Primary Care Practice Transformation Introduces Different Staff Roles

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ABSTRACT

PURPOSE Practices in the 4-year Comprehensive Primary Care (CPC) initiative changed staffing patterns during 2012-2016 to improve care delivery. We sought to characterize these changes and to compare practice patterns with those in similar non-CPC practices in 2016.

METHODS We conducted an online survey among selected US primary care practices. We statistically tested 2012-2016 changes in practice-reported staff composition among 461 CPC practices using 2-tailed t tests. Using logistic regression analysis, we compared differences in staff types between the CPC practices and 358 comparison practices that participated in the survey in 2016.

RESULTS In 2012, most CPC practices reported having physicians (100%), administrative staff (99%), and medical assistants (90%). By 2016, 84% reported having care managers/care coordinators (up from 24% in 2012), and 29% reported having behavioral health professionals, clinical psychologists, or social workers (up from 19% in 2014). There were also smaller increases (of less than 10 percentage points) in the share of practices having pharmacists, nutritionists, registered nurses, quality improvement specialists, and health educators. Larger and system-affiliated practices were more likely to report having care managers/care coordinators and behavioral health professionals. In 2016, relative to comparison practices, CPC practices were more likely to report having various staff types—notably, care managers/care coordinators (84% of CPC vs 36% of comparison practices), behavioral health professionals (29% vs 12%), and pharmacists (18% vs 4%).

CONCLUSIONS During the CPC initiative, CPC practices added different staff types to a fairly traditional staffing model of physicians with medical assistants. They most commonly added care managers/care coordinators and behavioral health staff to support the CPC model and, at the end of CPC, were more likely to have these staff members than comparison practices.

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INTRODUCTION

Payers and practices nationwide have been testing models of care delivery such as the patient-centered medical home (PCMH) to improve quality of care and reduce costs. PCMH models emphasize using care teams to provide patient-centered, coordinated care. They expect practices to provide comprehensive physical and behavioral health care, use health information technology to deliver data-driven care, expand access to care, provide patient education, and consider patients' cultural values and preferences in care.[1] To meet these expectations, practices must move away from traditional roles in which primary care physicians are the sole care clinicians, by training existing staff in expanded roles and hiring new types of staff.[1,2]

Patel et al[3] estimated that to successfully transition to a PCMH, practices would need 4.25 staff per physician full-time equivalent (FTE), emphasizing increased use of care managers, behavioral health/social workers, pharmacists, health educators, nutritionists, and data analysts. Literature on the staffing patterns of primary care practices—and how

practices actually augment their staff to adopt a PCMH model—is limited, however. Park et al[4] found that community health care centers that adopted a PCMH model were more likely than those that did not to increase various types of staff, including advanced practice staff, mental health and substance abuse professionals, medical assistants, nurse aids, staff to conduct quality assurance and electronic health record (EHR) activities, and "enabling service staff" (ie, case managers and health educators). They found no difference in staffing of primary care clinicians or nurses.

In this study, we examined how practice staffing patterns changed between 2012[5] and 2016 in 461 primary care practices participating in the Comprehensive Primary Care (CPC) initiative, and how staffing patterns differed between these CPC practices and comparison practices in 2016. We hypothesized that participating in the CPC initiative would influence practices' staffing patterns, with practices adding staff who support care management, care coordination, and quality improvement activities such as care managers and care coordinators, behavioral health staff, pharmacists, nutritionists, health educators, and data specialists.

METHODS

Participants and Setting

The Centers for Medicare & Medicaid Services (CMS) partnered with 39 private and public payers to implement CPC from October 2012 through December 2016.[6] Participating practices were required to change how they provided (1) access and continuity, (2) planned care for chronic conditions and preventive care, (3) risk-stratified care management, (4) patient and caregiver engagement, and (5) coordination of care across the medical neighborhood. To support transformation, CMS specified annual milestones and, along with other payers, provided enhanced financial payment for practices to invest in infrastructure, staffing, education, and training.[7-9] CPC aimed to improve primary care delivery, enhance health care quality and patients' experience, and lower costs. As described elsewhere, CPC provided substantial supports to practices, and practices transformed care delivery.[7-9]

CMS implemented CPC in 7 regions based on geographic diversity and the extent of payer interest. Within these regions, CMS selected 502 practices to participate in the initiative from 978 applicants.

Practices were selected based largely on use of health information technology, experience with practice transformation or a PCMH model (although PCMH recognition was not required), and the proportion of their patients covered by participating payers. Practices were diverse in terms of size, system affilia-

tion, and PCMH status. Comparison practices selected with propensity-score matching were similar to CPC practices on key characteristics (of the practice, county, and practice's attributed Medicare Fee-for-Service [FFS] beneficiaries) before the CPC initiative.[7-9]

Data Collection

Information on staff counts came from an annual survey circulated to CPC practices beginning in 2012 and to comparison practices beginning in 2014. (The comparison practices had not been selected when the first survey was administered in 2012.) The first survey was conducted October through December 2012, within the first 2 months of the start of the CPC initiative. The second survey was conducted April through July 2014, about 1.5 years into the initiative, and the third and fourth surveys were conducted April through August 2015 and 2016, 2.5 and 3.5 years into the 4-year initiative. Each survey was administered to all practices that were ever in CPC and to all CPC and comparison practices that had not closed before the survey took place.

The survey questionnaire was administered online to practice managers and was designed to be completed in 60 minutes for CPC practices and 30 minutes for comparison practices.[7] CPC practices were not compensated for responding; comparison practices and practices that had left CPC before the survey were offered $75 to $125 for responding.

Analysis

We analyzed CPC staff composition overall and for 3 sets of subgroups. We defined these sets of subgroups by (1) practice size (number of primary care physicians, nurse practitioners, and physician assistants who billed under their own National Provider Identifier when the CPC began); (2) whether the practice was affiliated with a system in 2016; and (3) whether the mean hierarchical condition category score of the practice's attributed Medicare FFS beneficiaries (a measure of risk for future medical expenditures) was above the median.[10]

We measured practice composition using practice survey responses indicating the number of full-time and part-time staff in each staff category. We did not know what percentage of time part-time staff worked on average, so we estimated that part-time staff were equivalent to 0.50 FTE and conducted a subsequent sensitivity test assuming 0.75 FTE instead. We applied weights to comparison practices that were equal to the product of a matching weight (to ensure that the set of comparison practices matched to a given CPC practice had the same combined weight as that CPC practice) and a nonresponse weight to adjust for potential bias

from nonrandom survey response (Supplemental Appendix, available at http://www.AnnFamMed.org/content/18/3/227/suppl/DC1/).[7-9]

Our testing strategy reduced the influence of multiple comparisons and used 2-tailed *t* tests and a 10% significance level. We tested changes over time among CPC practices and did not perform regression adjustment because the sample was the same over time. Within the group of CPC practices, we tested differences over time only in the 3 sets of subgroups. Although we did not formally test differences between CPC practices with and without a given subgroup characteristic (for example, those that were vs were not affiliated with a health system), we noted differences larger than 10 percentage points. To compare differences in staffing patterns between CPC and comparison practices in 2016, we used logistic regression models with recycled predictions to calculate the predicted probability of having the identified staff type. Regression analysis controlled for practice characteristics before the CPC initiative began including size; PCMH recognition; whether the practice had 1 or more meaningful EHR users; whether the practice was multispecialty; baseline characteristics of the practices' county or census tract, including whether the practice was in a medically underserved area; Medicare Advantage penetration rate; percentage of the county that was urban; median household income; and whether the practice was affiliated with a health care system in 2016.

We used data from the CPC practice survey to describe staffing during 2012-2016, and data from the following sources to describe practice characteristics before the CPC initiative began: SK&A (now OneKey), Medicare FFS claims from May 2010 through April 2012, the Health Resources and Services Administration, the National Committee for Quality Assurance, Oklahoma Sooner Care, and CMS (Supplemental Appendix Table 1, available at http://www.AnnFamMed.org/content/18/3/227/suppl/DC1/). Practices' affiliation with a health care system came from SK&A.

The New England Institutional Review Board exempted this study based on the federal common rule 45 CFR 46.101(b)(5).

RESULTS

Sample
We restricted the sample to the 461 CPC practices that responded to the 2012 and 2016 surveys (432 practices that participated in the initiative for all 4 years and 29 practices that withdrew or were terminated before it ended). Analyses were based on responses from 42% of comparison practices (358 practices), 56% of withdrawn

CPC practices, and all participating CPC practices (which were required to respond).

CPC Practice Composition Overall
In 2012, most CPC practices used traditional staffing models with physicians (100%), administrative staff (99%), and medical assistants (90%) (Table 1). About 50% reported having nurse practitioners or physician assistants, and 50% reported having licensed practical or vocational nurses. Fewer practices reported having care managers or care coordinators (24%), pharmacists (8%), or nutritionists, health educators, or community service coordinators (4%).

By 2016, CPC practices had added various types of support staff. Eighty-four percent of practices reported having care managers (up from 24% in 2012)—reflecting a CPC focus on risk-stratified care management—and 29% of practices reported having behavioral health professionals, clinical psychologists, or social workers at the practice site (up from 19% in 2014) (Table 1)—another focus. Although a relatively small percentage of practices reported having other types of staff, by 2016, there were notable increases in the percentage of practices reporting other staff at the practice site, including pharmacists (18% of practices in 2016 compared with 8% in 2012), nutritionists (13% compared with 4%), registered nurses (43% compared with 35%), health educators (9% compared with 4%), and quality improvement specialists (18% compared with 11% in 2014).

CPC Practice Composition by Characteristics
Both practices that were affiliated with a system and those that were not changed staffing during the CPC initiative. The largest increases in staffing type for both sets of CPC practices were for care managers and care coordinators (a 67–percentage point increase among system-affiliated practices, and a 56–percentage point increase among practices that were not affiliated with systems) (Supplemental Appendix Table 2, http://www.AnnFamMed.org/content/18/3/227/suppl/DC1/). Practices in a system also were likely to add the following staff types: behavioral health professionals, clinical psychologists, or social workers (an increase of 15 percentage points); registered nurses (12 percentage points); licensed practical nurses and licensed vocational nurses (11 percentage points); quality improvement specialists (9 percentage points); pharmacists (8 percentage points); nutritionists (5 percentage points); and community service coordinators (5 percentage points). Practices that were not affiliated with a system were likely to add nutritionists (increase of 12 percentage points); pharmacists (11 percentage points); behavioral health professionals, clinical psychologists, or social workers (8 percentage points); health educa-

tors (8 percentage points); and quality improvement specialists (5 percentage points).

Looking across practices with different characteristics, in 2012 and 2016, practices that were affiliated with a system were more likely than unaffiliated practices to report having behavioral health professionals, clinical psychologists, or social workers (40% vs 23% of practices in 2016); pharmacists (25% vs 14% of practices in 2016); and nurse practitioners or physician assistants who billed under their own National

Table 1. Staff Composition of CPC Practices and Comparison Practices

Staff Type	CPC Practices,[a] %				Comparison Practices in 2016, % (N = 358)	Difference CPC vs Comparison Practices in 2016[b]
	2012 (N = 461)	2014 (N = 454)	2016 (N = 460)	Change[c]		
Primary care clinicians[d]	100	100	100	0	NA	NA
Physicians	100	NA	NA	NA	NA	NA
Primary care physicians (MDs or DOs)	NA	100	99	−1	98	1
Specialty physicians	NA	12	12	0	18	−6[e]
NPs and PAs	53	NA	NA	NA	NA	NA
Do bill under own NPI	NA	44	50	5	57	−7[e]
Do not bill under own NPI	NA	21	19	−2	16	3
RNs, excluding RN care managers	35	45	43	8[e]	40	3
Nutritionists	4	11	13	9[f]	10	4
Behavioral health professionals, clinical psychologists, or social workers	NA	19	29	10[f]	12	17[f]
Health educators	4	9	9	5[f]	5	4[e]
Care managers/care coordinators who coordinate care for patients in the practice with other providers	24	85	84	60[f]	36	48[f]
Community services coordinators who link patients in the practice with available services and resources in the community	4	5	4	0	4	0
Medical assistants	90	88	90	0	87	3
LPNs/LVNs	47	50	52	5	49	3
Pharmacists	8	14	18	10[f]	4	14[f]
Practice supervisors or practice managers	NA	91	93	2	87	6[f]
Quality improvement specialists	NA	11	18	7[f]	12	6[e]
Physical or respiratory therapists	NA	3	3	0	9	−6[f]
Laboratory or radiology technicians	NA	31	33	2	38	−5
Health information technologists or EHR specialists	NA	16	18	2	11	7[f]
Administrative staff (reception, medical records, appointment, finance, etc.)	99	NA	NA	NA	NA	NA
Receptionists	NA	95	96	0	92	4[e]
Accountants or financial managers	NA	13	17	4[g]	19	−1
Staff who work in billing, coding, administrative assistance, medical records, payroll, data entry or analysis, or network administration	NA	51	53	2	56	−3
Other	NA	21	22	1	10	12[f]

CMS = Centers for Medicare & Medicaid Services; CPC = Comprehensive Primary Care; DO = Doctor of Osteopathic Medicine; EHR = electronic health record; LPN = licensed practical nurse; LVN = licensed vocational nurse; MD = Doctor of Medicine; NA = not applicable because survey did not ask about that staff type; NP = nurse practitioner; NPI = National Provider Identifier; PA = physician assistant; RN = registered nurse.

Notes: Sample is restricted to the 461 CPC practices that responded to the 2012, 2014, and 2016 surveys. Data are from CPC practice surveys administered October through December 2012, April through July 2014, and April through August 2016.

[a] Sample restricted to the 461 CPC practices that responded to each survey wave; because not all practices answered each question, sample size varies over time.

[b] Difference between CPC and comparison practices in percentage points, calculated using regression models that controlled for multiple factors and applied weights to comparison practices that were equal to the product of a matching weight and a nonresponse weight. See Methods for details.

[c] Difference between 2012 (or 2014) and 2016 in percentage points.

[d] Includes primary care physicians, nurse practitioners, and physician assistants who can bill under their own NPI as reported on roster files to CMS. Practices reported this information to CMS each month; numbers for this analysis come from the roster files reported in November of the corresponding year.

[e] Change over time was statistically different from zero at the $P = .05$ level, 2-tailed t test.

[f] Change over time was statistically different from zero at the $P = .01$ level, 2-tailed t test.

[g] Change over time was statistically different from zero at the $P = .10$ level, 2-tailed t test.

Provider Identifier (57% vs 45% of practices in 2016) (Supplemental Appendix Table 2). Note that we did not formally test these differences. The percentages of practices that reported having a care manager on site did not differ in 2012; by 2016, 90% of practices in a system compared with 80% of practices not in a system reported having a care manager.

Relative to smaller practices, practices with more primary care clinicians were more likely to report various staff types including behavioral health professionals, care managers and care coordinators, pharmacists, and community service coordinators (Supplemental Appendix Table 3, http://www.AnnFamMed.org/content/18/3/227/suppl/DC1/). In 2016, less than 20% of practices with 1 clinician or with 2 or 3 clinicians reported having a behavioral health professional, clinical psychologist, or social worker at the practice site, compared with 25% of practices with 4 to 5 clinicians, 49% of practices with 6 to 10 clinicians, and 72% of practices with more than 10 clinicians. In 2016, larger practices were also more likely to have care managers and care coordinators at the practice site: 75% of 1-clinician practices had such staff compared with 94% of practices with more than 10 clinicians. The patterns were similar, but the percentage of practices having the staff type was smaller, in 2012.

In general, practices that reported having at least 1 care manager in 2016 were more likely to be larger, affiliated with a system, and more urban than practices that did not report having any care managers (Table 2).

There were few differences in staffing changes by the average risk score of the practice's Medicare FFS beneficiaries (Supplemental Appendix Table 2).

CPC Staffing Ratios

In 2016, CPC practices had, on average, 3.3 staff per primary care clinician FTE (about 1.2 administrative staff per primary care clinician FTE and 2.0 non-administrative staff per primary care clinician FTE) (Table 3). Calculating part-time staff as 0.75 instead of 0.50 FTE barely changed these results (increasing each of these averages by 0.1; Supplemental Appendix Table 4).

On average, practices had 1 medical assistant per clinician in 2016. Smaller practices had more per clinician than did larger practices. For example, in 2016, the mean number

of medical assistants per clinician was 1.3 in 1-clinician practices and 0.8 in larger practices (Table 3).

Similarly, CPC practices had about 0.3 care managers per clinician in 2016, and smaller practices averaged more care managers per clinician than larger practices (Table 3). For example, in 2016, the mean number of care managers per clinician was 0.6 for 1-clinician practices vs 0.2 for practices with more than 4 clinicians.

Staffing Patterns: CPC vs Comparison Practices

We also looked at differences in 2016 staffing patterns between CPC and comparison practices to explore whether changes in staffing by CPC practices could be a result of external trends rather than CPC participation. CPC practices were more likely to report having different types of staff than comparison practices (Table 1). The largest differences for the staff types were for care managers or care coordinators (84% of CPC vs 36% of comparison practices); behavioral health professionals, clinical psychologists, or social workers (29% vs 12%); pharmacists (18% vs 4%); health information technologists or EHR specialists (18% vs 11%); quality improvement specialists (18% vs 12%); and health educators (9% vs 5%). Although CPC practices were more likely to have a variety of staff, among the practices that had each staff type, CPC and comparison practices had similar numbers of people in each role (Supplemental Appendix Table 5, available at http://www.AnnFamMed.org/content/18/3/227/suppl/DC1/).

Table 2. Characteristics of CPC Practices With and Without Care Managers in 2016

Characteristic	All Practices[a] (N = 460)	Practices Without a Care Manager (n = 74)	Practices With a Care Manager(s) (n = 386)
Number of primary care clinicians at baseline (2012),[b] %			
1 clinician	15	24	14
2-3 clinicians	34	45	32
4-5 clinicians	24	20	24
6-10 clinicians	20	8	23
>10 clinicians	7	3	8
Practice affiliation with a system, %			
Yes	37	23	40
No	63	77	60
Percent of practice county that was urban	78	72	79

CPC = Comprehensive Primary Care.

[a] In the 2016 survey, 1 practice did not answer the question asking about practice staffing, resulting in a sample of 460 practices.

[b] Practice size was determined using practice-provided rosters of the primary care physicians, nurse practitioners, and physician assistants who bill under their own National Provider Identifier. The roster files were collected in November 2012 and reported the number of these clinicians at the practice site in October 2012, the first month of CPC.

DISCUSSION
Key Findings

When the CPC initiative began in 2012, CPC practices tended to rely on the traditional staffing model of physicians with medical assistants. Only one-half reported having nurses or physician assistants, one-quarter having care managers or care coordinators, and fewer than 10% having pharmacists, nutritionists, health educators, or community service coordinators.[5]

In the survey, CPC practices indicated that they added various types of staff over 4 years, most commonly care managers or coordinators and behavioral health staff, and were more likely to have these staff than comparison practices were in 2016. This finding is

Table 3. CPC Practice Staff per Primary Care Clinician in 2016, by Baseline (2012) Practice Size

Staff Type	All Practices, Mean	By Baseline Practice Size,[a] Mean				
		1 Clinician	2-3 Clinicians	4-5 Clinicians	6-10 Clinicians	>10 Clinicians
Staff FTE per primary care clinician FTE	3.3	5.1	3.0	2.9	2.8	3.2
Non-administrative staff	2.0	2.9	1.9	1.8	1.7	2.1
Administrative staff	1.2	2.2	1.1	1.0	1.0	1.0
Individual staff type FTE per primary care clinician FTE						
Primary care clinicians[b] (reference group)	1.0	1.0	1.0	1.0	1.0	1.0
Physicians						
Primary care physicians (MDs or DOs)	0.6	0.8	0.6	0.6	0.5	0.5
Specialty physicians	0.3	1.0	0.5	0.2	0.2	0.3
NPs and PAs						
Do bill under own NPI	0.3	0.5	0.3	0.2	0.2	0.2
Do not bill under own NPI	0.4	0.9	0.3	0.3	0.3	0.2
RNs, excluding RN care managers	0.3	0.9	0.3	0.3	0.2	0.2
Nutritionists	0.1	0.6	0.2	0.1	0.1	0.1
Behavioral health professionals, clinical psychologists, or social workers	0.2	0.5	0.2	0.1	0.1	0.1
Health educators	0.1	0.4	0.2	0.1	0.1	0.1
Care managers and care coordinators[c]	0.3	0.6	0.3	0.2	0.2	0.2
Community services coordinators[d]	0.2	0.5	0.5	0.2	0.1	0.1
Medical assistants	0.9	1.3	0.9	0.9	0.7	0.8
LPNs and LVNs	0.6	1.2	0.6	0.5	0.5	0.3
Pharmacists	0.2	0.4	0.2	0.2	0.1	0.1
Quality improvement specialists	0.1	0.2	0.2	0.1	0.1	0.1
Physical or respiratory therapists	0.2	0.3	0.1	0.5	0.1	0.2
Laboratory or radiology technicians	0.4	0.7	0.3	0.3	0.3	0.6
Health information technologists or EHR specialists	0.2	0.4	0.2	0.2	0.1	0.2
Administrative staff (reception, medical records, appointment, finance, etc)						
Receptionists	0.7	1.2	0.7	0.6	0.6	0.6
Accountants or financial managers	0.2	0.6	0.2	0.2	0.1	0.1
Staff who work in billing, coding, administrative assistance, medical records, payroll, data entry/analysis, or network administration	0.5	1.4	0.4	0.5	0.3	0.5
Practice supervisors or practice managers	0.3	0.6	0.3	0.2	0.1	0.1
Other	0.3	0.4	0.3	0.3	0.4	0.3

CPC = Comprehensive Primary Care; DO = Doctor of Osteopathic Medicine; EHR = electronic health record; FTE = full-time equivalent; LPN = licensed practical nurse; LVN = licensed vocational nurse; MD = Doctor of Medicine; NP = nurse practitioner; NPI = national provider identifier; PA = physician assistant; RN = registered nurse

Notes: In the survey, we asked for the number of full-time and part-time staff. We estimated that a part-time staff was equivalent to 0.5 FTE. For the denominator of each ratio, we used the number of FTE physicians reported in the November 2016 clinician roster files to CMS; the numerator is the FTE staff reported by practices in the survey. Source was the CPC practice surveys administered April through August 2016.

[a] Practice size was determined using practice-provided rosters of the primary care physicians and NPs and PAs who bill under their own NPI. The roster files were collected in November 2012 and report the number of these clinicians at the practice site in October 2012, the first month of CPC.

[b] The number of primary care clinicians includes primary care physicians, nurse practitioners, and physician assistants who can bill under their own NPI. Practices reported this information to Centers for Medicare & Medicaid Services each month; the numbers for this analysis come from the roster files reported November of the corresponding year.

[c] Coordinate care for patients in the practice with other providers.

[d] Link patients in the practice with available services and resources in the community.

consistent with qualitative information collected from a small sample of practices[7-9] and with financial data from all participating practices, which indicate that 87% of total practice-reported CPC spending in the final 3 years of the initiative was spent on labor costs.[7] Although practices varying in size, system affiliation, and patient composition added new types of staff during the CPC initiative, larger practices and system-affiliated practices reported a greater variety of staff, likely reflecting the higher level of resources available to them and economies of scale.

The addition of new types of staff during the CPC initiative reflects the increased expectations for practices to provide more comprehensive and coordinated care, as well as a shift in the payment approach. That is, as payers paid care management fees, adding more resources and shifting somewhat from fee for service, practices had resources to use care teams including more nonbillable staff. At the initiative's end, CPC practices reported having on average about 3.3 staff per primary care clinician FTE. This number is lower than the 4.25 staff per physician FTE recommended by Patel et al[3] for practices' successful transformation to a PCMH model, and slightly higher than the 3.0 staff per physician FTE the Veteran's Health Administration targeted in its primary care transformation initiative.[11]

Although team-based care in the primary care setting has been associated with lower burnout,[11-13] future studies should examine the effect of team-based care and staff composition on health care costs, service use, and patient experience. Most CPC practices joined another model that provided enhanced payment (CPC+), but an additional question is the extent to which practices sustain new staff after a model ends. Furthermore, future work should assess whether practices augment staffing in response to patients' medical and social needs.

Limitations

This study has several limitations. First, the sample comprised primary care practices that (1) were in the regions selected for CPC that had sufficient payer alignment and (2) applied and were selected for CPC. Although the sample was large and geographically diverse, it is unlikely to be representative of primary care practices nationwide.[5] Second, practices may have inaccurately reported staffing. Third, we asked about the number of part-time and full-time staff rather than the FTE and assumed 0.50 FTE per part-time staff in calculating staffing ratios; however, the staffing ratios changed, on average, by only 0.1 when we assumed 0.75 FTE per part-time staff. Fourth, we do not know the roles played by the types of staff that practices

reported having. For example, a medical assistant in one practice may perform functions that a nurse performs in another. Similarly, some functions may be spread among many staff; for example, staff other than care managers may provide care management. Fifth, practices that are part of a group or system may have inconsistently reported staff from the larger organization or shared across practice sites. Sixth, the comparison group was not chosen experimentally but rather relied on a matched-comparison design, and we do not have baseline staffing data for comparison practices; therefore, differences in staffing at CPC and comparison practices in 2016 may reflect baseline differences. Nonetheless, this study provides a look at staffing in a large, diverse sample of primary care practices before and after primary care transformation.

Conclusions

Primary care practice transformation requires practices to make complex changes to care delivery, and many add different types of staff. This study gives insights into the various staff configurations that primary care practices used in one of the largest tests of primary care transformation to date and may help inform similar initiatives.

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