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ORIGINAL ARTICLE

Impact of Training Length on Scope of Practice Among Residency Graduates: A Report From the Length of Training Pilot Study in Family Medicine

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ABSTRACT

Background and Objectives: Associations between training length and scope of practice in family medicine are unknown. We compared scope of practice among family medicine graduates from 3YR and 4YR training programs.

Methods: We compared survey responses 1 year after graduates started their first job as an independently practicing physician according to their length of training. Comparisons were made across three groups: (1) 3-year program graduates with 36 months of training (3YR–36); (2) all 4-year program graduates with either 36 or 48 months of training (4YR–36/48); (3) 4-year program graduates with only 48 months of training (4YR–48).

Results: Our sample included 1,136 graduates. Of these 423 (37.2%) were in 3YR programs, 447 (39.4%) were in 4YR–36/48, and 266 (23.4%) were in 4YR–48 months. Participant demographics and practice characteristics were similar across groups. Graduates with 4 years of training were more likely to provide pediatric inpatient care than 3YR program graduates (4YR–48 [43.6%] vs 3YR [35.1%], *P*=.032); and more 4YR program graduates provide adult inpatient care (3YR [39.8%] vs 4YR–48 [52.5%], *P*=.002). Graduates of 4YR programs (both groups) were statistically more likely to include 13 of 24 procedures in practice compared to those from 3YR programs, including point-of-care ultrasound, vaginal delivery, joint injection/aspiration, circumcision, and vasectomy. Graduates of all participating programs reported performance that exceeded national means for 20 of 32 (62.5%) clinical practice areas and procedures.

Conclusions: Graduates of 4YR programs reported obtaining a unique set of skills and undertaking a broader scope of practice postgraduation compared to graduates of 3YR programs.

INTRODUCTION

The scope of practice among family physicians has been extensively studied in both the United States and Canada.[1–6] Collectively, these studies indicate that many factors affect desired scope of practice, including personal, workplace, environmental, and community or population characteristics;[1]

practice rurality; when trained (recent vs later career); and where trained.[2,3] Rural residency programs are more likely to train toward a broader scope of practice compared to their urban counterparts.[2,7] This difference is important because of the exodus of many specialties from rural settings, including obstetricians, general surgeons, pediatricians, and emergency medicine physicians.[8–10] Family physicians also narrow their scope of practice over time.[7] A priority of the American Board of Family Medicine (ABFM) is that family physicians receive training that allows them to meet population health needs regardless of practice location.[11] However, health system features often restrict family physicians' scope of practice due to competition with other specialties.[12] Interestingly, having a broader scope of practice, including inpatient care and obstetrics, has resulted in lower burnout.[4]

Few studies have comprehensively studied training length and scope of practice. In Canada, family medicine residency training is typically 2 years in length. Canadian residents can opt to take a third year, though less than one in five do.[13] One study found that the additional year of training resulted in these physicians filling in gaps associated with decreased specialty availability, especially in rural areas.[5] In the United States, a recent study of one program with 3-year versus an optional 4th year of training in an area of emphasis found that graduates with additional training provided a broader scope of cognitive and procedural services than fellowship or 3-year graduates.[14] Because this study involved a single residency program, findings are not generalizable.

A significant commitment to training for a broad scope of practice continues to exist in family medicine, underscored by a 2015 study on the perspectives of family medicine department chairs on practice scope.[15] That paper found that chairs believe that role modeling a broad scope of practice increases students' interest in family medicine and encourages residency graduates to provide a wide range of services. Rigorous research is needed to understand how best to train for a broad scope of practice. In 2013, the ABFM Foundation funded the Length of Training Pilot (LoTP) study, which was designed to explore the impact that length of training, 3-year (3YR) versus 4-year (4YR), has on several outcomes.[16–25] The purpose of this paper is to focus on the impact length of training has on practice scope.

METHODS

Length of Training Pilot

The LoTP is a mixed-methods prospective case-control pilot study, including 17 residencies that applied for and were selected to participate in the study by a Steering Committee with representation from the Society of Teachers of Family Medicine, the Association of Family Medicine Residency Directors, the American Association of Family Physicians, and ABFM. After the 4-year programs were selected, we recruited seven civilian 3-year training programs matched to the 4-year programs. Matching was based on region, size, and type of continuity clinic (eg, federally qualified health center, academic health center, community health center). Selection criteria included being in good standing with the Accreditation Council for Graduate Medical Education (ACGME), committing to participate in evaluation activities, and, for 4-year training sites, revising their training program to be 4 years in length. No funding was provided to any participating programs.

Participating residency programs included seven 3YR civilian programs, six 4YR civilian programs, and four Navy programs with a 4YR track. The training models in the 4YR programs varied with four programs requiring a fourth year with an integrated curriculum, and two programs having an optional fourth year for an area of focus. The locations of matched programs included a pair in the Pacific Northwest (Oregon and Washington) and other pairs in Texas, Colorado, Michigan, and New England (Maine, Massachusetts, and Connecticut). We excluded the Navy programs from analyses because their practice settings and patient populations vary substantially from civilian programs and potential deployment can interrupt their training. Also, graduates of military residencies do not choose their future practice sites and clinical activities the way civilian program graduates do.

All LoTP evaluation activities were overseen by researchers in the Department of Family Medicine at Oregon Health & Science University (OHSU). All LoTP programs obtained Institutional Review Board (IRB) approval, and the evaluation team at OHSU was granted an educational exemption (IRB # 9770).

Instrument Development, Testing, and Data Collection

The OHSU evaluation team drafted a multi-item graduate survey designed to assess demographic and training information, postgraduate clinical practice characteristics, career satisfaction, care delivery features (eg, key patient-centered features), scope of practice, and perceived adequacy of family medicine training. To assess perceived adequacy of training, we used the following scale: 1=received no training; 2=trained but unprepared to do in practice; 3=trained and adequately prepared to do in practice; and 4=received more training than needed to do in practice. We asked graduates whether they include each practice area in the scope of care they currently provide. Lastly, we asked two open-ended questions: (1) List any areas your partners consider you to be an expert in; and (2) List any unique skills you acquired during residency that you apply in your practice.

The LoTP Executive Committee (authors J.C.M. and C.C.) reviewed the survey for content and face validity, and the OHSU evaluation team pilot tested the survey using cognitive interview techniques.[26] Fifty scope of practice variables were included in these analyses. The survey was administered 1 year postgraduation for residents of both 3YR and 4YR programs between 2013 and 2022. Annual response rates ranged from 50% to 88% for 3YR program graduates and 68% to 95% for 4YR program graduates.

Some graduates of required 4YR programs completed 36 months of training because they graduated before the 4-year curriculum was fully implemented (n=56). Also, the optional 4YR programs had residents who chose to graduate after 36

months of training (n=125). To account for these variations, we conducted both an intent-to-treat analysis and an as-treated analysis.[27] Thus, three groups of graduates were included in analyses: (1) graduates of 3YR programs (3YR–36); (2) all graduates of 4YR programs, including those who received 3 years of training by choice or during implementation (4YR–36/48 or intent-to-treat); and (3) graduates of 4YR programs who completed 48 months of training (4YR–48 or as-treated)

Data Analyses

Quantitative Analyses

We stratified analyses across the three groups just described. Descriptive statistics, including means and standard deviations for continuous variables and frequencies and percentages for categorical variables, were used to characterize graduates' age, gender, and race/ethnicity. We summarized clinical practice characteristics, scope of practice, perceived adequacy in their scope of practice, and procedures included in practice scope. We collapsed perceived adequacy of training into two categories: "Not Adequately Trained" (1=Received no training; 2=Trained but unprepared to do in practice), and "Adequately Trained" (3=Trained and adequately prepared to do in practice, and 4=Received more training than needed to do in practice).

To assess differences between groups, we used independent sample t tests with unequal variances for continuous variables and Fisher exact test or χ^2 test for categorical variables. Additionally, we reported two sets of P values—one for differences between 3YR–36 and 4YR–36/48 and one for comparisons between 3YR–36 and 4YR–48. Missing observations were not included when testing for differences. We performed analyses using R software version 4.3.0 (R Foundation). All statistical tests were two-sided, and we set α at 0.05 to determine statistical significance. We did not account for multiple comparisons because recent papers have recommended not adjusting for multiple comparisons unless the study design is a randomized controlled trial because overadjustment to avoid Type 1 error is resulting in increases in Type 2 error.[28] Whenever possible, we provide comparison data from the ABFM annual National Graduate Survey administered 3 years after graduation.[29]

Qualitative Analyses

We used classical content analysis to analyze data from the two open-ended questions, which involved identifying and applying codes to all responses to allow for accurate and uniform categorized responses.[30] Two study team members (authors P.A.C. and M.P.E.) did the coding and used consensus meetings to finalize them. We then counted common themes to convey numeric values according to whether residents received 36 or 48 months of training in a 4YR program. For simplicity, we show the number and percentage of the unique skills cited by respondents. Categories shown are not mutually exclusive.

RESULTS

Our sample included 1,136 graduates. Of these, 423 (37.2%) were in 3YR–36 programs, 447 (39.4%) were in 4YR–36/48, and 266 (23.4%) were in 4YR–48 months. Graduates' ages were similar with means ranging across study groups of 33.8–34.0 years (Table 1). The majority, ranging from 56.8% to 64.1%, were male, although a higher percentage of female graduates were in 4YR–36/48 (43.2% vs 35.7%; *P*=.049), and the majority were Non-Hispanic White (66.2%–70.3%). Graduates with 4 years of training were more likely to have certificates of added qualifications (sports medicine [6.8% vs 2.4%], other [4.1% vs 2.8%]; *P*=.031). A lower percentage of 3YR graduates indicated that their partners considered them an expert or having advanced skills in a specific area when compared to 4YR–48 graduates (44.0% vs 60.2%; *P*<.001).

Practice Characteristics

We found no statistical differences between length of training and average patient visits per day, average hours worked per week, taking after hours call for primary practice, or serving in a leadership role (Table 2). A higher percentage of 3YR program graduates (43.4%) indicated that they were serving as clinical leaders compared to 4YR–36/48 program graduates (31.3%; *P*=.041). However, intention to undertake future leadership roles was higher among graduates in both 4YR groups compared to 3YR graduates (3YR–36 "very likely"=17.6% vs 4YR–36/48=25.5% and 4YR–48=25.5%; *P*<.022). More graduates of 4YR programs reported obtaining a unique set of skills during training (4YR–36/48=69.4%, 4YR–48=80.5%, 3YR–36=44.7%; (*P*<.001). Over 85% of graduates in all three groups indicated that they were able to practice their desired scope in current practice.

Perceived Adequacy of Training and Current Scope of Practice

Care of Children

We observed statistically higher differences for perceived adequacy of training in newborn care between 3YR and both groups of 4YR graduates (3YR–36=94.8% vs 4YR–36/48=99.1% and 4YR–48=98.1%; *P*<.004) but no differences in providing this service (Table 3). Graduates with 4YR–48 months of training were more likely to provide inpatient care of children than 3YR graduates (4YR–48=43.6% vs 3YR–36=35.1%; *P*=.032).

Care of Adults

More graduates of both groups of 4YR programs reported being adequately trained for inpatient care and providing this care in practice (3YR–36=39.8% vs 4YR–36/48=48.2% and 4YR–48=52.5%; *P*<.015). We found statistically higher perceived adequacy of training for intensive care/ICU-CCU among 4YR program graduates (3YR–36=44.8% vs 4YR–36/48=67.3% and 4YR–48=59.2%; *P*<.001) with no differences in the provision of this care among groups. We found no differences in the inclusion of nursing home care in practice, but more graduates of 3YR programs reported higher perceived adequacy of training for this service (3YR–36=87.7% vs 4YR–36/48=78.3% and 4YR–48=79.2%; *P*<.003).

Other Care Areas

Both 4YR groups reported being adequately trained more frequently compared to 3YR programs for maternity care (3YR–

36=84.3% vs 4YR–36/48=92.8% and 4YR–48=95.1%; *P*<.001), Emergency medicine (3YR–36=63.6% vs 4YR–36/48=82.8% and 4YR–48=81.4%; *P*<.001), and management of HIV/AIDs (3YR–36=15.4% vs 4YR–36/48=28.3% and 4YR–48=26.6%; *P*<.001). Perceived adequacy of training was rated higher for supportive/end of life care and primary mental health care in 4YR–48 vs 3YR–36 (supportive care 3YR–36=89.1% vs 4YR–48=94.3%; *P*=.004; primary mental health care 3YR–36=87.9% vs 4YR–48=95.8%; *P*=.002), though we found no differences in graduates providing these services by study group (Table 3). For the remaining practice activities, only providing care in different settings and home visits differed among the groups, with 4YR graduates more likely to provide these.

Perceived Adequacy of Training and Procedural Scope of Practice

For 15 of 24 procedures (62.5%), graduates of both groups of 4YR programs reported higher perceived adequacy of training, including point-of-care ultrasound (POCUS), endometrial biopsy, colposcopy, OB ultrasound, spontaneous vaginal delivery, upper endoscopy, lumbar puncture, thoracentesis, central line placement, endotracheal intubation, casting, joint injection/ aspiration, musculoskeletal ultrasound, circumcision, and vasectomy (Table 4).

Graduates of both groups of 4YR programs were more likely to perform these services in practice except for upper endoscopy and endotracheal intubation. In addition, 4YR–48 graduates were more likely than 3YR graduates to perform endometrial biopsy and c-section as the primary surgeon. Overall, 4YR program graduates performed 15 of the 24 (62.5%) office-based and inpatient procedures studied at percentages higher than 3YR graduates, with no procedure performed more frequently in the 3YR graduates' practices.

Graduates of both 3YR and 4YR programs exceeded the national means for 20 of the 32 clinical practice areas and procedures included in the 2023 ABFM National Graduate Survey, including pediatric care, adult inpatient care, maternity care, vaginal deliveries, and end-of-life care, as well as several office-based procedures, including IUD insertion/removal, POCUS, long-acting reversible contraception, endometrial biopsy, colposcopy, and joint injection.

Qualitative Analyses of Self-Reported Unique Skills

Graduates of 3YR–36 and 4YR–48 reported unique skills in practice areas in addition to those included on the survey (Table 5). Most frequently mentioned skills in both groups included addiction medicine, obstetrics, transgender care, and procedures.

DISCUSSION

These analyses suggest that extending training appears to have an impact on scope of practice. Highlights include higher rates of providing care for inpatient children and adults, delivering babies, providing care in a multitude of settings (home, nursing home, hospital), and providing a wider array of both inpatient and office-based procedures (lumbar puncture, thoracentesis, point-of-care ultrasound, endometrial biopsy, casting, joint injection, vasectomy). These findings align with results from the Preparing the Personal Physician for Practice (P4) study, which found that programs experimenting with lengthened training had more graduates providing adult hospital care, adult intensive care, and newborn resuscitation in their practices and performed 19 of 30 (63.3%) procedures at higher rates compared to programs with 3 years of training.[31] Studies consistently have shown that locations where primary care is stronger have better population health, higher quality care, and lower costs.[32,33] Comprehensiveness is a core component of primary care and has been associated with lower hospitalization rates, costs, burnout, and reduced utilization of specialty services.[4,34]

The length of training in family medicine has been debated in the United States for decades and for many reasons, including restricting duty hours, enhancing the training experience by decompressing the number of Residency Review Committee requirements to maintain accreditation, and improving learning opportunities for residents and the care they provide.[35–38] Having a broad scope of practice is especially important in rural areas where the physician workforce has fewer subspecialists, and access to needed care can be delayed.[39,40] Additional research is needed to pursue the interface between length of training and scope of practice to understand the balance between innovation and standardization.[41] An important question to answer is whether pursuing fellowship training, which often requires moving to a different institution and undergoing a structured curriculum, is more favorable than undertaking an integrated 4 years of training that offers flexibility in the skills learned.

This study was designed as a pilot study and is not powered to fully address all eight of the core research questions posed by the Steering Committee. However, the findings on scope of practice are compelling, with higher percentages of graduates providing inpatient care, obstetrics, and many procedures in their practice when their training is extended to 4 years. Our prospective case-control study design did not allow us to randomly assign residents to intervention and control groups; thus, we cannot infer a causal relationship between length of training and scope of practice. However, we were pleased that the matched programs had no significant differences in characteristics of residents across study groups, which suggests that the findings may be related to training length. Additionally, these results provide useful effect sizes for future studies with larger numbers of programs.

Importantly, the discipline is now exploring time-variable residency training more formally through the ACGME/ABFM Family Medicine Advancing Innovation in Residency Education (AIRE) program, announced in December 2021. AIRE offers residency programs increased flexibility to test new educational and assessment approaches through innovation.[42] Knowledge obtained through LoTP has been used to inform the process for approval of residencies planning an innovation related to training length.

Strengths of this study include its high survey response rates, its nationally geographic representation of participants, its longitudinal approach capturing 10 years of data, and its representation of different continuity clinic settings. Weaknesses include lack of randomization, its exploratory nature, and the relatively small sample of participating residency programs. Both 3YR and 4YR program graduates had a more comprehensive scope compared to data from the ABFM National Graduate Survey, which suggests that the LOTP programs were well-matched as comparators but not necessarily representative of other residencies. Lastly, study groups were not mutually exclusive due to using both intent-to-treat and as-treated approaches. Some differences between the 3YR–36 and 4YR–36/48 may reflect more about the residency curriculum for all residents rather than about a clear difference in the length of training. Availability of newborn care experience represents one example.

CONCLUSIONS

In conclusion, graduates of 4YR programs reported being both more adequately trained and undertaking a broader scope of practice postgraduation compared to graduates of 3YR programs. These results add to evidence informing the discussion regarding whether family medicine training should be longer than 3 years.

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TABLE 1. Demographic and Training Characteristics of Graduates According to Length of Training

Characteristic	Graduates of 3YR programs (3YR–36)*	Graduates of 4YR programs (4YR–36/48)**	Graduates of 4YR programs (4YR–48)***	3YR–36 vs 4YR –36/48	3YR–36 vs 4YR –48
	N=423	N=447	N=266	*P* value	*P* value
Age (in years), mean (SD)	34.0 (3.7)	33.8 (3.6)	33.7 (2.9)	.483	.339
Gender identity, n (%)				.049	.410
Male	271 (64.1)	254 (56.8)	160 (60.2)		
Female	151 (35.7)	193 (43.2)	106 (39.8)		
Missing	1 (0.2)	0	0		
Race/ethnicity, n (%)				.613	.738
Non-Hispanic White	280 (66.2)	314 (70.2)	187 (70.3)		
Hispanic	32 (7.6)	33 (7.4)	15 (5.6)		
Non-Hispanic Black	15 (3.5)	18 (4.0)	12 (4.5)		
Non-Hispanic Asian/PI	67 (15.8)	60 (13.4)	38 (14.3)		
Non-Hispanic AI/AN	1 (0.2)	0	0		
Other/multiracial	27 (6.4)	22 (4.9)	14 (5.3)		
Missing	1 (0.2)	0	0		
Has certificate of added qualifications, n (%)				.149	**.031**
Adolescent medicine	1 (0.2)	0	0		
Geriatrics	10 (2.4)	9 (2.0)	6 (2.3)		
Sports medicine	10 (2.4)	24 (5.4)	18 (6.8)		
Hospice/palliative medicine	3 (0.7)	0	0		
Sleep medicine	1 (0.2)	1 (0.2)	0		
Other	12 (2.8)	13 (2.9)	11 (4.1)		
None of the above	380 (89.8)	389 (87.0)	222 (83.5)		
Missing	6 (1.4)	11 (2.5)	9 (3.4)		
Partners consider them expert in specific area, n (% Yes)	186 (44.0)	222 (49.7)	160 (60.2)	.120	**<.001**

*36 months of training in a 3YR program
**36 or 48 months of training in a 4YR program
***48 months of training in a 4YR program
Abbreviations: YR, year; SD, standard deviation; PI, Pacific Islander; AI/AN, American Indian/Alaska Native

TABLE 2. **Practice Characteristics of Graduates According to Length of Training**

Characteristic and national data[a] when available	Graduates of 3YR programs (3YR–36)*	Graduates of 4YR programs (4YR–36/48)**	Graduates of 4YR programs (4YR–48)***	3YR–36 vs 4YR–36/48	3YR–36 vs 4YR–48
	N=423	N=447	N=266	*P* value	*P* value
Average number of patient visits/day, mean (SD) National: 19	16.8 (7.2)	17.0 (6.2)	16.7 (5.2)	.588	.84
Average number of hours worked/week in all professional activities, except on-call time, mean (SD)	46.5 (13.7)	46.6 (13.7)	46.0 (14.3)	.906	.635
Takes after hours call for primary practice, n (%) National: 60%	292 (69.0)	297 (66.4)	177 (66.5)	.457	.55
Serves in leadership role, n (% Yes)	116 (27.4)	102 (22.8)	64 (24.1)	.137	.374
If Yes, type of leadership role					
Clinical leader	59 (43.4)	52 (31.3)	33 (43.4)	**.041**	1.000
Hospital committee	23 (17.6)	21 (13.2)	11 (15.9)	.388	.927
Professional society	8 (6.2)	7 (4.5)	4 (6.0)	.684	1.000
Community health	6 (4.7)	5 (3.2)	5 (7.5)	.727	.647
Medical education	16 (21.9)	18 (32.1)	14 (32.6)	.269	.296
Intention to undertake future leadership role, n (%)				**.002**	**.022**
No intention	43 (14.0)	23 (6.7)	14 (6.7)		
Unlikely	69 (22.5)	63 (18.3)	32 (15.4)		
Somewhat likely	132 (43.0)	154 (44.6)	96 (46.2)		
Very likely	54 (17.6)	88 (25.5)	53 (25.5)		
Pursuing role now	9 (2.9)	17 (4.9)	7 (3.4)		
Able to practice desired scope in current practice, n (%)				.529	.599
Yes	162 (87.6)	245 (85.1)	79 (85.2)		
No	23 (12.4)	43 (14.9)	31 (14.8)		
During training, obtained a unique set of skills (eg, HIV care, acupuncture),[b] n (%)				**<.001**	**<.001**
Yes	185 (44.7)	288 (69.4)	210 (80.5)		
No	229 (55.3)	127 (30.6)	51 (19.5)		

*36 months of training in a 3YR program
*36 months of training in a 3YR program
**36 or 48 months of training in a 4YR program
***48 months of training in a 4YR program
[a] Source: ABFM National Graduate Survey. American Board of Family Medicine. 2023. $
[b] See Table 5 for list of unique skills.
Abbreviations: YR, year; SD, standard deviation; HIV, human immunodeficiency virus

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TABLE 3. Clinical Practice Activities and Perceived Adequacy of Training According to Length of Training

	Graduates of 3YR programs (3YR–36)*		Graduates of 4YR programs (4YR–36/48)**		Graduates of 4YR programs (4YR–48)***					
	N=423		N=447		N=266					
Practice activities and national data[a] when available	**Adequately trained**	**Currently do in practice**	**Adequately trained**	**Currently do in practice**	**Adequately trained**	**Currently do in practice**	**3YR–36 vs 4YR–36/48 *P* value**	**3YR–36 vs 4YR–48 *P* value**	**3YR–36 vs 4YR–36/48 *P* value**	**3YR–36 vs 4YR–48 *P* value**
							Adequately trained		**Currently do in practice**	
Care of Children, n (%)										
Ambulatory care National Adequately trained: 89% Do in practice: 72%	.407 (96.4)	368 (87.2)	436 (97.8)	395 (89.2)	260 (98.1)	240 (90.9)	.341	.302	.430	.173
Newborn care National Adequately trained: 84% Do in practice: 21%	400 (94.8)	300 (71.1)	442 (99.1)	319 (72.0)	263 (99.2)	204 (77.3)	**<.001**	**.004**	.823	.090
Inpatient care National Adequately trained: 69% Do in practice: 17%	349 (82.7)	148 (35.1)	393 (88.1)	179 (40.4)	231 (87.2)	115 (43.6)	**.030**	.143	.122	**.032**
Adolescent medicine	395 (93.6)	357 (84.6)	412 (92.4)	390 (88.0)	246 (92.8)	236 (89.4)	.567	.813	.169	.095
Care of adults, n (%)										
Ambulatory care	418 (99.1)	385 (91.2)	446 100.0)	421 (94.4)	265 (100.0)	252 (95.1)	.119	.283	.094	.081
Inpatient care National Adequately trained: 98% Do in practice: 37%	405 (96.0)	168 (39.8)	439 (98.4)	215 (48.2)	262 (98.9)	139 (52.5)	**.045**	**.049**	**.015**	**.002**
Intensive care/ICU-CCU National Adequately trained: 56% Do in practice: 19%	189 (44.8)	71 (16.8)	300 (67.3)	91 (20.4)	157 (59.2)	51 (19.2)	**<.001**	**<.001**	.206	.480
Nursing home care	370 (87.7)	91 (21.6)	349 (78.3)	93 (20.9)	210 (79.2)	50 (18.9)	**<.001**	**.004**	.862	.450
Care of the older patient	403 (95.5)	401 (95.0)	431 (96.6)	429 (96.2)	257 (97.0)	254 (95.8)	.490	.440	.501	.754

*36 months of training in a 3YR program
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**36 or 48 months of training in a 4YR program
***48 months of training in a 4YR program
[a] Source: ABFM National Graduate Survey. American Board of Family Medicine. 2023. $
Abbreviations: YR, year; AIDS, acquired immunodeficiency syndrome; HIV, human immunodeficiency virus; ICC; immediate care center; CCU, critical care unit

TABLE 3. Continued

	Graduates of 3YR programs (3YR–36)*		Graduates of 4YR programs (4YR–36/48)**		Graduates of 4YR programs (4YR–48)***					
	N=423		N=447		N=266					
Practice activities and national data[a] when available	**Adequately trained**	**Currently do in practice**	**Adequately trained**	**Currently do in practice**	**Adequately trained**	**Currently do in practice**	**3YR–36 vs 4YR–36/48 *P* value**	**3YR–36 vs 4YR–48 *P* value**	**3YR–36 vs 4YR–36/48 *P* value**	**3YR–36 vs 4YR–48 *P* value**
							Adequately trained		**Currently do in practice**	
Other areas of care, n (%)										
Maternity care National Adequately trained: 82% Do in practice: 27%	355 (84.3)	198 (47.3)	413 (92.8)	212 (47.7)	251 (95.1)	143 (54.2)	**<.001**	**<.001**	.939	.093
Supportive care, including end-of-life care National Adequately trained: 79% Do in practice: 52%	375 (89.1)	347 (83.0)	404 (91.2)	381 (86.2)	249 (94.3)	230 (87.1)	.351	**.027**	.230	.181
Primary mental health care	370 (87.9)	386 (92.3)	405 (91.4)	411 (93.0)	253 (95.8)	252 (95.5)	.110	**.001**	.818	.147
Provide care in different settings (eg, home, nursing home, hospital)	394 (93.6)	221 (52.9)	419 (94.6)	283 (64.0)	254 (96.2)	177 (67.0)	.634	.192	**.001**	**<.001**
Home visits	302 (71.7)	89 (21.3)	311 (70.2)	126 (28.5)	190 (72.0)	84 (31.8)	.674	1.000	**.018**	**.003**
Manage transitions of care	384 (91.2)	361 (86.4)	401 (90.5)	380 (86.0)	245 (92.8)	231 (87.5)	.814	.551	.947	.756
Orthopedics/musculoskeletal medicine	375 (89.3)	382 (91.4)	393 (88.7)	410 (92.8)	235 (89.0)	246 (93.2)	.873	1.000	.536	.484
Sports medicine	342 (81.6)	335 (80.3)	375 (84.7)	363 (82.1)	223 (84.5)	215 (81.4)	.273	.393	.559	.798
Emergency medicine	267 (63.6)	132 (31.6)	367 (82.8)	168 (38.0)	215 (81.4)	94 (35.6)	**<.001**	**<.001**	.057	.315
Occupational medicine	164 (39.0)	152 (36.4)	168 (37.9)	169 (38.3)	88 (33.3)	94 (35.7)	.788	.154	.601	.934
Chronic pain management	344 (81.9)	339 (81.1)	369 (83.3)	367 (83.2)	230 (87.1)	223 (84.8)	.653	.089	.470	.258
Buprenorphine treatment National Adequately trained: 40% Do in practice: 27%	143 (50.2)	126 (44.7)	127 (47.2)	112 (41.8)	110 (55.3)	94 (47.2)	.540	.311	.550	.645
Management of HIV/AIDS National Adequately trained: 32% Do in practice: 23%	44 (15.4)	54 (19.1)	76 (28.3)	62 (23.1)	53 (26.6)	44 (22.1)	**<.001**	**.004**	.298	.497
Management of hepatitis C National Adequately trained: 33% Do in practice: 23%	78 (27.4)	83 (29.4)	93 (34.6)	92 (34.3)	65 (32.7)	66 (33.2)	.081	.248	.254	.440

*36 months of training in a 3YR program
*36 months of training in a 3YR program
**36 or 48 months of training in a 4YR program
***48 months of training in a 4YR program
[a] Source: ABFM National Graduate Survey. American Board of Family Medicine. 2023. $
Abbreviations: YR, year; AIDS, acquired immunodeficiency syndrome; HIV, human immunodeficiency virus

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TABLE 4. Procedures in Practice and Perceived Adequacy of Training According to Length of Training

	Graduates of 3YR programs (3YR–36)*		Graduates of 4YR programs (4YR–36/48)**		Graduates of 4YR programs (4YR–48)***					
	N=423		N=447		N=266					
Procedures and national data[a] when available	**Adequately trained**	**Currently do in practice**	**Adequately trained**	**Currently do in practice**	**Adequately trained**	**Currently do in practice**	**3YR–36 vs 4YR–36/48 *P* value**	**3YR–36 vs 4YR–48 *P* value**	**3YR–36 vs 4YR–36/48 *P* value**	**3YR–36 vs 4YR–48P value**
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	Adequately trained		Currently do in practice	
IUD insertion/removal National Adequately trained: 79% Do in practice: 44%	366 (87.8)	276 (66.5)	405 (91.6)	290 (65.8)	248 (93.9)	177 (67.0)	.080	**.012**	.874	.951
Point-of-care ultrasound National Adequately trained: 33% Do in practice: 25%	66 (23.4)	75 (26.7)	141 (52.6)	133 (49.8)	100 (50.3)	102 (51.3)	**<.001**	**<.001**	**<.001**	**<.001**
Implantable long-acting reversible contraception (eg, nexplanon) National Adequately trained: 86% Do in practice: 51%	260 (92.2)	194 (69.0)	255 (95.1)	198 (74.2)	190 (95.5)	152 (76.4)	.214	.210	.218	.096
Endometrial biopsy National Adequately trained: 51% Do in practice: 22%	259 (62.3)	198 (47.7)	348 (78.7)	240 (54.4)	210 (79.5)	152 (57.6)	**<.001**	**<.001**	.058	**.015**
Colposcopy National Adequately trained: 42% Do in practice: 11%	203 (48.9)	100 (24.1)	251 (56.8)	137 (31.1)	159 (60.2)	93 (35.2)	**.025**	**.005**	**.028**	**.002**
Uterine aspiration/dilation/evacuation National Adequately trained: 13% Do in practice: 4%	79 (19.0)	47 (11.3)	87 (19.7)	49 (11.1)	66 (25.1)	35 (13.3)	.852	.073	1.00	.515
OB ultrasound National Adequately trained: 55% Do in practice: 17%	134 (32.2)	86 (20.7)	173 (39.1)	127 (28.8)	128 (48.5)	95 (36.0)	**.041**	**<.001**	**.008**	**<.001**

*36 months of training in a 3YR program
*36 months of training in a 3YR program
**36 or 48 months of training in a 4YR program
***48 months of training in a 4YR program
[a] Source: ABFM National Graduate Survey. American Board of Family Medicine. 2023. $
[b] Data on adequately trained was not collected for this variable.
Abbreviations: YR, year; IUD, intrauterine device; OB, obstetrics

TABLE 4. Continued

Procedures and national data[a] when available	Graduates of 3YR programs (3YR–36)*		Graduates of 4YR programs (4YR–36/48)**		Graduates of 4YR programs (4YR–48)***					
	N=423		N=447		N=266		3YR–36 vs 4YR–36/48 *P* value	3YR–36 vs 4YR–48 *P* value	3YR–36 vs 4YR–36/48 *P* value	3YR–36 vs 4YR–48 *P* value
	Adequately trained	Currently do in practice	Adequately trained	Currently do in practice	Adequately trained	Currently do in practice				
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	Adequately trained		Currently do in practice	
Spontaneous vaginal delivery[b] Do in practice: 11%	329 (79.1)	115 (27.7)	396 (89.6)	153 (34.7)	233 (88.3)	107 (40.5)	**<.001**	**.003**	**.033**	**.001**
C-section primary surgeon	64 (15.4)	48 (11.6)	78 (17.6)	67 (15.2)	65 (24.6)	55 (20.8)	.424	**.004**	.146	**.002**
Colonoscopy National adequately trained: 9% Do in practice: 1%	28 (6.7)	8 (1.9)	56 (12.7)	22 (5.0)	25 (9.5)	16 (6.1)	**.005**	.249	**.025**	**.009**
Upper endoscopy National adequately trained: 7% Do in practice: 1%	20 (4.8)	7 (1.7)	52 (11.8)	18 (4.1)	24 (9.1)	12 (4.5)	**<.001**	**.040**	**.061**	**.050**
Lumbar puncture National adequately trained: 15.7% Do in practice: 8%	126 (30.3)	62 (15.0)	237 (53.6)	116 (26.3)	125 (47.3)	71 (26.9)	**<.001**	**<.001**	**<.001**	**<.001**
Thoracentesis National aAdequately trained: 13% Do in practice: 6.9%	77 (18.5)	37 (8.9)	160 (36.2)	90 (20.4)	89 (33.7)	60 (22.7)	**<.001**	**<.001**	**<.001**	**<.001**
Central line placement National adequately trained: 16.1% Do in practice: 8%	98 (23.6)	41 (9.9)	201 (45.5)	83 (18.8)	99 (37.5)	47 (17.8)	**<.001**	**<.001**	**<.001**	**.004**
Endotracheal intubation National adequately trained: 19% Do in practice: 11%	122 (29.3)	55 (13.3)	201 (45.5)	74 (16.8)	101 (38.3)	41 (15.6)	**<.001**	**.020**	.179	.469
Ventilator management National adequately trained: 16% Do in practice: 10%	84 (20.2)	39 (9.4)	136 (30.8)	57 (12.9)	71 (26.9)	32 (12.1)	**.001**	.053	.130	.322
Immobilize/stabilize nondisplaced fractures	153 (36.8)	156 (37.7)	194 (43.9)	195 (44.2)	111 (42.0)	110 (41.7)	**.040**	.196	.061	.339
Casting National adequately trained: 38% Do in practice: 22%	133 (32.0)	110 (26.6)	184 (41.6)	161 (36.5)	112 (42.4)	97 (36.7)	**.004**	**.007**	**.002**	**.007**

*36 months of training in a 3YR program
*36 months of training in a 3YR program
**36 or 48 months of training in a 4YR program
***48 months of training in a 4YR program
[a] Source: ABFM National Graduate Survey. American Board of Family Medicine. 2023. $
[b] Data on adequately trained was not collected for this variable.
Abbreviations: YR, year; C-section, cesarean section

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TABLE 4. Continued

Procedures and national data[a] when available	Graduates of 3YR programs (3YR–36)*		Graduates of 4YR programs (4YR–36/48)**		Graduates of 4YR programs (4YR–48)***					
	N=423		N=447		N=266					
	Adequately trained	Currently do in practice	Adequately trained	Currently do in practice	Adequately trained	Currently do in practice	3YR–36 vs 4YR–36/48 *P* value	3YR–36 vs 4YR–48 *P* value	3YR–36 vs 4YR–36/48 *P* value	3YR–36 vs 4YR–48 *P* value
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	Adequately trained		Currently do in practice	
Injection/aspiration–joint, bursa, ganglion cyst, trigger point National adequately trained: 86% Do in practice: 69%	333 (80.0)	321 (77.3)	406 (91.9)	385 (87.3)	244 (92.4)	231 (87.5)	**<.001**	**<.001**	**<.001**	**.001**
Musculoskeletal ultrasound National adequately trained: 25% Do in practice: 18%	39 (9.4)	42 (10.1)	93 (21.0)	81 (18.4)	65 (24.6)	59 (22.3)	**<.001**	**<.001**	**.001**	**<.001**
Osteopathic manipulative therapy National adequately trained: 23 % Do in practice: 16%	63 (15.1)	56 (13.5)	46 (10.4)	57 (12.9)	31 (11.7)	35 (13.3)	**.048**	.255	.885	1.00
Circumcision National adequately trained: 70% Do in practice: 15%	292 (70.2)	109 (26.3)	411 (93.0)	174 (39.5)	249 (94.3)	108 (40.9)	**<.001**	**<.001**	**<.001**	**<.001**
Vasectomy National adequately trained: 13% Do in practice: 3%	30 (7.2)	21 (5.1)	123 (27.8)	61 (13.8)	86 (32.6)	44 (16.7)	**<.001**	**<.001**	**<.001**	**<.001**
Exercise treadmill testing National adequately trained: 17% Do in practice: 5%	38 (9.1)	16 (3.9)	38 (8.6)	28 (6.3)	13 (4.9)	12 (4.5)	.876	.060	.139	.818

*36 months of training in a 3YR program
*36 months of training in a 3YR program
**36 or 48 months of training in a 4YR program
***48 months of training in a 4YR program
[a] Source: ABFM National Graduate Survey. American Board of Family Medicine. 2023. $
[b] Data on adequately trained was not collected for this variable.
Abbreviations: YR, year

TABLE 5. **Self-Reported Unique Skills According to Length of Training**

Areas of expertise/unique skill s ets	Graduates of 3YR programs (36 months) N=160 n (%)	Graduates of 4YR programs(48 months) N=240 n (%)	+/− D
Addiction medicine	32 (20.0)	27 (11.3)	**−8.7**
Obstetrics	31 (19.4)	61 (25.4)	**+6.0**
Transgender care	25 (15.6)	18 (7.5)	**−8.1**
Procedures	17 (10.6)	45 (18.8)	**+8.2**
Abortion care	15 (9.4)	5 (2.1)	**−7.3**
CAM	15 (9.4)	11 (4.6)	−4.8
Leadership	11 (6.9)	36 (15.0)	**+8.1**
Health systems/QI	11 (6.9)	50 (20.8)	**+13.9**
Geriatrics (including hospice/palliative care)	10 (6.3)	2 (<1)	**− 5.47**
HIV	10 (6.3)	19 (7.9)	+1.6
OMT	7 (4.4)	11 (4.6)	+0.2
Health policy/advocacy	7 (4.4)	8 (3.3)	−1.1
Sports medicine	6 (3.8)	8 (3.3)	−0.5
Women's health	6 (3.8)	12 (5.0)	+1.2
Hospital medicine	5 (3.1)	14 (5.8)	+2.7
Population health/community medicine	5 (3.1)	8 (3.3)	+.0.2
Pediatrics	4 (2.5)	6 (2.5)	0
Critical care	3 (1.9)	22 (9.2)	**+7.3**
Emergency medicine	3 (1.9)	5 (2.1)	+0.2
Orthopedics	3 (1.9)	3 (1.3)	−0.6
Hepatitis	2 (1.3)	6 (2.5)	+1.2
POCUS	2 (1.3)	16 (6.7)	**+5.4**
Research	2 (1.3)	3 (1.3)	0
Academic medicine/education	1 (<1)	6 (2.5)	+1.75
Dermatology	1 (<1)	2 (<1)	0
Other	3 (1.9)	3 (1.3)	−0.6

Note: Categories are not mutually exclusive.
Abbreviations: YR, year; CAM, complementary and alternative medicine; QI, quality improvement; HIV, human immunodeficiency virus; OMT, osteopathic manipulative treatment; POCUS, point-of-care ultrasound

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