicine	571	6.3	65.5	58.8	87.7
Emergency medicine	442	12.4	26.9	15.6	68.3
General preventive medicine	246	6.9	21.1	47.2	69.5
Hospice & palliative medicine	221	14.9	33.9	65.2	95.9
Obstetrics & gynecology	152	6.6	40.1	43.4	48.0
Urgent care medicine	149	9.4	41.6	39.6	75.8
Hospitalist	135	5.1	45.6	32.4	86.8
Internal medicine	134	11.2	48.5	38.8	52.2
Family medicine/psychiatry	92	8.7	6.5	53.3	78.3
Psychiatry	76	10.5	18.4	42.1	30.3
Dermatology	65	20.0	15.4	49.2	26.2
Occupational medicine	63	16.1	29.0	25.8	56.5
Anesthesiology	62	11.1	19.0	19.0	34.9
Sleep medicine	62	1.6	77.4	45.2	87.1
General practice	46	28.9	26.7	31.1	42.2
Diagnostic radiology	45	10.9	15.2	4.3	23.9
Family medicine/internal medicine	38	13.2	18.4	47.4	89.5

DO = doctor of osteopathic medicine; IMGs = international medical graduates; ABFM = American Board of Family Medicine.

residents in the psychiatry/FM and internal medicine/FM programs could have completed their training in both specialties concurrently or sequentially. This could lead to misclassification of graduates whose last training was in FM.

Conclusion

The study provides an updated national assessment of the characteristics of FM residency graduates. DOs, IMGs, and female FM residency graduates increased from 1994 to 2017, and 91.9% of all FM graduates self-designated FM as their primary specialty. These findings demonstrate that FM residency programs not only train but supply family physicians who are likely to remain in the primary care workforce.

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