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Nurse practitioners as primary care providers with their own patient panels and organizational structures: A cross-sectional study

Lusine Poghosyan[a,*], Jianfang Liu[b], Allison A. Norful[c]

[a] Columbia University School of Nursing, 617 W. 168th Street, GB 219, New York, NY 10032, United States
[b] Columbia University School of Nursing, 617 W. 168th Street, GB 245, New York, NY 10032, United States
[c] Columbia University School of Nursing, 617 W. 168th Street, GB 239, New York, NY 10032, United States

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ABSTRACT

Background: Health care systems globally are facing challenges of meeting the growing demand for primary care services due to a shortage of primary care physicians. Policy makers and administrators are searching for solutions to increase the primary care capacity. The effective utilization of nurse practitioners (NPs) has been proposed as a solution. However, organizations utilize NPs in variable capacities. In some settings, NPs serve as primary care providers delivering ongoing continuous care to their patients, referred to as patient panels, whereas in other settings they deliver episodic care. Little is known about why organizations deploy NPs differently.

Objectives: Investigate the NP role in care delivery—primary care providers with the own patient panels or delivering episodic care—within their organizations and understand how work environments affect their role.

Design: A cross-sectional survey design was used to collect data from primary care NPs.

Settings: The study was conducted in one state in the United States (Massachusetts). Data from 163 primary care organizations was obtained, which employed between one to 12 NPs.

Participants: 807 NPs recruited from the Massachusetts Provider Database received mail surveys; 314 completed and returned the survey, yielding a response rate of 40%.

Methods: The survey contained measures of NP role in care delivery and work environment. NP role was measured by an item asking NPs to report if they deliver ongoing continuous care to their patient panel or if they do not have patient panel. The work environment was measured with the Nurse Practitioner Primary Care Organizational Climate Questionnaire (NP-PCOCQ). The multilevel Cox regression models investigated the influence of organization-level work environment on NP role in care delivery.

Results: About 45% of NPs served as primary care providers with their own patient panel. Organization-level Independent Practice and Support subscale, an NP-PCOCQ subscale, had a significant positive effect on NP role (risk ratio = 2.33; 95% CI: 1.06-5.13); with a one unit increase on this subscale, the incidence of the NPs serving as primary care providers with their own patient panel doubled.

Conclusions: NPs can help meet the increasing demand for primary care by taking responsibilities as primary care providers, and organizations can assign NPs their own patient panels. Supporting NP independent practice within organizations promotes NP role as primary care providers. Policy and organizational change focused on promoting NP work environments so NPs can practice as primary care providers can be an effective strategy to increase the primary care capacity.

What is already known about the topic?

- Health care systems globally are facing challenges of meeting the demand for growing primary care services due to the shortage of primary care physicians.
- Effective utilization of nurse practitioners can help meet the growing demand for primary care services.
- Providing NPs with their own patient panel improves access to care, decreases wait time, promotes chronic disease management, reduces hospital visits, and improves provider retention.

What this paper adds

- Primary care nurse practitioners have different roles in care delivery

* Corresponding author.
E-mail addresses: lp2475@columbia.edu (L. Poghosyan), jl4029@cumc.columbia.edu (J. Liu), aan2139@cumc.columbia.edu (A.A. Norful).

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across primary care organizations.
- Only about half of the primary care nurse practitioners have their own patient panel to whom they deliver ongoing continuous primary care.
- Organizational structures within the employment settings affect nurse practitioner role in care delivery beyond the state level scope of practice regulations.

1. Introduction

Health care systems globally are facing challenges to deliver timely, high quality, and cost effective primary care. The growing shortage of primary care physicians is a contributing factor to such imbalance in the demand for care and supply of primary care providers (Scheffler et al., 2008). In the United States (U.S.) as well as internationally fewer medical residents choose primary care specialties, limiting both the current and the future supply of these providers; higher salaries in specialty medicine incentivize these choices (Laugesen and Glied, 2011). Globally, policy makers are contemplating various health care delivery models to meet the growing demand for primary care (Cometto et al., 2013). One such strategy that is widely utilized across many countries to increase the overall capacity of primary care is the better utilization of nurse practitioners (NPs) (Freund et al., 2015; Martínez-González et al., 2015). A recent study conducted in 39 countries showed that they are implementing reforms to shift patient care tasks from physicians to NPs in order to maximize the capacity of the health care workforce (Maier and Aiken, 2016). NPs can play a vital role to help meet the demand for primary care services as systematic reviews of international evidence consistently demonstrate that NPs are capable of delivering high quality of patient care, and the outcomes of their care are equivalent to those of physician care (Horrocks et al., 2002; Martínez-González et al., 2014).

The health care system in the U.S. is also facing major access to care challenges and is unable to meet the growing demand for primary care because of the lack of primary care physicians (Petterson et al., 2012). Many Americans, especially those with low incomes, struggle to secure timely primary care appointments (Rhodes et al., 2014). It is estimated that in order to complete all recommended preventive, acute, and chronic care guidelines recommended by national clinical organizations, a primary care physician in the U.S. with a standard patient panel of 2500—patients regularly under the care of the provider, would require an unrealistic 21.7 h per day (Yarnall et al., 2009). Furthermore, these estimates were developed prior to the implementation of the Affordable Care Act, which provided millions of previously uninsured Americans with health care coverage and significantly increased the volume of patients seeking primary care (Patient Protection and Affordable Care Act, March 23, 2010). Thus, policy makers are calling for the expansion of the role and scope of practice of NPs to meet the growing demand for primary care (Federal Trade Commission, 2014; Institute of Medicine, 2010; National Governors Association, 2012).

NPs in the U.S. have a long history of delivering primary care to patients. Their role was first established in 1960s to help children in need to have access to care (Silver et al., 1967, 1968). Since then the NP role and scope of practice evolved, and NPs provide care across the continuum of the lifespan and in a variety of health care settings including acute and long term care settings, and in primary care. NP education and training, which prepares NPs to independently care for patients, prescribe medications, and order necessary tests and equipment for patients is uniform across the U.S.; however, the state level regulations governing this workforce significantly vary from state to state across the country (Barton Associates, 2015). Some states support the NP full scope of practice allowing NPs to independently deliver care or prescribe medications; other states impose restrictions by requiring NPs to have supervisory or collaborative relationships with physicians to be able to deliver care or prescribe medications to their patients (Barton Associates, 2015). Moreover, in addition to these variations in NP practice created by state-level regulatory policies, a wide variability also exists in how organizations employing NPs utilize them in care delivery even within the same state. For example, certain health care organizations employing NPs only allow them to deliver episodic care to patients whereas other organizations deploy NPs as primary care providers who independently provide care to their own patient panels (Laurant et al., 2005; Poghosyan et al., 2015a, 2015b). Primary care providers being able to deliver care to their own patient panels promotes continuity of primary care (Saultz, 2003), which is critical for optimal patient outcomes such as preventing unnecessary hospitalizations (Nyweide et al., 2013) and reducing mortality (Wolinsky et al., 2010). In addition, determining patient panels for primary care providers is an important productivity, quality, and outcomes question for policy makers and practice managers (Muldoon et al., 2012). Furthermore, as the NP role is developing globally, attention is shifting towards the productivity of the NP workforce to help health care systems to meet the demand for primary care services, and assigning and determining NP panels is a critical step in achieving that goal (Martin-Misener et al., 2016).

Many factors in the U.S. could affect the ability of NPs to function as primary care providers delivering care to their own patient panels. For example, Medicare which is the largest federal health insurance program in the U.S. covering mostly adult patients ages 65 and older, reimburses NPs at 85% the physician fee schedule for delivering the same services (CMMS, 2002). This billing practice incentivizes some health care organizations to bill for NP services under the physician name in order to receive 100% of the fee for the services despite the fact that NPs have the primary care provider role and deliver ongoing continuous care to patients (Poghosyan et al., 2013c). Thus, Medicare data do not accurately capture the patient panels assigned to NPs.

To date, several studies investigated the impact of various regulatory barriers on NP role in care delivery and patients' access to care (Barnes et al., 2016; Cross and Kelly, 2015; Graves et al., 2016). In contrast, comparatively little research has focused on the organizational structures in health care settings employing NPs and how organizations utilize NPs in care delivery as primary care providers with their own patient panel within the same federal and state regulatory environment. Isolated investigations, focusing only on state-level barriers, without considering the characteristics of organizations employing NPs, and the ecological nature of such studies, give limited views about how to develop concrete and feasible organization-level interventions to optimize NP role in care delivery in order to increase the capacity of primary care. To date, little is known why organizations employing NPs within the same state deploy NPs differently given the same state-level scope of practice regulations governing this workforce and the NPs' uniform education and training across the U.S.

1.1. NP patient panels and organizational structures

The NP workforce in the U.S. represents a substantial supply of primary care providers. A recent study suggested that expanding patient panels—the number of patients regularly under the care of the NPs—could substantially mitigate the primary care physician shortages in the U.S. (Auerbach et al., 2013). A 2016 scoping review of 111 peer-reviewed articles and grey literature documents published in the International Journal of Nursing Studies on NP patient panels and caseload found that if NPs have their own patient panel, it leads to improvements in access to care, decreases wait time, promotes chronic disease management, and reduces hospital visits, in addition to improving provider retention (Martin-Misener et al., 2016). Thus, promoting the NP role as primary care providers who deliver continuous ongoing care to their own patient panels could be an effective strategy to increase the capacity of the primary care system.

However, NPs often practice in health care settings with challenging organizational structures that may affect the NP role in care delivery and prevent them from delivering continuous care to their own patient