Health Provider Mix and Staffing Ratios

Prepared for:
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The STAR² Center is a project of the Association of Clinicians for the Underserved (ACU). In July 2014, ACU received a national cooperative agreement to develop a clinician workforce center for recruitment and retention at community health centers. In partnership with the federal Bureau of Primary Health Care, ACU created the STAR² Center (pronounced Star Center) to provide free resources, training, and technical assistance to health centers facing high workforce need. John Snow, Inc. has subcontracted with ACU to assist in research, training, and designing resources and tools to support the STAR² Center.

Health Provider Mix and Staffing Ratios

What is the best provider staffing mix for your health center? What ratio of providers and clinical support staff go the furthest toward achieving the Quadruple Aim?

Opportunities for provider mix have been available since the advent of nurse practitioners (O'Brien, 2003) and physician assistants (AAPA, 2017) in the mid to late 1960s. Both types of clinicians were developed due to a shortage of primary care physicians at the time. Our current shortage of primary care providers and the shift toward practice transformation initiatives have provided more opportunities to experiment, not only with provider mix variations, but also with other non-provider positions to fill new roles emerging in the current health care environment. Recent research suggests that staffing best practices are fluid and largely dependent on individual practice variables. (Ku, et. al., 2014; Peikes, et. al., 2014)

How do provider mix and support staff ratios impact retention and recruitment efforts?

Improving the work life of health care providers, including clinicians and staff is one of the fundamental pillars of the quadruple aim. One of the primary causes of provider retention issues is provider burnout.

Provider burnout is common in primary care practices and is "associated with worse patient safety, patient satisfaction, and employee mental health." (Helfich et. al., 2017) In a study of Veteran's Administration primary care team burnout, study authors found "strong, cumulative associations: between complete team staffing, turnover among team members, and panel overcapacity with burnout. The study found statistically significant differences in turnover related to 1) working on a fully staffed team, 2) turnover on the team, and 3) having panel overcapacity. These associations appear to be additive, meaning that multiple negative conditions results in higher burnout than would be expected from each variable alone. The differences were large, with teams with negative conditions having more than twice the burnout rates (58.6%) than those who were fully staffed, no team turnover, and no panel overcapacity (28.5%). "Working on multiple teams, average panel comorbidity, and working extended hours were not associated with burnout." (Helfich, 2017)

Other studies have found that "Providers with burnout report higher levels of absenteeism and more frequent intention to leave their jobs. Ultimately, they are more likely to reduce work hours and leave medical practice entirely." (Helfich, 2017). All things being equal, it is easier to hire new primary care providers into a practice with adequate ratios of providers and support staff. (Linzer, 2017)

**How can different staffing patterns ease provider burnout?**

Primary care providers perform a wide range of tasks during each patient visit. The length of the list has been exacerbated by electronic health record demands, quality improvement processes, chronic disease care management programs, and state, federal, and recognition program requirements. All of these

demands help to improve patient outcomes and satisfaction, but are overwhelming in a non-team-based care environment.

Pelak, et. al. looked at the amount of provider face-to-face time that can be eliminated, delegated or performed outside of the face-to-face visit. The study involved primary care physicians rating segments of visits for whether or not the type of task involved required face-to-face time with a primary care provider. Primary care providers include physicians, nurse practitioners, and physician assistants. Of the 5,398 minutes recorded, only 2,512 minutes (47%) were rated as need face-to-face provider time.

The results (Figure 1) show that only two tasks (examine patient and discuss new condition) had the highest percentage ratings as activities that should be conducted face-to-face with a primary care provider. One of the tasks, discuss new condition, was only 45.9% of the time as requiring face-to-face provider time. Medication review, coordination of care, and preventive care were more likely to be rated as not requiring provider time. (Pelak, et. al., 2015)

Figure 1. Percentage of visit time where reviewers agreed and disagreed on disposition, by activity category*†
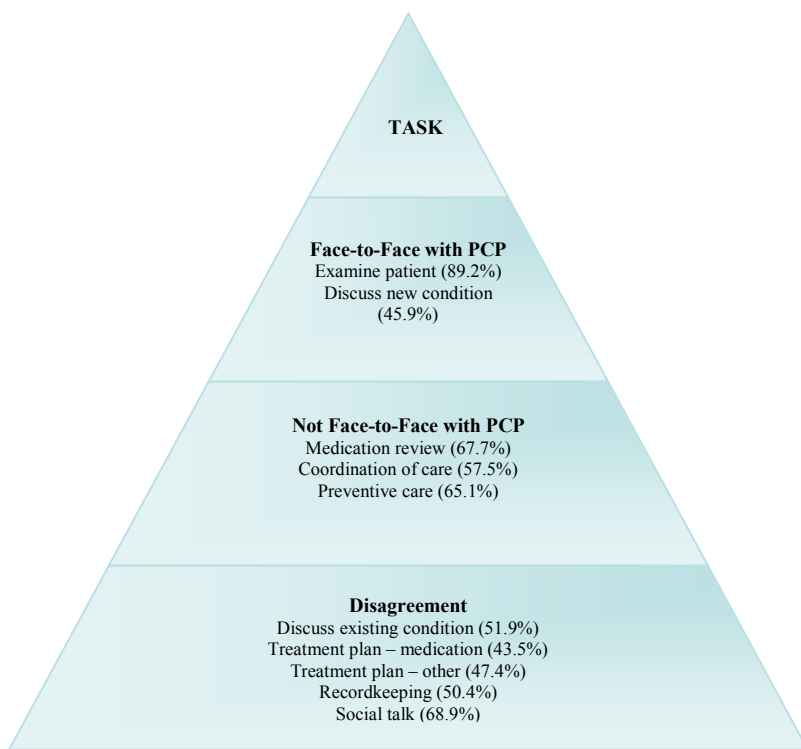
PCP, primary care provider.
*Percentages may not add to 100% due to rounding.
†Percentage of visit time calculated based on 2699 minutes of recorded face-to-face PCP visit time.
(Pelak, et. al, 2015)

Current National Health Center Staffing Patterns

While health center staffing patterns are in flux in an effort to find the right provider mix and support ratios, national comparisons are available. Figure 2 shows the ratio of non-physician provider staff and other staff categories per 1.0 FTE primary care provider for federally qualified health centers (FQHCs) with a community health center (CHC) grant. The data is displayed for both large (10,000 or more patients) and small (fewer than 10,000 patients) health centers.

Figure 2. 2015 Staffing Ratios per Primary Care Provider FTE by Large and Small FQHCs with CHC grants

Size	Count	PCP physicians	Non-Physician Providers	Nurses	Other Medical Personnel	Behavioral Health	Case Managers
Large	48%	1.00	0.85	1.49	2.62	0.66	0.60
Small	52%	1.00	1.36	1.77	2.36	1.02	0.75
All	100%	1.00	0.93	1.53	2.58	0.72	0.63

2015 Uniform Data System (UDS), Bureau of Primary Health Care
Large >= 10,000 medical patients, Small<10,000 patients

Nationally, health centers employ about one non-physician provider for each primary care physician. In order to support these two providers, health centers employ about 1.53 nurses (registered nurses, licensed practical and vocational nurses, home health and visiting nurses, clinical nurse specialists, and public health nurses), 2.58 other medical staff (medical assistants, nurses' aides, and all other personnel, including unlicensed interns or residents), 0.72 behavioral health staff (psychiatrists, licensed clinical psychologists, licensed clinical social workers, other mental health staff), and 0.63 case managers. Large health centers had slightly lower ratios of all staff categories except other medical personnel. Small health centers tended to have slightly higher ratios of staff except for other medical personnel. This may be due to economies of scale, availability of staff types, variation in division of duties to non-clinical staff or a combination of factors.

Patient-Centered Medical Home

Care that is relationship-based with an orientation toward the whole person, and that includes partnering with patients and their families to understand and respect each patient's unique needs, culture, values, and preferences. Care that is patient-centered also supports patients in learning to manage, organize, and participate in their own care at the level the patient chooses.

- Agency for Healthcare Research and Quality

PCMH and Team Based Care Impact on Staffing Ratios
Team-Based Care and Patient-Centered Medical Homes (PCMH) are the most common practice transformation models for primary care practices. Both approaches include team-based care, so care team development has a strong influence on current staffing trends.

Patient-Centered Medical Home models have an emphasis on appointment scheduling to improve access and reduce patient no-shows. They also require prompt access to clinical advice, coordination of care across multiple settings, patient education and self-management instruction, laboratory and radiology test tracking, specialist referral and report tracking, and quality improvement initiatives among a myriad of other

tasks. Most of these tasks can be performed by non-physician providers and many by non-clinicians.

Another tenet of PCMH models is improved continuity of care, so while many different types of staff can perform these functions, continuity requires that they function in coordination and collaboration with each other. This type of practice transformation involves the creation of care teams. Team-based care (TBC) is the provision of health services by a health care team who work collaboratively with patients and caregivers to accomplish shared goals across settings to achieve coordinated, high-quality care.

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"Team-based primary care is not an end in and of itself; rather, teams are a potential solution that can allow increased access to primary care services, increased comprehensiveness in the services provided and additional support for primary care physicians with large and complicated patient panels for lower cost than additional physicians.

Studies of team-based interventions in primary care have shown improved patient satisfaction and disease-specific outcomes9-36 in conditions ranging from diabetes to depression to dementia, as well as improved provider satisfaction and retention. These positive effects are even greater as primary care teams embody team values and exhibit behaviors consistent with high-functioning teams." (Wohler, et. al., 2017)

How does practice transformation impact primary care practice staffing ratios?

Few studies have been conducted to assess the impact of practice transformation best practices, such as PCMH and team-based care, on staffing ratios. National data include both PCMH and non-PCMH recognized practices, as well as those with and without team-based care. The following studies have documented best practices and/or proposed staffing models to support best practices.

PCMH Staffing Model Proposal

Patel, et. al. conducted a study of 9 primary care clinical practices that were known to have either successfully deployed or were in the process of implementing a PCMH practice model. The study included interviews and data reports on staff ratios and roles. Patel, et. al. developed a proposed model to describe the variation between typical practices (compared to Medical Group Management Association (MGMA) medians) and PCMH practices or those in the process of transforming to PCMHs. The study then carried the analysis to the next step of estimating the incremental cost for practices to reach the model staffing ratios. The data from the study is presented in Figure 3.

Figure 3. Proposed PCMH Staffing Ratio Estimates (FTEs) and Incremental Costs per FTE Primary Care Physician (Patel, 2013)

Staffing Variable	Interview Range[a1]	MGMA[b2]	Proposed[3]	Difference from MGMA	Estimated Incremental Cost
Clerical	0.18-1.85	1.12	1.42	0.30	$ 11,661
MA, Technician, LPN	0-1.66	1.33	1.33	0.00	-
RN	0.21-1.78	0.00	0.00	0.00	-
RN Care Manager	0-1.0	0.00	0.40	0.40	$ 38,116
NP/PA	0-1.36	0.23	0.25	0.02	$ 2,384
Health Coaches ($ for MA)	0-0.25	0	0.25	0.25	$ 9,848
Pharmacist	0-0.53	0	0.2	0.20	$ 29,770
Mental Health ($ for SW)	0-0.83	0	0.25	0.25	$ 18,330
Nutritionist	0-0.20	0	0.1	0.10	$ 6,890
Clinical Data Analyst	NA	0	0.05	0.05	$ 3,653
Total		2.68	4.25	1.57	$ 120,652

FTE indicates full-time equivalent; LPN, licensed practical nurse; MA, medical assistant; MGMA, Medical Group Management Association; NA, not applicable; NP, nurse practitioner; PA, physician assistant; PCMH, patient-centered medical home; RN, registered nurse; SW, social worker.
[a]Based on telephone interviews.
[b]Median integrated delivery system owned, all internal medicine.
[1]Most were unadjusted; several used risk stratification techniques
[2]MGMA 2010 Cost Survey Report
[3]Based on proprietary risk adjustment software from Economic Research Institute. Geographic AssessorR-Professional (North America). Data as of April 1, 2011. http://www.erieri.com/GeographicAssessor. Accessed August 31, 2011.
Adapted with revisions from Patel, 2013.

This model suggests that an additional 1.57 staff above MGMA medians are optimal for a PCMH practice. The estimated cost of adding these staff is $120,652. (Patel, 2013) It is important to emphasize that the model was based on extrapolating and risk adjusting data from a small (9 practice) "convenience" sample. While the article's authors have not tested the model, it provides a potential starting point for PCMH practices, those working toward PCMH recognition, or for practices implementing team based care.

Comprehensive Primary Care (CPC) Staffing Patterns

In October 2012, the Centers for Medicare and Medicaid Services (CMS) Comprehensive Primary Care (CPC) initiative began distributing enhanced payments to 496 "technologically advanced practices committed to improving their primary care capabilities." Peikes, et. al. documented their staffing overall, by practice size and PCMH designation at the beginning of the initiative. The expectation was that "because these practices committed to practice transformation,…[they would be] more advanced in team-based care than most other practices." (Peikes, et.al, 2014) Figure 4 documents the beginning staffing levels for these practices in 2014.

Figure 4. Mean Number of FTE Staff per FTE Physician—Among CPC Initiative Practices With Staff Type—by Practice Size

Staff Type	≤2 FTE Physicians (n=216)	>2-4 FTE Physicians (n = 148)	>4-7 FTE Physicians (n = 92)	>7 FTE Physicians (n = 40)	All Practices (n = 496)
Administrative staff[a]	2.42	1.76	1.70	1.98	2.05
Medical assistants	1.76	1.31	1.23	1.11	1.45
NPs, PAs	0.97	0.49	0.38	0.20	0.65
LPNs, LVNs	1.38	0.78	0.66	0.53	0.95
RNs	1.04	0.54	0.38	0.31	0.64
Care managers/coordinators	0.77	0.46	0.24	0.23	0.47
Pharmacists	0.75	0.42	0.15	0.29	0.32
Social workers	0.75	0.22	0.13	0.12	0.20
Community service coordinators	0.86	0.26	0.17	0.20	0.48
Health educators	1.00	0.37	0.19	0.10	0.42
Nutritionists	0.58	0.38	0.08	0.07	0.27

CPC = Comprehensive Primary Care; FTE = full-time equivalent; LPN = licensed practical nurse; LVN = licensed vocational nurse; NP = nurse practitioner; PA = physician assistant; RN = registered nurse.
Source: The CPC practice survey, fielded October through December 2012.
Note: Practice size is defined by the number of FTE physicians.
[a] Administrative staff include those managing reception, medical records, appointments, finance, etc.

Figure 4 shows that CPC smaller practices have a larger FTE level per FTE physician for each staff category. However, the study also reports that larger practices are more likely to have staff in more categories. The smaller number of FTEs per physician FTEs for larger practices is likely due to economies of scale. While this study is very valuable in assessing practice staffing distribution for CPC practices, it is also a baseline study. CPC evaluations have shown considerable changes in practice design over the nearly three years it has been in place, however, no comparisons to the baseline have been found for this report.

Learning from Effective Ambulatory Practices (the LEAP project)

For a more recent study, in a collaboration with the Group Health Research Institute, the Robert Wood Johnson Foundation (RWJF) created a program, *The Primary Care Team: Learning from Effective Ambulatory Practices* (the *LEAP* project) "designed to identify creative practices that make primary care more efficient and effective." (Wagner, et. al. 2017) The LEAP program selected 30 practices for "intensive study through review of practice descriptive and performance data." Fifteen (50%) of the LEAP practices identified are federally qualified health centers.

Figure 5 shows the core team composition by LEAP practice size. It is unclear if FTEs are reported or employees, however, the study notes that the "ratio of MAs [Medical Assistants] to providers is 1:1 in most practices, but 6 LEAP practices link multiple MAs (1.5–3 MAs) with each provider. One LEAP practice assigns 2 MAs to each provider, which allows one MA to remain with each patient throughout their clinic visit. The MA enters the provider's description of the findings and plan into the EHR (often called scribing) [18], while the other MA is checking in the next patient. The innovation is being disseminated throughout the practice, as a pilot test demonstrated that PCPs were more satisfied AND

could see more patients." "The 30 LEAP practices engage health professional and lay staff in patient care to the maximum extent, which enables the practices to meet the expectations of a PCMH and helps free up providers to focus on tasks that only they can perform "(Wagner, et. al, 2017)

Figure 5. Core Team Composition in LEAP Practices: Number and Percentage of Practices

	1 Primary Care Provider*	2-3 Primary Care Providers*	4+ Primary Care Providers*	All Practices
	n=6	n=15	n=9	n=30
Medical Assistants**	6 (100%)	15 (100%)	9 (100%)	30 (100%)
Registered Nurses	1 (17%)	6 (40%)	7 (78%)	14 (47%)
Licensed Practical Nurses (LPNs)	0	4 (27%)	0	4 (13%)
Front Desk Staff	1 (17%)	8 (53%)	1 (11%)	10 (33%)
Behavioral Health	0	3 (20%)	2 (22%)	5 (17%)
Health Coach	1 (17%)	1 (7%)	2 (22%)	4 (13%)
Lay Care Coordinator	0	1 (7%)	1 (11%)	2 (7%)
Social Worker	0	0	1 (11%)	1 (3%)

*Number of Paneled Providers (MD, DO, ND, NP, PA) on each core team
**Includes LPNs if used as Medical Assistants
Adapted from Wagner, et. al, 2017.

Similar to the CPC staffing study, this study is helpful as it delineates high performing practices by provider size. It also demonstrates some of the challenges that small practices may encounter in filling out staff roles without the advantages of sharing staff among teams or providers within a team. The study is more recent (2017) than the prior two studies (2013, 2014), allowing more time for practices to have more fully transformed.

The most striking trends in staffing patterns are increases in nurses, medical assistants, behavioral health. In addition, nurses and medical assistants are increasing due to additional roles they are filling as a part of practice transformation.

These studies may provide guidance in rounding out staff to embrace practice transformation best practices. The main lessons to be gleaned, nevertheless, are that 1) practices are expanding the types of providers and developing team-based care, and 2) economies of scale can allow more sharing of staff amongst teams and help to keep costs down. Ku, et. al., also comments on the availability of staff in a region and the ability to recruit some categories of staff, "CHCs have been creative in making do with what they have. …There is no "optimal" model for staffing primary care practices. Rather than having a monolithic one-size fits-all approach to staffing and care provision, health centers can be flexible and take advantage of the staff they have." (Ku, et. al., 2014)

Changes in Roles

Increasing staffing levels alone is not the answer to provider burnout and meeting the quadruple aim. Schottenfeld, et. al. report "Well-implemented team-based care has the potential to improve the comprehensiveness, coordination, efficiency, effectiveness, and value of care, as well as the satisfaction of patients and providers. To achieve this potential, the transition to team-based primary care requires, for most practices, profound changes in the culture and organization of care, in the nature of interactions

among colleagues and with patients, in education and training, and in the ways in which primary care personnel and patients understand their roles and responsibilities." (Schottenfeld, et. al., 2016)

Staff roles are changing to support team-based care and practice transformation initiatives. In particular, the roles for nurses and medical assistants are having the greatest adjustment as new roles are being developed to meet practice needs.

Registered nurses (RNs) have had a decades long period where they were not being as readily employed in primary care practices (Ladden, et. al., 2013). Now they are being brought back into health centers as care managers, and practice facilitators or quality improvement coaches. (Taylor, et. al., 2013; Ladden, et. al., 2013; O'Malley, et. al., 2014; Taliani, et. al., 2013)

Medical assistants (MAs) and licensed practice nurses (LPNs) are experiencing perhaps the largest role expansion. The change in their position has created more of a career ladder as they receive more training and experience. They often perform previsit chart review, laboratory and radiology tracking, lead huddles, manage care registries or panels by identifying service gaps, conduct outreach, act as health coaches, and perform clinical scribing. (Ladden, et. al., 2013; Bodenheimer, et. al., 2014; Naughton, et. al., 2013)

Practice transformation efforts have overlapped with integration of behavioral health into primary care. Behavioral health providers are more often co-located with primary care services. They participate as a part of the clinical care team through chronic disease management and availability for consultation for patients, providers, RNs and MAs. (Ladden, et. al., 2013)

Challenges

The staffing trends are not without challenges. Changing the culture and delivery of health care services is a challenge in itself. A major challenge is the expansion of the roles of medical assistants. Bodenheimer, et. al. notes that there may be concerns about protecting the quality and safety of care. This can largely be balanced by training and competency testing. There may also some confusion about the scope of MA activities allowed by state law. It is important to have a firm understanding of the practice's state laws. In addition, there may be challenges to physician acceptance. This has generally been mitigated by a stable workforce and encouraging the same MAs to work with MDs to form a more cohesive and trusting team. In addition, there may be uncertainty about the effects of increasing MA FTEs and expanding MA roles on the number of patient visits. Payment models have not been rigorously tested, so it is unclear if this model will result in increased revenue to cover costs. (Bodenheimer, et. al., 2014)

The question of whether the increased costs of overall staffing changes will be covered by an increase in revenue is a global question that has yet to be answered. Wohler comments "Team-based care has the potential to significantly decrease healthcare costs by providing higher quality care while utilizing lower-cost providers. However, the implementation of a team-based primary care model has up-front costs and maintenance costs that must be accounted for by a payment program in order to be successful. Start-up costs of integrated team-based care have been estimated to average about $44,000, and monthly costs of coordination and support of the team have been estimated at about $40 per patient.(Wallace, et. al., 2015) These significant costs require prospective investments and maintenance." As noted earlier, Patel, et. al. model an estimated incremental cost of $120, 652 per physician FTE per year, Figure 3. (Patel, et. al., 2013)

Taylor, et. al. point out "currently, facilitation services are often supported by federally funded programs (such as Area Health Education Centers or Health Information Technology for Economic and Clinical Health [HITECH] Regional Extension Centers), state government and/or Medicaid program waivers (for

example, the Vermont Blueprint for Health), and philanthropic organizations (such as the Commonwealth Fund's Safety Net Medical Home Initiative and the Robert Wood Johnson Foundation's Improving Performance in Practice [CPC] program). These funding sources position facilitators as a shared community resource whose services are available to many practices. Health systems that own practices, as well as health plans interested in improving patient-level outcomes, may also fund facilitation. Although uncommon, practices may pay directly for facilitation services." In addition, "some payers support practice-based care managers directly by paying their salaries or providing staff; indirect methods of support include paying practices per capita care-management fees or sharing savings or bonuses for achieving certain outcomes. A shared resource approach, in which a care manager works within a practice but serves multiple practices in a community, has also emerged in several areas and may be particularly useful for small or rural practices." (Taylor, et. al., 2013)

Resources

For more information on Team-Based Care
The Primary Care Team: Learning from Effective Ambulatory Practices (*LEAP* project)
improvingprimarycare.org
AHRQ PCMH Resource Center

https://pcmh.ahrq.gov/page/creating-patient-centered-team-based-primary-care

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