

Does Community- or University-Based Residency Sponsorship Affect Graduate Perceived Preparation or Performance?

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ABSTRACT

Background Residency training occurs in varied settings. Whether there are differences in the training received by graduates of community- or medical school-based programs has been the subject of debate.

Objective This study examined the perceived preparation for practice, scope of practice, and American Board of Family Medicine (ABFM) board examination pass rates of family physicians in relation to the type of residency program (community, medical school, or partnership) in which they trained.

Methods Predetermined survey responses were abstracted from the 2016 and 2017 National Family Medicine Graduate Survey of ABFM and linked to data about residency programs obtained from the websites of national organizations. Descriptive statistics were used to summarize the data and logistic regression to examine differences between survey results based on type of residency training: community, medical school, or partnership.

Results Differences in the perception of preparation as well as current scope of practice were noted for the 3 residency types. The differences in perception were mainly noted in hospital-based skills, such as intubation and ventilator management, and in women's health and family planning services, with different program types increasing preparedness perception in different domains.

Conclusions In general, graduates of family medicine community-based, non-affiliated, and partnership programs perceived they were prepared for and were providing more of the services queried in the survey than graduates of medical school-based programs.

Introduction

Residency training in family medicine occurs in various community settings, from inner-city to rural.¹ Additionally, family medicine residency programs have been categorized as either community-based, medical school administered; community-based, medical school affiliated; community-based, nonaffiliated; medical school-based; or military.¹ As such, students have a wide variety of program settings and types from which to select one that they feel best prepares them for their future practice in family medicine. Numerous other specialties, such as internal medicine, pediatrics, general surgery, and obstetrics and gynecology, also offer training programs in various settings, from medical school-based to community-

based, with resulting differences in training structures and content.^{1,2}

In one study, medical school affiliation did not affect practice type (office or hospital-based) or frequency of procedures completed among graduates of South Carolina family medicine programs.² Furthermore, residents trained in medical school-based programs were somewhat more likely to enter faculty practice, teaching, or fellowship training, while residents trained in community-based programs were slightly more likely to enter rural practice near where they trained. However, whether the difference in program type or setting affects the practice profiles or scope of practice of graduates has not been studied on a national basis.³

Residency setting and experiences influence students' residency program choices.⁴ Thus, a national evaluation of resident training experiences and practices after graduation may be helpful for students as they seek a program that develops graduates with similar practice goals and objectives. At present, this information is often unavailable.⁴⁻⁸

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Editor's Note: The online version of this article contains information about the preparedness for practice of graduates of community-based programs with graduates of university-based programs and the practice patterns of graduates of community-based programs with graduates of university-based programs.

The aim of this study was to examine self-reported preparation for practice, practice patterns, and American Board of Family Medicine (ABFM) board examination pass rate of family physicians based on the type and setting of the residency program in which they trained.

Methods

Subjects

Subjects for this study were graduates of family medicine residency programs in 2013 and 2014 who achieved status as a diplomate of the ABFM. To become a diplomate, graduates must have completed an Accreditation Council for Graduate Medical Education (ACGME) accredited family medicine residency program and successfully completed the certifying examination conducted by the ABFM. These residents were eligible to participate in the 2016 and 2017 Family Medicine National Graduate surveys.

Data regarding family medicine residency programs were obtained from the websites of the American Academy of Family Physicians (AAFP)¹ and the National Resident Matching Program (NRMP).⁹ From the AAFP Family Medicine Residency Program Directory, characteristics such as program affiliation, region of the country, and number of positions offered were obtained.¹ In the AAFP directory, residency programs are categorized as either community-based, medical school administered; community-based, medical school affiliated; community-based, nonaffiliated; medical school-based; or military program. For this study, community-based, medical school administered and community-based, medical school affiliated were combined into a single group and renamed partnership programs. This categorization allowed for analysis of programs based on the presumed influence of a more community setting and assumes little if any influence of medical school affiliated versus administered. We used the positions filled divided by the number of positions offered during the Main Residency Match as recorded from the NRMP website between 2013 and 2014 and considered this percentage as a proxy for program attractiveness to candidates.⁹ The use of this percentage assumes that programs with higher fill rates are generally more attractive to applicants. Military programs were excluded from analysis.

Instrument

The questionnaire was developed for the ABFM and the Association of Family Medicine Residency Directors by survey experts and has been previously described.¹⁰ For each specific content area included,

What was known and gap

Whether the difference in residency program type or setting affects the practice profiles or scope of practice of graduates has not been studied on a national basis.

What is new

An examination of self-reported preparation for practice, practice patterns, and American Board of Family Medicine examination pass rate of family physicians based on the type and setting of the residency program in which they trained

Limitations

The reporting of content taught during residency is subject to recall bias by the graduates and the report of adequacy of training remains subjective.

Bottom line

In general, graduates of family medicine community-based, non-affiliated, and partnership programs perceived they were prepared for and were providing more of the services queried in the survey than graduates of medical school-based programs.

the respondent was asked “whether or not your residency training adequately prepared you for your practice (yes or no)” and “whether or not the item is currently part of your practice (yes or no).” Additionally, the survey included a question regarding why the respondent does not provide inpatient care for hospitalized adult medicine patients or is not delivering babies if appropriate based on their answer as to whether they provide these services. For these questions, response options were “lifestyle considerations,” “not available in the practice I joined,” “not interested,” “challenges with privileging,” “poor reimbursement,” “billing is a hassle,” “inadequately trained,” “malpractice insurance too costly/challenging (only for not delivering babies),” and “other.” Respondents could select all reasons that apply as to why they did not provide the specific service. The results of this survey were obtained anonymously through a formal agreement with the ABFM.

Procedures

ABFM Diplomates were eligible for the graduate survey 3 years after residency graduation. The survey was administered by the ABFM and completed online through the ABFM website.

Data Analysis

Descriptive statistics were used to characterize and summarize the data. Survey respondents were linked to their residency characteristics using the ACGME number for the program. Differences in both perceived preparation and likelihood to practice in a variety of areas were compared among residents from university-based, community-based, and partnership programs using logistic regression models fit by generalized estimating equations (GEE).¹¹ GEE

estimation of regression model parameters is used to account for the lack of independence between observations of the dependent variable, occurring when participants are organized in clusters or repeated measurements are taken on the same participant over time. This scenario is likely to be present in our data as responses on how prepared residents were for practice and their post-graduation practice patterns are likely to be similar among residents who attended the same residency program. GEE estimation requires the specific of a correlation matrix describing the dependence structure between observations of the dependent variable. Unstructured correlation matrices were used to account for dependence between residents who graduated from the same residency program, and sandwich estimators were used to determine the standard errors of model coefficients. Associations between university/community residency programs and ABFM examination pass rates were also determined using GEE estimation.

All regression models were adjusted for several residency characteristics (ie, US region, program size, program match rate) as well as resident-specific characteristics (ie, age, whether the resident was an international medical school graduate, whether the resident received an MD or DO degree). These variables were selected for adjustment out of the larger list of approximately 60 variables available in our data set based on the investigators informed opinion on which factors could potentially confound the association between the independent and dependent variables.

Due to the large number of tests involved, the false discovery rate was controlled as opposed to controlling the Type I error rate on the errors related to the multiple test results on the basis of the model coefficients. For physicians who indicated that they do not provide inpatient care or deliver babies, additional chi-square tests of independence were performed on their reported reasons for not providing this care to test for associations with community/university based residencies.

This study was approved by the University of Florida's Institutional Review Board.

Results

Responses from 3916 of 6287 (62.3%) total graduates were included in this analysis, representing 423 out of 466 residency programs. A total of 6393 residents graduated from ACGME-accredited family medicine residency programs during the time period studied.¹² Demographics of respondents are reported in TABLE 1. Graduates from partnership programs were the largest category at 3119 of 3916 (79.6%)

respondents, with community-based, non-affiliated programs for 202 (5.2%) and medical school-based programs for 595 (15.2%) of respondents.

Perceived Preparation for Practice

Graduates from community-based, nonaffiliated programs had higher odds of reporting their residency program adequately prepared them to provide specific services compared to graduates from medical school-based programs, with the largest differences noted in pediatric outpatient care, ICU, osteopathic manipulation therapy (OMT), intubation, and ventilator management (TABLE 2 and provided as supplemental material). Conversely, these same graduates had lower odds of indicating their residency adequately prepared them to practice family planning and reproductive health (implantable long-acting reversible contraceptives [LARC] and pregnancy termination).

Graduates from partnership programs had higher odds of reporting adequate perceived preparation to practice in several content areas, with the largest differences noted in ICU, OMT, intubation, and ventilator management compared to graduates of medical school-based programs. The partnership program graduates had lower odds of reporting adequate preparation in other content areas, most notably implantable LARC and pregnancy termination, compared to graduates of medical school-based programs.

In comparing graduates of partnership and community-based, nonaffiliated programs, perceived preparation for practice in a vast majority of areas were not different. The only areas where these program types differed were in perceived preparation in colposcopy and intubation.

Reported Practices After Graduation

Physicians trained in community-based, nonaffiliated programs had lower odds of administering implantable LARCs after graduation compared to physicians trained in a medical school-based program (TABLE 3 and provided as supplemental material). No other differences were observed between graduates of community-based, nonaffiliated and medical school-based programs. Graduates from partnership programs had higher odds of reporting practice in several areas, most notably lumbar puncture, intubation, and ventilator management, and lower odds of practicing in other areas such as implantable LARC and buprenorphine treatment compared to graduates of medical school-based programs.

Less than half of respondents provided adult inpatient care or delivered babies (40.5%, 1585 of 3916, and 13.2%, 516 of 3916; TABLE 4). Lifestyle

TABLE 1

Descriptive Characteristics of 2016 and 2017 National Family Medicine Graduate Survey Respondents by Residency Program Type

Graduate Characteristics	Overall, No. (%)	Community-Based, Non-Affiliated, No. (%)	Partnership, ^a No. (%)	Medical School-Based, No. (%)
	3916 (100.0)	202 (2.2)	3119 (79.6)	595 (15.2)
Age, mean \pm SD	35.9 \pm 4.4	35.5 \pm 3.8	36.0 \pm 4.4	35.6 \pm 4.3
Male	1717 (43.8)	93 (46.0)	1391 (44.6)	233 (39.2)
Female	2199 (56.2)	109 (54.0)	1728 (55.4)	362 (60.8)
MD	3334 (85.1)	169 (83.7)	485 (84.5)	531 (89.2)
DO	582 (14.9)	33 (16.3)	2634 (15.5)	64 (10.8)
International medicine graduates	1420 (36.3)	62 (30.7)	1178 (37.8)	180 (30.3)
Practice organization				
Solo practice	123 (3.8)	15 (9.6)	97 (3.8)	11 (2.1)
2–5 providers	1212 (37.2)	63 (40.4)	970 (37.8)	179 (33.8)
6–20 providers	1180 (36.3)	56 (35.9)	918 (35.7)	206 (38.9)
> 20 providers	740 (18.9)	22 (14.1)	584 (22.7)	134 (25.3)
Program Characteristics (n = 423)	Overall (%)	Community-Based, Non-Affiliated (%)	Partnership ^a (%)	Medical School-Based (%)
Region ^b				
North Western	22 (5.2)	2 (8.3)	18 (5.2)	2 (3.6)
Midwestern	104 (24.5)	5 (20.8)	92 (26.7)	7 (12.7)
North Eastern	84 (19.9)	0 (0.0)	73 (21.2)	11 (20.0)
South Western	61 (14.4)	2 (8.3)	52 (15.1)	7 (12.7)
South Central	76 (18.0)	12 (50.0)	49 (14.2)	15 (27.3)
South Eastern	76 (18.0)	3 (12.5)	60 (17.4)	13 (23.7)
Resident allotment				
< 10	15 (3.5)	1 (4.2)	14 (4.1)	0 (0.0)
10–19	125 (29.6)	8 (33.3)	104 (30.2)	13 (23.6)
20–29	168 (39.7)	11 (45.8)	141 (41.0)	16 (29.1)
30+	115 (27.2)	4 (16.7)	85 (24.7)	26 (47.3)
Match rate (mean \pm SD)	95.7 \pm 13.9	88.8 \pm 22.7	95.8 \pm 13.6	97.4 \pm 9.9

^a Partnership: Community-based, medical school administered and community-based, medical school affiliated programs.

^b North Western: Alaska, Idaho, Montana, Oregon, Washington, Wyoming; Midwestern: Illinois, Indiana, Michigan, Minnesota, North Dakota, Ohio, South Dakota, Wisconsin; North Eastern: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, Pennsylvania, Rhode Island, Vermont, Washington, DC; South Western: Arizona, California, Colorado, Hawaii, Nevada, New Mexico, Utah; South Central: Arkansas, Iowa, Kansas, Louisiana, Mississippi, Missouri, Nebraska, Oklahoma, Texas; South Eastern: Alabama, Florida, Georgia, Kentucky, North Carolina, South Carolina, Tennessee, Virginia, West Virginia.

considerations, not being available in the practice joined, and having no interest were the most common reasons given by all respondents for not providing these specific services (TABLE 4). Of the factors included, only challenges with privileging was greater for graduates of community-based, nonaffiliated programs.

The 2013 ABFM Certification Examination pass rates were higher among community-based, nonaffiliated residency graduates compared to both medical school-based (β [95% CI] = 2.3 [0.5–4.2]) and partnership programs (β [95% CI] = 2.2 [0.5–

3.9]). No differences were observed in the 2014 examination (TABLE 5). Graduates of partnership programs provided more hours of direct patient care per week than graduates of medical school based programs. Otherwise, no differences in patient encounters, hours of direct patient care, telephone hours, e-visist, teaching/precepting, and total hours were reported.

Discussion

This study found significant although mostly small differences in family medicine graduates' perceptions

TABLE 2

Preparedness for Practice Comparing Graduates of Community-Based Programs With Graduates of University-Based Programs

Programs	Adjusted OR (Community vs Medical School)	Adjusted OR (Partner vs Medical School)	Adjusted OR (Partner vs Community)
Content areas			
Pediatric outpatient	3.33 (1.47, 7.58)	1.59 (1.18, 2.15)	0.48 (0.22, 1.04)
Newborn hospital	0.98 (0.59, 1.60)	1.06 (0.80, 1.42)	1.09 (0.70, 1.68)
Pediatric hospital	1.45 (1.00, 2.12)	1.77 (1.46, 2.16)	1.22 (0.87, 1.71)
Maternity care	1.62 (0.89, 2.93)	1.07 (0.79, 1.45)	0.66 (0.39, 1.13)
ICU	2.77 (1.93, 3.97)	2.78 (2.31, 3.35)	1.01 (0.72, 1.40)
End of life	1.67 (1.04, 2.68)	1.29 (1.02, 1.64)	0.78 (0.50, 1.20)
Behavioral health	0.79 (0.48, 1.33)	0.82 (0.61, 1.11)	1.04 (0.67, 1.61)
Integrative health	1.10 (0.74, 1.63)	1.14 (0.92, 1.42)	1.04 (0.73, 1.48)
Women's health			
Endometrial biopsy	1.18 (0.83, 1.67)	1.01 (0.84, 1.22)	0.86 (0.63, 1.17)
IUD	0.83 (0.55, 1.24)	0.83 (0.66, 1.05)	1.01 (0.71, 1.44)
Implantable LARC	0.47 (0.33, 0.67)	0.66 (0.53, 0.81)	1.39 (1.03, 1.88)
Colposcopy	1.83 (1.29, 2.61)	1.03 (0.86, 1.23)	0.56 (0.41, 0.77)
Uterine aspiration	0.92 (0.57, 1.48)	1.11 (0.87, 1.42)	1.21 (0.69, 1.98)
Pregnancy termination	0.50 (0.28, 0.86)	0.58 (0.46, 0.74)	1.17 (0.69, 1.98)
Ultrasound	1.72 (1.24, 2.40)	1.29 (1.08, 1.55)	0.75 (0.56, 1.01)
Orthopedics			
Casting	1.46 (1.05, 2.03)	1.26 (1.05, 1.51)	0.86 (0.64, 1.15)
Joint aspiration	1.64 (0.90, 2.98)	1.08 (0.81, 1.45)	0.66 (0.38, 1.14)
Musculoskeletal ultrasound	1.26 (0.75, 2.12)	1.25 (0.93, 1.69)	0.99 (0.63, 1.56)
Genitourinary			
Vasectomy	1.02 (0.67, 1.55)	0.75 (0.59, 0.94)	0.73 (0.50, 1.07)
Neonatal circumcision	1.84 (1.11, 3.04)	0.97 (0.76, 1.23)	0.53 (0.33, 0.83)
Additional areas			
Cardiac stress test	1.64 (1.14, 2.37)	1.34 (1.08, 1.67)	0.82 (0.59, 1.13)
Osteopathic manipulative treatment	4.19 (2.35, 7.46)	2.53 (1.68, 3.79)	0.60 (0.39, 0.94)
Buprenorphine treatment	0.51 (0.26, 0.98)	0.63 (0.48, 0.82)	1.24 (0.66, 2.34)
HIV/AIDS	0.97 (0.66, 1.42)	1.33 (1.08, 1.64)	1.37 (0.98, 1.93)
Hepatitis C	0.77 (0.53, 1.11)	0.93 (0.76, 1.12)	1.20 (0.86, 1.67)
Hospital and urgent care			
Lumbar puncture	1.74 (1.00, 3.04)	1.30 (0.96, 1.76)	0.75 (0.46, 1.22)
Intubation	8.88 (4.53, 17.41)	3.04 (2.23, 4.13)	0.34 (0.18, 0.64)
Ventilator	3.45 (1.95, 6.09)	2.66 (1.93, 3.65)	0.77 (0.47, 1.27)
Central line placement	2.33 (1.35, 4.03)	1.87 (1.38, 2.52)	0.80 (0.49, 1.30)
Thoracentesis	1.92 (1.12, 3.28)	1.23 (0.90, 1.67)	0.64 (0.40, 1.02)

Abbreviation: LARC, Long-acting reversible contraception.

of residency training programs' preparation for practice as well as mostly small differences in self-reported current practice patterns when comparing graduates of the community-based, partnership, and medical school-based residency programs. The largest differences were noted in hospital-based skills, in particular intubation and ventilator management and women's health and family planning services, most notably implantable LARC. In general, graduates of community-based, nonaffiliated, and partnership programs reported perceiving to be prepared for and providing more of the services

TABLE 3

Practice Patterns Comparing Graduates of Community-Based Programs With Graduates of University-Based Programs

Programs	Adjusted OR (Community vs Medical School)	Adjusted OR (Partner vs Medical School)	Adjusted OR (Partner vs Community)
Content areas			
Pediatric outpatient	1.05 (0.70, 1.57)	0.96 (0.77, 1.20)	0.91 (0.64, 1.30)
Newborn hospital	1.23 (0.82, 1.84)	1.28 (1.02, 1.61)	1.04 (0.73, 1.48)
Pediatric hospital	1.01 (0.65, 1.56)	1.11 (0.88, 1.39)	1.10 (0.75, 1.61)
Maternity care	0.85 (0.57, 1.27)	0.94 (0.76, 1.16)	1.10 (0.77, 1.58)
ICU	1.71 (1.13, 2.58)	1.94 (1.52, 2.49)	1.14 (0.80, 1.61)
End of life	1.17 (0.83, 1.64)	1.36 (1.13, 1.64)	1.17 (0.86, 1.59)
Behavioral health	0.83 (0.49, 1.40)	0.82 (0.60, 1.11)	0.98 (0.63, 1.53)
Integrative health	0.86 (0.55, 1.35)	0.82 (0.65, 1.04)	0.95 (0.63, 1.43)
Women's health			
Endometrial biopsy	0.65 (0.43, 0.99)	0.77 (0.62, 0.95)	1.18 (0.81, 1.73)
IUD	0.67 (0.47, 0.96)	0.73 (0.60, 0.88)	1.08 (0.79, 1.48)
Implantable LARC	0.54 (0.38, 0.78)	0.72 (0.59, 0.87)	1.33 (0.96, 1.84)
Colposcopy	1.00 (0.62, 1.64)	0.82 (0.64, 1.07)	0.82 (0.53, 1.27)
Uterine aspiration	1.27 (0.52, 3.13)	1.74 (1.08, 2.82)	1.37 (0.62, 3.02)
Pregnancy termination	1.03 (0.37, 2.86)	0.86 (0.52, 1.44)	0.84 (0.33, 2.17)
Ultrasound	1.37 (0.83, 2.25)	1.12 (0.85, 1.47)	0.82 (0.53, 1.27)
Orthopedics			
Casting	0.96 (0.67, 1.37)	1.01 (0.83, 1.23)	1.05 (0.76, 1.46)
Joint aspiration	1.13 (0.76, 1.68)	1.02 (0.82, 1.27)	0.90 (0.64, 1.28)
Musculoskeletal ultrasound	0.57 (0.30, 1.09)	0.84 (0.62, 1.13)	1.46 (0.80, 2.66)
Genitourinary			
Vasectomy	1.79 (0.76, 4.24)	0.93 (0.54, 1.61)	0.52 (0.25, 1.09)
Neonatal circumcision	1.47 (0.95, 2.26)	1.13 (0.97, 1.80)	0.77 (0.53, 1.13)
Additional areas			
Cardiac stress test	1.19 (0.68, 2.09)	1.32 (0.97, 1.80)	1.11 (0.68, 1.82)
Osteopathic manipulative treatment	2.07 (0.99, 4.31)	1.43 (0.95, 2.15)	0.69 (0.36, 1.32)
Buprenorphine treatment	0.31 (0.14, 0.67)	0.49 (0.37, 0.64)	1.57 (0.75, 3.28)
HIV	0.82 (0.54, 1.27)	1.04 (0.83, 1.30)	1.26 (0.85, 1.86)
Hepatitis C	0.81 (0.55, 1.20)	0.98 (0.80, 1.20)	1.20 (0.84, 1.70)
Hospital and urgent care			
Lumbar puncture	2.18 (1.26, 3.77)	1.40 (1.01, 1.94)	0.64 (0.40, 1.02)
Intubation	2.06 (1.19, 3.57)	1.85 (1.33, 2.57)	0.90 (0.56, 1.43)
Ventilator	2.00 (1.11, 3.58)	1.96 (1.38, 2.78)	0.98 (0.59, 1.62)
Central line placement	1.55 (0.85, 2.85)	1.60 (1.12, 2.27)	1.03 (0.61, 1.74)
Thoracentesis	1.12 (0.60, 2.10)	0.85 (0.60, 1.21)	0.76 (0.44, 1.31)

Abbreviation: LARC, long-acting reversible contraception.

TABLE 4

Recent Graduates Providing Inpatient Care or Delivering Babies

Services	Overall	Community- Based, Nonaffiliated	Partnership	Medical School- Based	Adjusted OR Community vs Medical School	Adjusted OR Partner vs Medical School	Adjusted OR Partner vs Community
Inpatient service	1585 (40.5)	79 (39.1)	1289 (41.3)	217 (36.5)	1.16 (0.83, 1.63)	1.23 (1.02, 1.48)	1.06 (0.52, 2.14)
Obstetrics services	516 (13.2)	26 (12.9)	422 (13.5)	68 (11.4)	1.55 (0.92, 2.59)	1.35 (1.00, 1.81)	0.87 (0.56, 1.36)

TABLE 5

Linear Regression Analyses Comparing Community- vs University-Based Residents on ABFM Examination Pass Rate

ABFM Examination Pass Rate	Community-Based, Nonaffiliated (mean \pm SD)	Partnership (mean \pm SD)	Medical School-Based (mean \pm SD)	Community vs Medical School Beta Coefficient (95% CI)	Partner vs Medical School Beta Coefficient (95% CI)	Partner vs Community Beta Coefficient (95% CI)
2013	94.5 \pm 12.0	91.9 \pm 12.1	92.6 \pm 10.7	2.3 (0.5, 4.2)	0.1 (-0.8, 1.1)	-2.2 (-3.9, -0.5)
2014	95.9 \pm 9.3	96.2 \pm 8.2	96.8 \pm 7.3	-0.6 (-2.0, 0.8)	-0.1 (-0.7, 0.6)	0.5 (-0.8, 1.8)

Abbreviation: ABFM, American Board of Family Medicine.

queried in the survey than graduates of medical school-based programs.

Previous research of family medicine residency graduates demonstrated little difference between physicians trained at community- versus university-based programs. Davidson and Kahn⁵ compared graduates of the University of California Davis programs and found no difference in the ABFM examination scores or type of practice. In general, graduates of both types of programs felt well prepared in most content areas. Similarly, a 2001 national survey of family medicine residency programs regarding procedural skills training showed no differences based on type of program or university affiliation.¹³ In contrast, graduates of medical school-based pediatric and general surgery residency programs had higher first-time board pass rates compared to graduates of community-based programs.^{8,14}

While not a main outcome of this study, we noted the respondents' scope of practice was narrowed due to forces beyond the adequacy of their preparation (TABLES 2 and 3). For instance, while a majority of graduates reported feeling adequately prepared to practice newborn hospital care, pediatric hospital care, maternity care, and ICU, less than half of them reported providing these services currently. While graduates reported that jobs without obstetrics and lifestyle concerns were barriers to the practice of maternity, newborn, maternity and hospital care, other factors were not listed and may present additional barriers.¹⁵

The study findings are limited by the response rate of 67%, if those who responded were not entirely reflective of the total population. The practice content areas listed on the survey, chosen by experts from a single institution and the ABFM, may have omitted some key services taught during residency training or practiced after graduation. Respondents may have interpreted the content areas differently than intended. The reporting of content taught during residency is subject to recall bias by the graduates and the report of adequacy of training remains subjective. Finally, partnership programs comprised the vast majority of

the program types in the survey responses, which may have further biased the results.

Current family medicine residencies appear to be teaching for varying scopes of practice. Family medicine may need to reevaluate curriculum and residency competencies as to create a more standardized curriculum or a "basket of services" that is consistently taught to all residents and incorporates the needs of the overall US population. To augment this standardized curriculum, some flexibility is preferred as to provide training in services unique to the local community as well as interests and expectations of residents.

Conclusions

This national survey of family medicine graduates found differences in the perceived adequacy of residency training for practice as well as differences in reported current practices in comparing community-based, partnership, and university-based types of training programs. The largest differences were seen in pediatric outpatient care, ICU, OMT, intubation, and ventilator management.

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