

Registered Nurses in Primary Care

Emerging New Roles and Contributions to Team-Based Care in High-Performing Practices

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Abstract: The years since the passage of the Affordable Care Act have seen substantial changes in the organization and delivery of primary care. These changes have emphasized greater team involvement in care and expansion of the roles of each team member including registered nurses (RNs). This study examined the roles of RNs in 30 exemplary primary care practices. We identified the emergence of new roles and activities for RNs characterized by greater involvement in face-to-face patient care and care management, their own daily schedule of patient visits and contacts, and considerable autonomy in the care of their patients. **Key words:** *primary care, registered nurses, teams*

THE LAST century has seen a dramatic shift of registered nurses (RNs) away from primary care and into the hospital setting. Close to 60% of all nurses now practice in hospitals as compared with 9% in ambulatory care settings (Budden et al., 2013; Peikes et al., 2014)

The advent of the patient-centered medical home (PCMH) and the revitalization of primary care across the United States have led to growing recognition of the importance of multidisciplinary primary care teams where all members are engaged in activities that fully utilize their knowledge and skills. The interest in teams has focused attention on the roles played by all primary care team members, including a renewed interest in the practice of RNs who are able to fully utilize their clinical skills and training and work with a higher level of independence (Henderson et al., 2012; Institute of Medicine, 2011; Jackson et al., 2013).

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Recent studies of exemplary primary care practices (Bodenheimer et al., 2015; Smolowitz et al., 2015) have begun to define key domains of RN practice in primary care, including preventive care, chronic illness management, practice operations, care management, and transition care. The American Academy of Ambulatory Care Nurses (AAACN) led the development of position papers on the role of nurses in ambulatory care, including primary care (Attwood, 2011). The

AAACN (2011) defined ambulatory care nursing as a “complex, multi-faceted specialty that encompasses independent and collaborative practice . . . Registered nurses promote optimal wellness, participate in the management of acute illness, assist the patient in managing the effects of chronic disease and disability, and provide support in end of life care.”

This article describes the deployment and patient care activities of RNs in 30 high-performing, innovative primary care practices studied in the Robert Wood Johnson Foundation-supported national program—The Primary Care Team: Learning from Effective Ambulatory Practices (LEAP) (Ladden et al., 2013).

METHODS

LEAP project

The goals of LEAP are to select and study high-performing, innovative primary care practices; identify developments in practice team composition, staff roles, and interdisciplinary teamwork; and disseminate promising advances. Practices were selected using a multistage process of nomination by primary care leaders, data collection, and review of practice data. From an initial sample of more than 400 nominated practices, leaders of 227 primary care practices participated in telephonic interviews that yielded data on practice organization and size, patient characteristics, payment mix, team composition and roles, performance and quality improvement, and financial and other issues influencing sustainability. Descriptive and interview data from each practice were summarized in 2-page structured reports.

Four LEAP National Advisory Council (NAC) members and staff independently reviewed each report and rated the innovativeness of the practice team. We then requested data on care quality and patient experience from the 70 highest-rated practices. The NAC selected 30 practices that reflected a range of geographic locations and settings, practice organization types, and populations served. The 30 LEAP practice sites included 15 federally qualified health centers (FQHCs), 1 a

nurse-managed center, and 15 private practices including 4 medical residencies and 1 nurse practitioner (NP) residency. Twenty-one were National Committee for Quality Assurance level 3 PCMHs and 3 had state-based PCMH certification as of 2012. Twenty-three percent of practices were single-site organizations, 47% had 2 to 10 sites, and 30% had more than 10 individual practice locations.

Site visits

From August 2012 to September 2013, multidisciplinary teams of 3 to 5 individuals conducted 3-day site visits to each of the 30 selected practices. Site visit activities were generally limited to a single practice location identified during data collection. Site visits included physical tours of clinic space; demonstrations of electronic health records; formal (recorded and transcribed) and informal interviews with practice leaders, providers, and staff; staff and patient shadowing; observations of huddles and other team meetings; and collection of practice materials and tools. Nurse leaders and staff nurses were interviewed in every practice with at least 1 RN.

Following the visits, we engaged the 30 LEAP practice sites in a Learning Community to identify and interpret important themes observed across the high-functioning practices. Potentially important issues were initially identified by polling site visitors. One important theme was the expanding roles of RNs in delivering care to patients. We explored the changing roles of RNs with LEAP site nurses, clinical leaders, and other practice and organizational staff in both large and small group sessions during a 2-day in-person meeting in Seattle and during subsequent webinars.

Data analysis

We used Atlas.ti to organize and store data from site visits and in-person Learning Community sessions including site visit interview transcripts, site visitor notes and summaries, field notes from shadowing staff and patients, staff survey comments, and notes from Learning Community discussions. Our data analysis team (C.H., D.C.) coded the site visit data using broad codes to capture key primary care team member roles and functions. One broad

code for “RN role” was used for all statements about the role of RNs in primary care, including tasks/responsibilities, training, evolution of the role, RN perceptions of their role and practice, and financial arrangements that supported the RN role. The lead author (M.F.) then systematically reviewed all the data coded as “RN role” (~700 pages).

The goal of this next analytic phase was to describe how RNs were integrated into the primary care teams, identify and categorize the activities performed by RNs with an expanded role, and identify common themes around barriers and facilitators to expanding RN roles across the LEAP sites. The lead author presented detailed findings on RN activities and expanded roles emerging from the close review of the RN-related site visit and Learning Community data to the other authors. On the basis of input from authors, these findings were distilled further. The reported findings represent the key themes that the authors identified related to the activities of RNs and expanded RN roles. In addition to the thematic analysis, several authors (M.F., E.H.W., D.C., and C.H.) reviewed the RN-coded data again to confirm the number of LEAP sites with RN roles that exemplified each activity.

RESULTS

RNs in LEAP practices

Table 1 shows the number of LEAP practices with RNs on staff at the site by size and type of practice. The majority of LEAP sites

($n = 23$; 77%) employed at least 1 clinically active RN in the practice. For those sites that did not have RNs, leaders report financial limitations, difficulties in recruitment, and prior unsatisfying experience with nurses as the primary reasons for not employing RNs. The table reflects front-line care but not those whose role was solely administrative or managerial.

RNs in these practices tended to fall into 1 of 2 groups: team RNs, who provide a broad range of general nursing functions, and RN care managers, who provide services to specific subsets of patients. Team RNs generally work with specific provider teams and their panels and address the needs of patients visiting or contacting the practice. RN care managers tend to provide services to sicker patients from all provider panels both during and in between visits to the practice. More than half of practices ($n = 18$; 60%) had team RNs. One-half of practices had 1 or more RN care managers on their staff. We use the terms “team RN” and “RN care manager” to represent a set of key functions served by each role type, although practices used a wide variety of other titles in their job descriptions of individuals holding an RN license including “nurse,” “charge nurse,” “care team RN,” “nurse care manager,” “care coordinator,” “complex care manager,” “health coach.”

RN activities viewed as high value

Table 2 lists some of the responsibilities and practice activities of the RNs that site visitors

Table 1. Number and Percentage of LEAP Practice Sites With Nurses^a

	Private Practice <5 Primary Care Providers ^b ($n = 3$)	Private Practice 5+ Primary Care Providers ^b ($n = 12$)	Federally Qualified Health Center ($n = 15$)	All Practices ($N = 30$)
Any RN	2 (67%)	10 (83%)	11 (73%)	23 (77%)
Team RNs	1 (33%)	8 (67%)	9 (60%)	18 (60%)
RN Care managers	1 (33%)	9 (75%)	5 (33%)	15 (50%)

Abbreviation: RN, registered nurse.

^aThe Table does not include centralized RNs not based at the practice site who provide some services to their patients.

^bNumber of paneled providers (MD, DO, ND, NP, PA) in the practice site.

Table 2. High-Value Activities of RNs in Primary Care

Activities	# of LEAP Practices	Example
Independent nurse visits	19	At a small, rural private practice, there is 1 team RN for a core team of 3-4 providers. Team RNs have their own schedule of visits every day. These include injections and procedures, newborn weight and color assessments, lactation support, first prenatal visits, complex medication reconciliations, wound care, and follow-up with patients after a visit to the emergency department.
Transition management	17	A community-based medical residency clinic moved its RNs entirely into highly intensive care management to “work with the highest of the highest-risk patients.” The RN care managers identify hospitalized patients, contact them in the hospital by telephone, and follow them closely postdischarge.
Coumadin panel management	13	Nearly one-half of LEAP practices operate RN run “Warfarin Clinics” involving on-site INR testing and RN medication titration. In a few practices, RNs independently adjust warfarin doses at their practice site.
Independent RN visits inclusive of medication initiation or titration by standing order (practice protocol) or by individualized patient treatment plan (delegated order sets) specific standing orders	9	Team RNs at a primary care site of a large multi-specialty group use independent nurse visits and medication titration protocols to collaborate with PCPs in the management of patients with common chronic illnesses. At an urban FQHC, the PCP creates patient-specific “order sets” to be implemented by the RN care manager over a series of visits for chronic illness management prior to a return visit with the PCP
Hospital visits by RN care managers	3	Each core team of 3-5 providers in the family medicine department of a large, regional health system includes an RN care manager who makes visits to patients in the hospital to support transition back to primary care. The CMO noted, “RN care managers address the fact that providers don’t go to the hospital anymore; the RN care [manager] is that much more important.”
Home visits	3	In 3 practices, home visits were conducted not only by RN care managers, primarily as part of transition management, but also when the PCP or RN felt that the practice had an insufficient understanding of the home environment.

(continues)

Table 2. High-Value Activities of RNs in Primary Care (*Continued*)

Activities	# of LEAP Practices	Example
Collaborative PCP/RN visits	2	Two smaller practice sites of larger organizations conducted “collaborative” PCP/RN visits for complex patients with multiple needs. In this arrangement, RNs assume responsibility for many visit elements and for follow-up care. One PCP stated, “Having an RN is the antidote for high acuity panels—it feels so different when you are sharing the care. It helps you sustain and engage in primary care over a career.”

Abbreviations: CMO, chief medical officer; INR, international normalized ratio; PCP, primary care provider; RN, registered nurse.

and Learning Community attendees identified as value-added advances to patient care and the practice team. Team RNs and RN care managers in LEAP practices, far from playing only a supportive and loosely defined role, were clearly engaged in team-based care delivery providing independent and collaborative patient care. RN care included telephonic and face-to-face transition management care of patients moving between acute and primary care; daily routine visits scheduled only with the RN (independent nurse visits) for preventive, acute and chronic care; staffing-specialized “clinics” within the primary care practice for high-volume needs such as prenatal care or warfarin management, home and hospital visits for select subsets of patients requiring intensive care management, and collaborative joint primary care provider (PCP)/RN visits in the primary care office.

Independent nurse visits

Within the broad category of independent nurse visits, we observed 3 distinct types of visits that were of particular interest. The first category of visits falls well within the traditional scope of RN activities and include patient education, care coordination, monitoring of patient condition, and patient/family response to the health concern and treatment. Examples include newborn weight

monitoring and parent support, lactation support, diabetes education, and monitoring chronic illness such as chronic obstructive pulmonary disease (COPD), asthma, and hypertension. The second category built upon these traditional nursing activities to include the addition of standing orders by a licensed independent medical provider, usually the chief medical officer (CMO) or physician practice leader, authorizing the prescribing of medication or ordering of diagnostic testing under specific conditions for populations of patients (children, adults, pregnant women, etc). Examples not only included assessing and treating dysuria, sore throats, and positive tuberculosis (TB) tests but also expanded to standing order practice protocols for the initial prenatal visit, advancing medication titration in chronic illness such as titrating insulin, increasing antihypertensive dosage, or adjusting Coumadin (warfarin) medication. The third category, termed “delegated order sets” by one LEAP practice, is an individualized set of orders, created by the PCP for a specific patient, to be implemented by the RN over a series of visits based on the patient response to the treatment regimen prior to the patient returning to see the PCP. The stated intent of the medical director of the practice was to avoid “churning” and unnecessarily frequent visits with the PCP while providing timely and excellent care to the patient.

RN care managers: Transition management, hospital visits, and home visits

The intensive focus on a defined subset of patients differentiates the RN care manager from the team RN. These nurses managed care for subsets of patients across the practice population, defined by condition (new-onset or suboptimally controlled chronic illness [diabetes, congestive heart failure, COPD, hypertension]), acuity (unstable, high-risk, or multimorbid conditions), comorbid behavioral health or social/environmental factors (such as extreme poverty and homelessness), transition status (leaving inpatient settings), or simply provider-initiated requests for help with patients they deemed in need of intensive RN support.

In essentially all LEAP sites with RN care managers, the nurses ensured that patients leaving the hospital or emergency department (ED) had an appropriate care plan and adequate home environment, were following the care plan and taking medications as prescribed, and were reintegrated with primary care. The early identification and contact of hospitalized patients were a challenge for most practices. In 3 practices, RN care managers routinely visited hospitalized patients and met with hospital staff to coordinate discharge plans. In another LEAP practice where patients used several hospitals, the RN care managers contacted hospitalized patients by telephone. The number of patients under a single RN's care management varied from 50 to 200. Practices had developed admission and discharge criteria to guide assignment of patients to RN care managers and transition back to usual care after stabilization or achievement of treatment goals. The largest practices had RN care managers who focused on a single primary health condition such as diabetes.

RN care managers had considerable autonomy and a range of strategies for accomplishing their goals based on their patient populations and health care environments. For example, RN care managers in 3 practices regularly made home visits to assess home

environments and address unmet needs. They often worked with care coordinators, health coaches, or social workers; in a number of FQHCs, they worked on key social factors such as homelessness, substance abuse, and extreme poverty that prevented progress toward goals.

Team RNs

Team RN responsibilities included traditional clinical support for providers such as medication/immunization administration, supervision of unlicensed personnel, medication reconciliation, patient education, coordination of patient flow, and telephonic advice, guidance, and triage. We previously noted that the majority of practices with team RNs had established visit templates to allow direct scheduling of appointments with the RN. We also noted that team RNs enjoyed significant autonomy in decision making regarding daily practice flow and had strong, collegial relationships with their team members, including the PCPs.

Visits scheduled with the RN included both planned visits and "walk ins." The use of practice-wide standing orders, including the previously described "delegated order sets," enabled team RNs to independently conduct preventive visits, manage minor acute illnesses, and provide significant chronic illness care and management to the panels with which they were working. Operating under standing orders or protocols authorized by a specific PCP or the physician leader in the practice, team RNs provided assessment, management, and treatment, including prescribed medications, to patients presenting with well-defined symptoms or conditions—most commonly upper respiratory or urinary tract symptoms. Some practices had established protocols for RNs to manage latent TB infection; test for and treat sexually transmitted infections; and provide asthma education, support, and testing. RNs saw patients for immunizations and vaccines, contraception counseling and support, lactation support, routine prenatal care, and, in one practice, chronic pain management.

Although most RNs conducted independent RN visits, it was evident that the RNs always had ready access to the medical providers (MDs, physician assistants, and NPs) for consultation, questions, and follow-up. In smaller practices, the RNs often served as team RNs and were given some responsibility for follow-up of ED visits and hospital discharges, particularly when the practice did not also have designated RN care managers.

Warfarin management

The volume of patients on warfarin regimens and the ongoing need for counseling, education, and monitoring and dosage adjustment led 13 LEAP sites to have designated RNs manage warfarin therapy, often with specific scheduled “clinics” within the practice just for this purpose.

Collaborative PCP/RN visits

Two practices had developed a “collaborative visit” model, with RNs and PCPs seeing complex patients together. The team RN took primary responsibility for the history, focused examination, review of systems, medication reconciliation, and reviewing follow-up instructions, with the PCP reviewing and confirming findings and determining the diagnosis and treatment plan.

Challenges, facilitators, and considerations for optimizing RN roles

The RN role in triaging patients was frequently mentioned in interviews with practice RNs and leaders, often negatively, because this responsibility pulled RNs away from direct patient care activities that were perceived as more useful as well as more professionally satisfying. To handle incoming phone calls, LEAP practices implemented solutions that ranged from rotating the telephone triage responsibility among all of the RNs in the practice to assigning the function to non-nurses to creating specific “triage RN” positions in larger practices.

Elevating the RN role to top of licensure work also meant providing training for other staff members who could perform “traditional” nursing functions effectively

with proper training and supervision. That training often involved developing an internal curriculum and supports for medical assistants, licensed practical nurses (LPNs), and lay health workers to take on tasks such as triaging patient phone calls or e-mails or providing self-management counseling and coaching. Some LEAP sites provided training that enabled LPNs to take on tasks such as warfarin management or ED follow-ups so that RNs could focus their activities on more complex activities.

Practice leaders and staff nurses frequently mentioned that additional training was necessary to prepare RNs for their changing roles in primary care. External, formal training in care management was seen as critical in the development of the RN care manager role in several LEAP practices. These organizations had relied on external training available through the Institute for Healthcare Improvement, Oregon Health & Science University’s Care Management Plus program, or state-based initiatives addressing chronic illness care improvement. Clinical leaders also cited the need for preparing RNs for primary care’s newer challenges such as managing addiction within the primary care setting.

Strong and often visionary leadership was essential for developing the role of the RN in primary care, particularly from physician practice owners, founders, CMOs, nurse leaders, and senior administrative leaders. RNs in LEAP sites noted the role of supportive leadership in effecting change. One said,

The mission is relationship-based care, which is fabulous. When I first got here we had very different nursing leadership, which has completely changed from the top down in the last couple of years. We didn’t know any of the patients, because we all saw patients of all the docs. It was not fulfilling. Then we shifted into really working at the top of our license and now we get to develop relationships with people.

RN satisfaction with practice in team-based primary care

RNs in LEAP practices reported significant personal and professional satisfaction with their role, most markedly with the high

degree of patient contact that the role afforded them. Many of the nurses in the LEAP sites were long-standing residents of the community in which they practiced. They reported deriving great satisfaction from knowing their patients and families well and feeling that they were making a contribution to their community.

Nurses who had experienced the transition from “traditional” to emerging nursing roles talked about the positive, contrast between the old and new, and more independent roles but acknowledged that some nursing colleagues had experienced sufficient discomfort with the changes to leave or request reassignment. An RN care manager in a rural practice said, “Motivational interviewing and being trained as a nurse care manager was probably the most freeing thing that’s happened to me as an educator and a nurse.” In an FQHC, the RN care manager said, “I came here from working in hospitals because I was intensely curious about why problems had gotten so bad and were not dealt with earlier. And from day one, I was part of the team. What I had to say was considered important.”

Impact on other team members and the financial health of the practice

Providers noted the positive impact on their practice of having RNs on their team, such as “lightening of the burden” of caring for very complex patients in primary care. While only a third of practices were billing RN visits to insurers, those that billed recognized that the RNs were making a valuable contribution to the revenue of the practice versus being a cost center. In the remaining practices, there was a general lack of clarity about the ability to bill/charge for nurse-only visits based on questions of what is allowable under state regulations and the policies of their major insurance payers. Only a few LEAP practices received an additional payment on a per-member-per-month basis from payers or through an accountable care organization (ACO) arrangement for patients receiving care management services, but the insurer themselves employed or paid for the RN care manager in 2 practices.

Outcomes on patient care

Few practices could document a direct impact of RN care on patients or the practice. Two practices had measured reduced hospital readmissions and improved chronic illness control following changes in RN roles with specified populations, but, overall, it was difficult to quantify the impact of changes in the RN role on the practice.

DISCUSSION

Our findings suggest that a large majority of LEAP primary care practices, regardless of practice type or corporate structure, use RNs as a key part of their care team model. This contrasts with a study of 496 practices in the Centers for Medicare & Medicaid Services Comprehensive Primary Care initiative (Peikes et al., 2014) that found that only 36% of practices had RNs on staff compared with 77% of LEAP sites. Roles and practice context varied across our sample of LEAP practices; nonetheless, we identified RNs with well-differentiated emerging roles that contributed to patient care, team satisfaction, and RN professional satisfaction.

In most LEAP practices, RNs practice at the top of their education and experience, play major roles in the management of chronically ill patients, lead care management activities, are engaged in visits with patients both independently and in collaboration with PCPs, supervise and train other team members as appropriate, and work in a team with providers and staff (Bodenheimer et al., 2015). Preparation of RNs for these emerging roles through post-BSN training has been helpful in further development of skills for practice in the primary care setting. This may point to the need for prelicensure education to put greater emphasis on specific skills for the primary care setting. The American Association of Colleges of Nursing (AACN) called for the baccalaureate degree as the minimum preparation for RN practice, in part, due to the anticipated shift from acute to primary care and community health. However, current entry-level associate and baccalaureate

nursing education does not require curricular or clinical experience in primary care (AACN, 2001).

Professional satisfaction of RNs in primary care appears to be closely tied to significant patient contact, the development of relationships with patients over time, and satisfying team and collaborative relationships. Leaders of high-performing, team-based LEAP practices have recognized this value of RN roles in contributing most effectively to patient care and retaining strong nurses in primary care settings. LEAP practices support communication and collaboration among practice teams through structured interventions such as morning huddles among team members, colocating staff who shares responsibility for specific patient panels, and fostering frequent communications between team members.

In developing innovative RN roles, LEAP sites have faced a common set of implementation challenges. Although RNs can obtain an NPI number and be recognized for their individual services, there remains wide variation between the state and major payers as to when and under what circumstances services provided by an RN, without direct supervision of a licensed independent provider, are eligible for payment. The focus on alternative payment models including shared savings program, MACRA, and ACOs places ever more importance on the contributions of care management and care coordination to clinical outcomes and cost savings but does not clarify the role of nursing in achieving these outcomes. Across the country, there is a lag between the recognition of the need to provide undergraduate RN students with clinical education and training in the primary care setting and the development of clinical training placements to support those students. In 2016, Health Resources & Services Administration's Division of Nursing funded a new initiative, the Nurse Education, Practice, Retention and Quality-Bachelor of Science in Nursing Practicum in Community Settings (BPCS) program, specifically to provide senior BSN students with clinical training in community-based settings. Bodenheimer and Baurer (2016) point out other

barriers to attracting RNs to primary care such as the salary differential between the acute and primary care settings.

There are several limitations to this study. It relies on qualitative data from highly selected practices. Unfortunately, we were not able to identify sufficient RN-specific quality, outcome, cost, revenue, or patient satisfaction data to assess possible impacts of nurse activities on important outcomes. We suspect that today's more data analytic-rich practices might have such data. This study relied largely on site visitor observations, interviews, and reviews of nonstandardized practice tools. As a consequence, nurse roles and activities are challenging to compare across practices. The inclusion of in-person, on-site visits by a team of researchers is a strength of the study, but these visits took place in the context of very busy primary care practices. Finally, this is a rapidly evolving area in primary care practice and we recognize that what was strongly innovative at the start of the study has increasingly become the norm. However, continued contact with the LEAP practices confirms that the RN roles and role changes observed in 2012-2013 have persisted and spread, indicating movement toward a new role definition of primary care nursing.

Our findings suggest that the previous trend of RNs moving from primary care/community to acute care settings is likely to be reversed in the coming decade for 2 reasons: (1) with US health care reform, we anticipate more community and ambulatory nursing jobs; and (2) RNs find these emerging roles to be challenging and rewarding. Our study of high-performing, innovative primary care practices also identified an urgent need for further research in several care areas to develop knowledge, best practices, and policy for RNs in primary care. We suggest further study in these areas: (1) standardized approaches to independent nurse visits, standing orders, and use of delegated order sets; (2) reliable measures to determine the impact of team RNs and RN care managers on outcomes such as chronic illness control, hospital admissions, and patient/family satisfaction; (3) measures to assess the impact of RN care managers on total

team performance, satisfaction, and vitality, as well as optimal approaches for training RN students in primary care settings during prelicensure education; and (5) a reliable road map for billing and revenue generation for RNs in

primary care that is consistent with current private-public financial requirements and that considers future payment system changes as the US transitions to a more value-based payment system.

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