

# Postresidency Practice Setting and Clinical Care Features According to 3 Versus 4 Years of Training in Family Medicine: A Length of Training Pilot Study

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## ABSTRACT

**Background and Objectives:** Factors associated with physician practice choice include residency location, training experiences, and financial incentives. How length of training affects practice setting and clinical care features postgraduation is unknown.

**Methods:** In this Length of Training Pilot (LoTP) study, we surveyed 366 graduates of 3-year (3YR) and 434 graduates of 4-year (4YR) programs 1 year after completion of training between 2013 and 2021. Variables assessed included reasons for practice setting choice, practice type, location, practice and community size, specialty mix, and clinical care delivery features (eg, integrated behavioral health, risk stratified care management). We compared different length of training models using  $\chi^2$  or Fisher's exact tests for categorical variables and independent samples, and *t* test (unequal variances) for continuous variables.

**Results:** Response rates ranged from 50% to 88% for 3YR graduates and 68% to 95% for 4YR graduates. Scope of practice was a predominant reason for graduates choosing their eventual practice, and salary was a less likely reason for those completing 4 years versus 3 years of training (scope, 72% vs 55%,  $P=.001$ ; salary, 15% vs 22%,  $P=.028$ ). Community size, practice size, practice type, specialty mix, and practice in a federally designated underserved site did not differ between the two groups. We found no differences in patient-centered medical home features when comparing the practices of 3YR to 4YR graduates.

**Conclusions:** Training length did not affect practice setting or practice features for graduates of LoTP programs. Future LoTP analyses will examine how length of training affects scope of practice and clinical preparedness, which may elucidate other elements associated with practice choice.

## INTRODUCTION

Much of the literature on factors associated with physician practice choice after training relates to physician maldistribution.<sup>1</sup> Factors such as race, ethnicity, spoken languages, preferential admissions policies, rural experiences during training, and financial incentives have been found to influence the choice to practice in underserved settings.<sup>1-4</sup> Residency training in safety net settings is associated with a higher likelihood of independently practicing in an underserved setting.<sup>5</sup> Though some have suggested that an association exists between international medical graduates (IMGs) and practice in underserved areas, US states vary considerably in their policies for service-obligation programs for IMGs in an attempt to reduce physician maldistribution.<sup>6,7</sup> Residency location is also an important factor in future practice choice. A national study published in

2015 revealed that more than half of family physicians practiced within 100 miles of their residency training site.<sup>8</sup>

Studying both where graduates practice after training is complete as well as care delivery features used in practice is critical, given recent calls within the discipline of family medicine for greater accountability in graduate medical education (GME) and greater transparency when linking public funds to the needs of patients and communities.<sup>9,10</sup> Standardized outcomes that include specialty choice, clinical competence, preparation for practice, practice type/location, and scope of practice have been suggested as important areas to track as accountability metrics, because these may influence patient outcomes.

The Length of Training Pilot (LoTP) in family medicine is designed as a pilot study exploring multiple outcomes. Previous

published findings from this pilot include the impact of training length on applicants and match results,<sup>11</sup> clinical knowledge,<sup>12</sup> and patient continuity visits,<sup>13</sup> as well as financial considerations associated with adding a fourth year of training.<sup>14</sup> Briefly, findings to date can be summarized as follows:

- ▶ Extending residency training to 4 years appears not to adversely affect applicants and match outcomes;
- ▶ Resident visits appear to be significantly different at each postgraduate year (PGY) level when comparing 3-year (3YR) and 4-year (4YR) programs, and the additional year of training has resulted in about 1,000 more total visits; and
- ▶ Absolute In-Training Examination (ITE) scores were significantly higher in 4YR versus 3YR programs, but the increases in PGY2, PGY3, and PGY4 appear to be due to initial differences in postgraduate year 1 (PGY1) scores. Mean ITE scores of both 3YR and 4YR residents were higher than mean ITE scores nationally for all years included in the study.

In this report we explore the question, What effect does length of training have on practice setting and patient care delivery features after graduation?

## METHODS

### Length of Training Pilot (LoTP)

The LoTP is a pilot study designed to explore the impact that length of training, 3YR versus 4YR, has on several program and learner outcomes in family medicine.<sup>15</sup> Briefly, it is a mixed-methods prospective case-control pilot study including 17 residencies that applied for inclusion in the study (seven 3YR civilian programs, six 4YR civilian programs, and four Navy programs). The training models in the 4YR programs varied, with four programs having a required fourth year with an integrated curriculum and two programs having an optional fourth year for one or more specific areas of focus. Navy programs were excluded from these analyses because their practice settings are different from civilian programs, and graduates of military residencies do not choose their future practice sites as graduates of civilian programs do.

All LoTP programs obtained Institutional Review Board (IRB) approval at their own training sites, and the evaluation team at Oregon Health & Science University (OHSU) was granted an educational exemption for evaluation activities (IRB # 9770).

### Instrument Development and Data Collection

The LoTP graduate survey was a 160-item survey specifically designed to assess several domains, including demographic and complete training information (10 items), clinical practice characteristics (13 items), career satisfaction (3 items), care delivery features (eg, key patient-centered medical home [PCMH] features; 29 items), scope of practice (20 items), adequacy of family medicine training in the care of children and adults (39 items), and procedural scope of practice (46 items). This survey was developed by the OHSU Evaluation

Team, reviewed by the LoTP Executive Committee for content and face validity, and then pilot tested using cognitive interview techniques.<sup>16</sup> Thirty-two items from this survey were used to assess practice setting and clinical care features reported here. For this analysis, we chose six care features that represent contemporary components of primary care practices that support optimal PCMH functions: integrated behavioral health,<sup>17</sup> interprofessional collaborative practice,<sup>18</sup> team-based care,<sup>19</sup> risk-stratified care management,<sup>20</sup> integration with public health,<sup>21</sup> and systems to handle transitions of care.<sup>22</sup>

The survey was administered 1 year postgraduation for residents of both 3YR and 4YR programs who graduated in 2013 through 2021. Annual response rates for the survey 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). Thus, three groups of graduates were included in our analysis: (a) graduates of 3YR programs; (b) all graduates of 4YR programs (4YR-ALL); and (c) graduates of 4YR programs—only those completing 48 months of training (4YR-48). To stay consistent with both our study design and previously conducted core analyses,<sup>12</sup> we took all three groups into consideration as described next.

### Data Analyses

To explore differences between 3YR and 4YR program graduates, we used two approaches. First, we conducted an intention-to-treat analysis<sup>23</sup> by comparing 3YR program graduates to all graduates of 4YR programs (combining those who completed 36 months and those who completed 48 months of residency). Second, we used an as-treated analysis in which graduates of 3YR programs were compared to the 4YR program graduates who completed 48 months of training.<sup>24</sup> In terms of practice setting and PCMH features, we first used counts and percentages to summarize survey responses. For PCMH feature implementation data, we collapsed the original categories of “present/implemented (major upgrades likely)” and “mature (full function/upgrades minor).”

We used descriptive statistics to characterize graduates' demographic information, including mean and standard deviation as well as counts and percentages. When comparing the study groups, we assessed categorical variables using Fisher's exact test or  $\chi^2$  test and assessed continuous variables using independent samples t test with unequal variances. Then, we used  $\chi^2$  tests and derived the reported *P* values to examine differences in responses for both practice setting and clinical care features after graduation. We performed analyses using R software version 4.1.1 (R Foundation). All statistical tests were two-sided with  $\alpha$  set at 0.05 to determine statistical significance.

## RESULTS

### Practices of 3YR Versus 4YR-ALL Graduates (Intention-to-Treat Analysis)

We found graduates of 4YR-ALL were more likely to be male (43% vs 34%,  $P=.015$ ); otherwise, the two groups were similar in terms of age, race, and medical school status (Table 1). Graduates of 4YR programs reported completing or enrolling in a fellowship at a higher rate than 3YR graduates (26% vs 18%,  $P=.010$ ). Scope of practice was more commonly chosen as a reason for selecting the practice posttraining among 4YR-ALL graduates compared to 3YR graduates, (68% vs 61%,  $P=.029$ ); otherwise, the two groups were similar in what influenced practice choice (Appendix Table A).

No differences were detected when comparing 3YR and 4YR-ALL graduates for community size, practice type, practice size, physician specialty mix, and practicing in a federally designated underserved site. Graduates of 4YR-ALL were more likely to report intending to stay longer than 5 years in their selected practice compared to 3YR program graduates (48% vs 36%,  $P=.009$ ).

Compared to the 4YR-ALL graduates, the 3YR graduates were slightly more likely to choose practices with integrated behavioral health (67% vs 60%,  $P=.04$ ); otherwise, the practices of the groups were similar in the presence of selected clinical care features (Table 2).

### Practices of 3YR versus 4YR-48 Graduates (As-Treated Analysis)

Graduates completing 4 years of training were more likely to report having completed or enrolled in a fellowship (30% vs 18%,  $P<.001$ ), and a higher percentage attended a US medical school (90% vs 83%,  $P=.032$ ); otherwise, the two groups were similar in terms of age, gender, and race (Table 1). Of the 75 4YR-48 graduates who reported doing a fellowship, 56 (71%) were from one of the optional 4YR programs.

Scope of practice was the top reason for selecting a practice among the 4YR-48 graduates and differed significantly from the 3YR graduates (74% vs 61%,  $P=.001$ ; Appendix Table A). Additionally, 4YR-48 graduates were less likely to report salary as a reason for selecting the practice (15% vs 24%,  $P=.028$ ).

We found no differences between the groups for community size, practice type, practice size, physician specialty mix, practice in a federally designated underserved site, or length of time intending to stay in the practice. The percentage of 3YR and 4YR-48 graduates practicing in either a federally qualified health center or rural health clinic exceeded the average from the American Board of Family Medicine 2021 National Graduate Survey representing 2018 residency graduates (3YR=29%, 4YR-48=26%; national=15%).<sup>25</sup>

We found no differences in the presence of clinical care practice features among 3YR and 4YR-48 graduates, and most graduates in both groups chose practices with selected clinical care features (Table 2).

## DISCUSSION

The analyses we conducted on practice setting choices for the family medicine residents in the LoTP revealed few potential

differences among graduates who completed 3 years versus 4 years of training. Length of training did not appear to affect practice size, practice type, specialty mix, community size, or underserved status in the practices of graduates of LoTP programs.

The 4YR-48 graduates were more likely to have reported completing or being enrolled in a fellowship. However, for most of those trained in a single optional 4-year program, a fellowship appeared to be overly influencing these results. In this program, the fourth year of training includes fellowships accredited by the Accreditation Council for Graduate Medical Education (ACGME) along with fellowship equivalent experiences such as advanced obstetrics.

In both groups, location, scope of practice, and patient population were the top three reasons for selecting a practice. Scope of practice appeared to be a more predominant reason for choosing their first posttraining practice among graduates who completed 4 years of residency. Possibly, residents who desire to practice a broader scope of family medicine choose to train in a program with enhanced clinical experiences that require a longer training period. Whether the additional year of training leads to a more comprehensive practice scope will be a specific focus of a future planned paper from the LoTP.

We initially were surprised to find that salary appeared to be a less likely reason for choosing their eventual practice for 4YR compared to 3YR graduates, the latter of whom reported salary being more important. However, our prior LoTP study of the financial considerations associated with a fourth year of training found no differences in student loan debt, enrollment in loan repayment programs, and pretax income when comparing graduates in 3YR versus 4YR programs.<sup>14</sup> In that study, interviews with 4YR program residents revealed that nonmonetary benefits of additional training (eg, enhanced skills and confidence), a higher resident salary in the fourth year, and delay in loan repayment were positive considerations regarding finances. Perhaps these same considerations explain why salary was less of a reason for practice choice for 4YR graduates who had already agreed to a fourth year of training at a resident salary.

Length of training did not appear to influence clinical care delivery features. Current ACGME family medicine program requirements state that residents must work on interprofessional teams and have experience in integrated behavioral health care in their continuity clinic.<sup>26</sup> Likely, residents in both groups had ample exposure to these features. Notably, more than 60% of graduates of both 3YR and 4YR programs chose practices with a defined relationship and communication mechanism with their local health department, an important feature given the recent public health challenges of the COVID-19 pandemic.

Residency training characteristics other than length, such as residency location or rural experiences during training, can affect resident practice choice.<sup>4,8</sup> That we found no differences in practice setting between 3 years and 4 years of training is perhaps reassuring. In our study, the 4YR graduates were

**TABLE 1.** Characteristics of Graduates

Characteristic	Graduates of 3YR programs (3YR) <sup>a</sup>	Graduates of 4YR programs (4YR-All) <sup>b</sup>	Graduates of 4YR programs–48 months of training (4YR-48) <sup>c</sup>	3YR vs 4YR-All	3YR vs 4YR-48
	n=366n (%)	n=434n (%)	n=253n (%)	P value	P value
Mean age in years (SD)	33.3 (3.9)	33.8 (3.7)	33.7 (2.9)	.051	.185
<b>Gender identity</b>				<b>.015</b>	<b>.159</b>
Male	126 (34.4)	187 (43.1)	102 (40.3)		
Female	240 (65.6)	247 (56.9)	151 (59.7)		
<b>Race/ethnicity</b>				<b>.478</b>	<b>.940</b>
Non-Hispanic White	242 (66.1)	301 (69.4)	172 (68.0)		
Hispanic	21 (5.7)	33 (7.6)	16 (6.3)		
Non-Hispanic Black	15 (4.1)	16 (3.7)	10 (4.0)		
Non-Hispanic Asian or PI	62 (16.9)	59 (13.6)	41 (16.2)		
Non-Hispanic AI/AN	-	1 (0.2)	-		
Other/multiracial	26 (7.1)	24 (5.5)	14 (5.5)		
<b>Currently enrolled or completed fellowship</b>				<b>.010</b>	<b>&lt;.001</b>
Yes	65 (17.8)	111 (25.6)	75 (29.6)		
No	297 (81.1)	321 (74.0)	177 (70.0)		
Missing	4 (1.1)	2 (0.5)	1 (0.4)		
<b>US medical school graduate</b>				<b>.079</b>	<b>.032</b>
Yes	251 (83.3)	330 (88.2)	215 (90.0)		
No	50 (16.6)	44 (11.8)	24 (10.0)		

<sup>a</sup>36 months of training in a 3YR program<sup>b</sup>36 or 48 months of training in a 4YR program<sup>c</sup>48 months of training in a 4YR program

Abbreviations: SD, standard deviation; PI, Pacific Islander; AI, American Indian; AN, Alaska Native

**TABLE 2.** Clinical Care Delivery Features

Feature * (feature present or mature in practice)	Graduates of 3YR programs	Graduates of 4YR programs (4YR-All)	Graduates of 4YR programs–48 months of training	3YR vs 4YR-All	3YR vs 4YR-48
	n=366n (%)	n=434 n (%)	n=253n (%)	P value	P value
Interprofessional collaborative practice	281 (76.8)	321 (74.0)	201 (79.4)	.231	.521
Team-based care	258 (70.5)	291 (67.0)	181 (71.5)	.205	.913
Integrated behavioral health	244 (66.7)	262 (60.4)	163 (64.4)	<b>.040</b>	<b>.547</b>
Risk stratified care management	181 (49.5)	205 (47.2)	128 (50.6)	.471	.886
System to handle transitions of care	257 (70.2)	303 (69.8)	179 (70.8)	.764	1.000
Defined relationship and communication mechanism with local health department	233 (63.7)	267 (61.5)	156 (61.7)	.435	.603

\*Definitions included on survey:

Interprofessional collaborative practice: When multiple health workers from different professional backgrounds (eg, RN, pharmacist, nutritionist) work together with patients, families, caregivers, and communities to deliver the highest quality of care

Team-based care: Care delivered by intentionally created, usually relatively small, work groups in health care, who are recognized by others as well as by themselves as having a collective identity and shared responsibility for a patient or group of patients

Integrated behavioral health: Care that results from practice team of primary care and behavioral health clinicians, working together with patients and families, using systematic and cost-effective approach to provide patient-centered care for a defined population. This care may address mental health and substance abuse conditions, health behaviors, life stressors and crises, stress-related physical symptoms, and ineffective patterns of health care utilization.

Risk stratified care management: Assign and adjust care according to chance patients will get disease; use care pathways matched with chance patient will get disease.

choosing a similar variety of practices compared to their 3YR counterparts, which should allay concerns that 4YR graduates would preferentially choose academic positions or large group practices. The fact that primary care physicians based in rural areas provide a broader range of clinical services compared to their urban counterparts is well-documented.<sup>27</sup> Possibly that additional year of residency may lead to a more comprehensive scope of practice, and graduates with an expanded scope may be more likely to choose practice in a rural community. However, in these analyses, we found that LoTP graduates with 4 years of training were not more likely to choose practice in a small community. Notably, approximately one-third of graduates in both 3YR and 4YR programs appeared to be practicing in a federally designated underserved setting, which may be an artifact of the selected programs. Future analyses in the LoTP will address the influence of length of training on practice scope, which may provide additional insights about practice choice.

A strength of our study is the high response rates we achieved on our surveys, leading to a dataset of 800 family medicine residency graduates for inclusion in robust analyses. Also, our core surveys captured a depth of information that allowed us to look at several outcomes. However, the graduates in this pilot study hailed from only 13 programs, an important limitation affecting generalizability typical of an exploratory study. In the LoTP study, we matched the 3YR programs to the 4YR programs for size, geographic location, and clinic setting; thus, the two groups were similar in these characteristics that might have otherwise influenced practice choice.

Another limitation affecting generalizability was that the LoTP programs have a lower percentage of IMG's compared to that found in all family medicine residencies,<sup>11</sup> which could have influenced our results if this particular group had unique characteristics that influenced posttraining practice choice. We also note that graduates were surveyed only 1 year after completion of training. Given the mobility of residency graduates in their first years of practice, their ultimate long-term practice location possibly may change over time. In fact, about one-quarter of graduates in 3YR and 4YR programs planned to stay 2 years or less in their current practice. Also important to note is that, by design, the LoTP is a pilot or exploratory study and was never sufficiently powered to fully test its hypotheses. Because of this and other design features, such as the infeasibility of randomly assigning residents to 3 versus 4 years of training, we were not able to use causal language when conveying our study findings. To do so would have overstated our findings. We do hope that these analyses will provide a foundation for larger more discriminating future studies. For example, the effect sizes found in the LoTP could inform power calculations for a larger future study.

## CONCLUSIONS

This study adds to findings of the Length of Training Pilot to inform discussions of optimal family medicine residency training models. Within the LoTP programs, extending training to a fourth year did not appear to influence practice setting or

practice features when compared to 3 years of residency. Future analyses in the LoTP will examine the influence of length of training on scope of practice and clinical preparedness, which may shed additional light on other elements associated with practice choice.

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