

## ORIGINAL RESEARCH

# Variation in Practice Patterns of Early- and Later-Career Family Physicians

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**Introduction:** Understanding how physicians' practice patterns change over a career is important for workforce and medical education planning. This study examined trends in self-reported practice activity among early- and later-career stage family physicians (FPs).

**Methods:** Data on early career FPs came from the American Board of Family Medicine's National Graduate Survey (NGS) and on later career FPs from its Continuous Certification Questionnaire (CCQ). Both cohorts could complete the Practice Demographic Survey (PDS) 3 years later. Longitudinal cohorts were from 2016 to 2019 and 2017 to 2020, respectively. All surveys included identical items on scope of practice, practice type, organization, and location. We characterized physicians as outpatient continuity only, outpatient and inpatient care (mixed practice), and no outpatient continuity (for example, hospitalist). We conducted repeated cross-sectional and longitudinal analysis of practice type.

**Results:** Our sample included 8,492 NGS and 30,491 CCQ FPs. In both groups, the vast majority provided outpatient continuity of care (77% to 81%). Approximately 25% of NGS had a mixed practice compared with approximately 16% of the CCQ group. The percent of FPs who had a mixed practice declined in both groups (34.21% to 27.10% and 23.88% to 19.33%). In both groups, physicians with higher odds of leaving mixed practice were in metropolitan counties or changed practice types.

**Conclusion:** Although early-career FPs more frequently reported providing both inpatient and outpatient care and serving as hospitalists compared with later-career FPs, both groups had a decline in frequency of providing mixed practice. This change after only 3 years in practice has significant implications for patient care and medical education. (J Am Board Fam Med 2023;00:000–000.)

**Keywords:** Career Choice, Family Medicine, Family Physicians, Inpatients, Scope of Practice

## Introduction

Primary care physicians and their practices represent the largest and mostly widely distributed platform for health care delivery, and among them, family physicians (FPs) are the most plentiful and are more evenly distributed.<sup>1</sup> Previous studies have noted the changing practice of FPs.<sup>1–6</sup> Among these

changes, declines in care of patients in both hospital and outpatient continuity settings have occurred, whereas the proportional loss of FPs from continuous primary care relationships with patients into pure hospitalist practice has been rising. This change is not exclusively a US phenomenon, as a study of several hundred FPs in Canada from 1974 to 1994 found that fewer physicians reported inpatient care (62.6% to 17.2%), made home visits (11.4% to 4.1%), and delivered babies (76.6% to 33.5%).<sup>7</sup> Although about one-half of FPs responding to a more recent survey indicated that they provided some type of inpatient care in 2014 (n = 93, 37.3% response rate), the care was largely supportive (71.7%) and few (3.2%) provided total care

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where the FP was the most responsible physician.<sup>8</sup> Providing inpatient care was reported by about 33% of practicing FPs in the US in 2014.<sup>6</sup> The proportion of FPs reporting inpatient care decreased by 26% between 2013 and 2017, leaving approximately 1 in 4 of FPs in the US practicing any inpatient medicine in 2017.<sup>9</sup>

Similar transitions in practice setting have recently been found among general internists.<sup>10</sup> Of the 67,902 general internists included in this study from 2008 to 2018, both hospitalists and outpatient-only physicians increased as percentages of general internists (25% to 40% and 23% to 38%, respectively). This change was accompanied by a 56% decrease in the percentage of mixed-practice (both outpatient and inpatient care) physicians (52% to 23%) as these physicians largely migrated to outpatient-only practice. In addition, newly certified general internists are largely choosing to work as hospitalists whereas more senior physicians increasingly only practice in the outpatient setting.

Based on the previously mentioned studies, practice settings for primary care physicians change both over time and during the professional career of individual physicians. Understanding the changes in physicians' practice patterns over their career is important to guide graduate medical education requirement revisions, streamline continuing medical education opportunities and requirements, workforce projections and policy planning. As such, our study cross-sectionally examined the current trend of different types of practice in early- and later-career stage FPs, respectively, including outpatient continuity care, inpatient care, as well as mixed practice. We also longitudinally examined over a 3-year period the change of practice type and described the association between geographical move and continuing mix practice in early- and later-career stage groups as to assess the time frame of any changes.

## Methods

### Data Sources

Data were collected by the American Board of Family Medicine (ABFM) at different time points across FPs' careers. For early-career stage FPs, National Graduate Survey (NGS) is a nonmandatory survey administered to all ABFM certified Diplomates 3 years after graduation from residency training.<sup>11,12</sup> For later-career stage FPs, the Continuous Certification Questionnaire (CCQ) is a

mandatory component of examination registration and is completed 3 to 4 months before the continuing certification examination. ABFM Diplomates generally take the examination at 10-year intervals after initial certification.<sup>13</sup> The ABFM administers the Practice Demographic Survey (PDS) to all Diplomates, except those receiving the NGS, in the last year of a 3-year certification stage. Using unique ABFM identification numbers, we are able to link NGS and CCQ with PDS data from 3 years later for longitudinal evaluation of individual FPs practices.

All instruments included identical items on scope of practice, practice organization, practice location, and practice site. Specific practice sites were grouped and included Academic health center/Faculty practice; Federal/Federally qualified health center or look-alike/Government clinic, nonfederal/Indian health service, Rural health clinic (federally qualified); Hospital/Health system owned medical practice/managed care/HMO practice; and Independently-owned medical practice.

In each instrument, FPs are asked if they provide primarily outpatient continuity care. If they do not, they are asked in what setting they work, including hospitalist, urgent care, and emergency medicine. For physicians who primarily provide outpatient continuity care, they are asked if they also provide inpatient care. Practice location was geocoded and linked to county level Rural Urban Continuum Codes to define metropolitan, micropolitan, and noncore nonmetropolitan practice setting.<sup>14</sup> Demographic information was obtained from ABFM administrative data.

We defined the specific practice type of FPs as follows from the survey items:

1. Primarily practiced outpatient continuity care.
2. Outpatient continuity care and routinely saw patients in hospital were defined as providing mixed practice.
3. No outpatient continuity care, described their principle professional activity as either emergency medicine, urgent care, hospitalist, and other (which included sport medicine, geriatrics, sleep medicine, hospice/palliative care).

All questions were self-report measuring by binary variable "yes" or "no" in NGS, CCQ, and PDS.

### Study Cohort and Design

For all analyses we excluded physicians who did not provide direct patient care and those living outside

**Table 1. Demographic Characteristics in National Graduate Survey (NGS) Group and Continuous Certification Questionnaire (CCQ) Group from 2017 to 2020 (Cross-Sectional)**

	NGS Group (n = 8,492)	CCQ Group (n = 30,491)
Respondents		
2017	2,127 (25.05%)	9,559 (31.35%)
2018	2,230 (26.26%)	8,666 (28.42%)
2019	2,472 (29.11%)	8,473 (27.79%)
2020*	1,663 (19.58%)	3,793 (12.44%)
Age, Mean (SD)		
2017	35.40 (4.49)	51.15 (8.98)
2018	35.35 (4.47)	51.46 (9.01)
2019	35.14 (4.15)	51.76 (9.25)
2020	35.00 (3.99)	46.86 (9.56)
Gender		
Female	4,750 (55.93%)	13,307 (43.64%)
Male	3,742 (44.07%)	17,184 (56.36%)
Degree type		
DO	1,620 (19.08%)	3,173 (10.41%)
MD	6,872 (80.92%)	27,318 (89.59%)
International Medical Graduate		
Yes	2,708 (31.89%)	7,214 (24.03%)
No	5,784 (68.11%)	2,2802 (75.97%)
Rurality		
Metropolitan	6,928 (84.62%)	25,668 (85.01%)
Micropolitan	732 (8.94%)	2,692 (8.92%)
Non-core non-metropolitan	527 (6.44%)	1,833 (6.07%)
Missing	305 (3.60%)	298 (0.98%)

\*Sample sizes are smaller for the 2020 CCQ due to programmatic changes the ABFM made in 2010 that allowed physicians to delay their examination by 3 years.

Abbreviation: SD, standard deviation.

the United States. Chi-square tests were conducted for categorical variables in 2 groups. *t* test was used to examine differences in continuous variables such as age of respondents. Statistical significance is defined as  $P < .05$  level of confidence.

### Cross-Sectional Design

We used data from the NGS and CCQ from 2017 to 2020. Demographic information, including survey year, age, gender, degree type, international medical graduate and rurality was summarized for each year. We calculated the number and the percentage of FPs in each practice type group from 2017 to 2020. Sample sizes are smaller for the 2020 CCQ due to programmatic changes the ABFM made in 2010 that

allowed physicians to delay their examination by 3 years. This reduced the number of examinees in this year compared with prior years as nearly three-fourths of eligible physicians earned a 3-year extension.

### Longitudinal Design

Our longitudinal cohorts consisted of early-career stage group including FPs who took NGS in 2016 or 2017 and later-career stage group who took completed the CCQ in 2017. We included FPs who answered practice type questions both at baseline (NGS and CCQ) and 3 years later (PDS). Specifically, we linked the 2016 NGS and 2019 PDS, the 2017 NGS and 2020 PDS, the 2017 CCQ and 2020 PDS. The numbers of each practice type were calculated at baseline and 3 years after. We also described the change of

**Table 2. Cross-Sectional Trends in Primary Practice in National Graduate Survey (NGS) Group and Continuous Certification Questionnaire (CCQ) Group from 2017 to 2020 for Respondents Doing Direct Patient Care**

	NGS Group (n = 8,492)	CCQ Group (n = 30,491)
Outpatient continuity care		
Yes		
2017	1,726 (81.15%)	7,580 (79.30%)
2018	1,801 (80.76%)	6,768 (78.10%)
2019	2,013 (81.43%)	6,646 (78.44%)
2020	1,347 (81.00%)	2,951 (77.80%)
Hospitalist		
2017	191 (8.98%)	355 (3.71%)
2018	203 (9.10%)	299 (3.45%)
2019	211 (8.54%)	344 (4.06%)
2020	145 (8.72%)	234 (6.17%)
Emergency medicine		
2017	52 (2.44%)	481 (5.03%)
2018	69 (3.09%)	472 (5.45%)
2019	82 (3.32%)	403 (4.76%)
2020	49 (2.95%)	161 (4.24%)
Urgent care		
2017	99 (4.65%)	554 (5.80%)
2018	100 (4.48%)	559 (6.45%)
2019	99 (4.00%)	531 (6.27%)
2020	66 (3.97%)	244 (6.43%)
Outpatient continuity care and hospitalist mixed care		
2017	545 (25.62%)	1,677 (17.54%)
2018	562 (25.20%)	1,374 (15.86%)
2019	618 (25.00%)	1,327 (15.66%)
2020	415 (24.95%)	545 (14.37%)

**Table 3. Demographic Characteristics for Longitudinal Cohorts from National Graduate Survey (NGS) to Practice Demographic Survey (PDS) and Continuous Certification Questionnaire (CCQ) to Practice Demographic Survey (PDS)**

	NGS Group (n = 2057)	CCQ Group (n = 2320)	<i>p</i>
Respondents			
2016	1307	NA	
2017	750	2,320	
Age, Mean (SD)			
2016	35.23 (4.20)	NA	<0.0001
2017	35.09 (4.52)	50.88 (8.35)	
Gender			
Female	1,138 (55.32%)	1,012 (43.62%)	<0.0001
Male	919 (44.68%)	1,308 (56.38%)	
Degree type			
DO	296 (14.39%)	234 (10.09%)	<0.0001
MD	1,761 (85.61%)	2,086 (89.91%)	
International Medical Graduate			
Yes	650 (31.60%)	317 (13.98%)	<0.0001
No	1,407 (68.40%)	1,951 (86.02%)	
Rurality			
Metropolitan	1,668 (83.86%)	1,936 (84.25%)	0.996
Micropolitan	184 (9.25%)	212 (9.23%)	
Non-core non-metropolitan	137 (6.89%)	150 (6.53%)	

Abbreviation: SD, standard deviation.

practice type after 3 years in both groups using the definition described previously. We conducted a logistic regression analysis among the group who were in mixed practice at first measurement and determined the adjusted association for stopping mixed practice with demographic

characteristics, rurality, and whether the physician moved.

As changes in providing hospital care may be due to changing practice sites, we conducted an analysis restricted to FPs with mixed practice who did not geographically move (<5 miles) and were in the same practice type at time 1 and 2. For this group, we described the number and the percentage who continued or stopped mixed practice compared with baseline for each practice site category.

The American Academy of Family Physicians Institutional Review Board approved this study. SAS Version 9.4 (Cary, NC) was used for all analyses.

## Results

The overall response rates for the NGS and CCQ groups were 63.9% and 100%, respectively. The average age, gender, degree type, and international medical graduate status between these 2 groups were significantly different (Table 1). Although the rurality of practice sites was similar between the groups, the NGS group were younger in age and had a higher percentage of female and osteopathic FPs ( $P < .001$ ).

A vast majority of both groups provide outpatient continuity of care (Table 2). Although the NGS group had higher percentage of FPs working as hospitalists, the CCQ group had a higher percentage of FPs providing emergency medicine and urgent care. A lower percentage of CCQ group were providing mixed practice as compared with NGS group. Approximately 25% of NGS were providing both continuity care and hospitalist mixed care compared with approximately 16% of the CCQ group.

**Table 4. Practice Types at Baseline and 3 Years Later from National Graduate Survey (NGS) Linked to Practice Demographic Survey (PDS) and Continuous Certification Questionnaire (CCQ) Linked to Practice Demographic Survey (PDS)**

	NGS (2016, 2017)	PDS (2019, 2020)	<i>p</i>	CCQ (2017)	PDS (2020)	<i>p</i>
Outpatient continuity care						
Yes	1,678 (81.58%)	1,631 (79.29%)	0.036	1,826 (78.71%)	1,816 (78.28%)	0.721
No	379 (18.42%)	426 (20.71%)		494 (21.29%)	504 (21.72%)	
Hospitalist	180 (8.75%)	178 (8.65%)	0.648	65 (2.80%)	65 (2.80%)	0.867
Emergency medicine	53 (2.58%)	57 (2.77%)		123 (5.30%)	117 (5.04%)	
Urgent care	88 (4.28%)	103 (5.01%)		157 (6.77%)	141 (6.08%)	
Mixed practice						
Yes	574 (34.21%)	442 (27.10%)	<0.001	436 (23.88%)	351 (19.33%)	0.001
No	1,101 (65.61%)	1,188 (72.84%)		1,390 (76.12%)	1,461 (80.45%)	



**Table 5. Respondents Reporting No Change of Practice Type after 3 Years from National Graduate Survey (NGS) Linked to Practice Demographic Survey (PDS) and Continuous Certification Questionnaire (CCQ) Linked to Practice Demographic Survey (PDS)**

	NGS Group (2016, 2017)	CCQ Group (2017)	<i>p</i>
Outpatient continuity care	1,550 (92.37%)	1,702 (93.21%)	<0.0001
Hospitalist	149 (82.77%)	51 (78.46%)	
Emergency medicine	42 (79.25%)	102 (82.93%)	
Urgent care	60 (75.00%)	93 (59.24%)	
Mixed			0.0315
No change	366 (63.76%)	281 (64.45%)	
Only outpatient continuity care	166 (28.92%)	129 (29.59%)	
Emergency medicine	5 (0.87%)	4 (0.92%)	
Hospitalist	21 (3.66%)	3 (0.69%)	
Urgent care	5 (0.87%)	5 (1.15%)	
Others	11 (1.92%)	13 (2.75%)	

We were able to link 26.6% of the NGS and 7.6% of the CCQ groups to PDS responses 3 years later for longitudinal analyses (Table 3). Comparing to the overall cohort, the longitudinal NGS group had fewer DOs (19% vs 14%) and the CCQ group has fewer IMGs (24% vs 14%). In both groups, a significant reduction in the percent of FPs providing mixed practice occurred (34.21% to 27.10% and 23.88% to 19.33%, respectively) over 3 years was present (Table 4). During the same period, the percentage of FPs serving as hospitalists, emergency medicine and urgent care physicians was unchanged.

After 3 years between either the NGS or CCQ and PDS, approximately 90% of outpatient continuity of care FPs and 64% mixed practice FPs maintained practice type (Table 5). For FPs reporting no change in practice type (all respondents and those reporting a mixed practice), the changes in practice

type were significantly different between the NGS and CCQ groups. Changes in practice type may be impacted by geographic movement as FPs who move are significantly more likely to change practice site and less likely to continue mix practice (Table 6). FPs in an academic or governmental practice are significantly more likely to continue mix practice compared with FPs in a hospital or health care system (Table 7). Based on regression analyses, characteristics with higher odds of stopping mixed practice included male gender (CCQ group), US/Canadian medical school graduate (NGS group), practicing in a metropolitan area and moving practice location (both groups) (Table 8).

## Discussion

Using unique, high to 100% response rate survey data on US FPs at different career stages, we found

**Table 6. The Number and Percentage of Family Physicians Who Stay in the Same or Change Type of Practice Site by Geographic Movement**

	Not Move	Move	<i>p</i>
NGS Group			
Same practice site	778 (79.07%)	268 (44.22%)	<0.0001
Different practice site	206 (20.93%)	338 (55.78%)	
Continue mix practice	270 (79.41%)	87 (50%)	<0.0001
Initial mix practice	340	174	
CCQ Group			
Same practice sites	658 (81.03%)	146 (52.33%)	<0.0001
Different practice sites	154 (18.97%)	133 (47.67%)	
Continue mix practice	142 (77.60%)	22 (50%)	0.0002
Initial mix practice	183	44	

*Abbreviations:* NGS, national graduate survey; CCQ, continuous certification questionnaire.

**Table 7. Distribution of Specific Practice Site and Providing Mixed Practice Among Family Physicians Who Did Not Geographically Move More Than 3 Years**

	NGS Group Did Not Move and at the Same Practice Site			CCQ Group Did Not Move and at the Same Practice Site		
	Mixed Practice					
	Continued	Stopped	<i>p</i>	Continued	Stopped	<i>p</i>
Academic health center/Faculty practice	57 (26.89%)	9 (16.98%)	0.003	25 (21.74%)	2 (6.25%)	0.029
Federal/Federally Qualified Health Center or Look-Alike/Government clinic, non-federal/Indian Health Service / Rural Health Clinic (federally qualified)	58 (27.36%)	7 (13.21%)		22 (10.43%)	4 (9.38%)	
Hospital/Health system owned medical practice/Managed care/HMO practice	54 (25.47%)	27 (50.94%)		33 (25.22%)	8 (21.88%)	
Independently-owned medical practice	43 (20.28%)	10 (18.87%)		34 (29.54%)	18 (56.25%)	

*Abbreviations:* NGS, national graduate survey; CCQ, continuous certification questionnaire; HMO, health maintenance organization.

that later-career FPs reported less hospitalist and mixed inpatient-outpatient practice and more outpatient only continuity care than their early-career FP peers. These findings affirm previously documented growth in hospitalist practice among primary care graduates, whereas offering novel insight into mixed practice among a newer generation of FPs.<sup>1-6</sup>

**Table 8. Adjusted Associations with Stopping Mixed Practice More Than 3 Years**

	NGS Group (n = 574)	CCQ Group (n = 436)
Age		
Age >38 vs <38	0.57 (0.30-1.09)	-
Age 50 to 60 vs <50	-	1.03 (0.61-1.74)
Age >60 vs <50	-	1.15 (0.62-2.16)
Gender		
Male	0.87 (0.57-1.31)	1.63 (1.01-2.65)
Female	Ref	Ref
Degree type		
MD	0.64 (0.35-1.16)	1.73 (0.70-4.29)
DO	Ref	Ref
International medical graduate		
US/Canada	2.40 (1.42-4.08)	0.80 (0.41-1.57)
IMG	Ref	Ref
Rurality		
Metropolitan	2.31 (1.42-3.77)	2.67 (1.46-4.87)
Non-metropolitan	Ref	Ref
Moved practice location		
Yes	4.32 (2.84-6.57)	3.40 (1.93-5.96)
No	Ref	Ref

*Abbreviations:* NGS, national graduate survey; CCQ, continuous certification questionnaire; IMG, international medical graduates.

Understanding patterns of primary care delivery across a career span has clear implications for workforce and training planning and policy. Graham Center projections of a 52,000 primary care physician deficit by 2025 were only partially addressed by recent residency expansion, and the Association of American Medical Colleges (AAMC) continues to project a shortage of as many as 48,000 primary care physicians by 2034.<sup>15</sup> Further loss of FP outputs to nonprimary care settings such as hospitalist care only compounds efforts to mitigate this problem. Given documented declines in comprehensiveness of care among FPs in continuity and in the ability to identify an individual usual source of care in the US, higher levels of early-career mixed practice relative to later-career practice could be viewed as encouraging.<sup>16,17</sup> However, the mixed-practice group constituted only one-quarter of early-career respondents. More study is needed to know whether the lower levels of mixed practice reflect generational differences in practice or a cross-sectional representation of change in practice behaviors between early- and later-care in typical FPs.

As noted in other studies, many factors influence choice of practice setting and style among FPs in the US. Among reasons for not providing inpatient care reported by recent FP graduates, lifestyle (63%), “not interested” (56%), and “not available in the practice I joined” (47%) were most cited.<sup>18</sup> Broader health care landscape, local and person factors as well as workplace, environmental and population factors influence FPs choice of practice pattern.<sup>19,20</sup> In studies of the choice of a

hospitalist career the authors identified 3 broad categories: physician related, system related, and patient related.<sup>21</sup> These factors may be influencing the differences in practice settings between early- and later-career FPs found in this study.

In terms of physician related factors, many FPs are altering and limiting their practice settings at several points in their career despite a broader scope of practice being associated with decreased burnout, lower costs, and odds of hospitalization in Medicare patients.<sup>22</sup> These 2 findings are in conflict and require additional study.

Finally, our findings provide useful information to guide requirements for residency training in family medicine and assist in focusing continuing medical education efforts. In general, our results further support the recommendation that improved concordance of medical education requirements with actual practice of physicians is needed to align training with the core activities and services that are provided by practicing FPs.<sup>23</sup> As significant changes in practice patterns occur within only 3 year of residency training completion, current residency requirements seem not aligned with actual practice patterns and revisions are urgently needed.

Our study is subject to limitations. First, our sample is only of ABFM certified FPs and although approximately 85% of FPs are ABFM certified, we cannot comment on whether our findings are generalizable to noncertified physicians.<sup>24</sup> Second, data are subject to the biases and limitations of self-report absent further validation. However, the general trends are similar to those reported from Medicare claims data.<sup>10</sup> Third, we were able to link only 26.6% of the NGS and 7.6% of the CCQ groups to PDS responses 3 years later for longitudinal analyses with small differences in some characteristics among this group compared with the overall population. A higher frequency of linking results may have impacted results.

In conclusion, later-career FPs reported less hospitalist and mixed inpatient-outpatient practice and more outpatient only continuity care than early-career FPs. Whether this difference is a general change or the natural progression in the career of an FP is not clear. This difference was associated with physicians who geographically moved and had differing specific practice sites. Although this study did not examine underlying factors for this variation in practice, understanding the drivers of these changes is needed to further inform

and guide training requirements and workforce planning.

To see this article online, please go to: <http://jabfm.org/content/00/00/000.full>.

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