Time spent with patients by physicians, nurse practitioners, and physician assistants in community health centers, 2006–2010

Perri Morgan [a,*], Christine M. Everett [a], Esther Hing [a,b]

[a] Department of Community and Family Medicine, Duke University Medical Center, Durham, NC 27710, USA
[b] National Center for Health Statistics, Centers for Disease Control, USA

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ABSTRACT

Background: As health systems struggle to meet access, cost and quality goals in the setting of increased demand, nurse practitioners (NPs) and physician assistants (PAs) are expected to help meet the need for care. The amount of time spent with each patient can affect the clinical productivity, quality of care, and satisfaction of patients and clinicians. This paper compares time spent per patient in community health centers by whether the provider is a physician, NP, or PA.

Methods: This paper uses National Ambulatory Medical Care Survey (NAMCS) Community Health Center (CHC) data from 2006–2010. The NAMCS CHC strata is a national sample of CHCs, providers within CHCs, and patient visits to CHCs. Provider characteristics and variables related to time spent with patients across provider types were compared using t tests and chi square tests of association. Multivariate linear regression analysis was used to compare time spent with patients, controlling for patient and visit characteristics.

Results: There were no differences in the number of visits by provider type, but PAs saw patients for a slightly larger portion of the week (3.8 days) than did physicians (3.5 days, $p < 0.05$) or NPs (3.4 days, $p < 0.05$). There were no statistical differences in the mean time spent per patient in the crude and adjusted analyses.

Conclusions: Time spent per patient in CHCs is similar for physicians, NPs and PAs. This information may be useful to planners concerned with health system capacity and cost efficiency, and has implications for patient and provider satisfaction.

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1. Background

The "triple aim" for improvement of the US healthcare system calls for improving patient outcomes and the health of populations while simultaneously reducing per capita healthcare costs.[1] New models of care, such as the patient-centered medical home model, strive to achieve multiple concurrent goals.[2] In these new models, improvements in both clinical outcomes and the patient experience are integral. Improving the health of populations requires assuring timely access to care. At the same time that healthcare organizations are expected to meet these new goals, many experts predict that system capacity may not be adequate.[3,4] Concern about whether the supply of physicians will be adequate to meet the need for services is especially acute in primary care, a sector that suffers from lower salaries, high burnout, and low prestige.[4]

As health systems struggle to meet diverse goals[1] – broad access to care, improved clinical quality, high patient satisfaction, cost

control, and an attractive work climate – and the nation expects a surge in demand for care,[5] the supply of physicians might be inadequate unless their labor is bolstered by other professionals.[6–8] Care by nurse practitioners (NPs) and physician assistants (PAs) can achieve high quality and patient satisfaction, and could help expand access and control costs.[9–11]

Questions remain, however, about the use of NPs and PAs, including how their clinical productivity compares to that of physicians, and how this clinical productivity impacts organizational efficiency and system capacity. How many primary care patients can an NP or PA care for, compared to a physician? The Negotiated Rule Committee established through the Affordable Care Act (ACA) to update guidelines for designating health professional shortage areas (HPSAs) recommended to the Administrator of the Health Resources and Services Administration in 2011 that each NP, PA, or clinical nurse midwife (CNM) be counted as 75% of a physician for purposes of determining HPSA status. The committee acknowledged, however, that the evidence for this recommendation was inadequate.[12]

The amount of time that providers spend caring for each patient is an important component of a clinical productivity

assessment. With clinical productivity defined as the amount of output per unit input, time spent with the patient is central to characterizing the denominator of this equation. The amount of time that providers spend with patients also impacts their ability to fill the need for health services. Spending less time per patient might improve organizational efficiency, since more patients would be seen per unit of labor cost. If the goal is expanding access to care, providers who can see patients more quickly may be able to extend services to more patients. On the other hand, spending more time with patients has been associated with small to modest improvements in patient satisfaction.[13–16] Adequate time with patients could allay provider frustration with the often hectic pace of primary care and improve provider satisfaction.[17,18] The amount of time that providers spend with patients may affect the type and quality of care that they provide.[19] Some types of care, such as preventive services and patient education, may require more time.[19] Chronic disease care outcomes have been shown to be improved by positive provider–patient communication,[20] and this communication may require more time.[21] Finally, the attractiveness of a health profession or of primary care specialty practice to potential entrants may be affected by perceptions of whether time with patients will be rushed.[22] For example, PA school applicants frequently cite their perception that they will be able to spend more time with patients as a PA than as a physician as a reason for choosing a career as a PA.[22] To our knowledge, concrete support for this perception is lacking.

Spending more time with patients, then, could both help and hinder attainment of health system goals. Healthcare organizations should consciously construct teams to meet their specific goals and to balance the advantages and disadvantages of variations in team composition.[23] As organizations include more NPs and PAs in their staffing mix, it would be helpful to know how the amount of time that they spend with patients compares to that of physicians.

Community health centers (CHCs) provide care for vulnerable populations and are an important component of the healthcare safety net. CHCs have expanded over the past decade, and are expected to continue to expand to meet the need for care among the newly insured as the ACA is implemented.[24] Because these centers rely on staffing patterns that employ a large proportion of NPs and PAs, compared to physicians[25], they provide an instructive setting for study of the practice characteristics of NPs and PAs. This paper uses national data from community health centers (CHCs) to compare time spent with patients by whether the visit provider was a physician, NP, or PA.

2. Methods

This study uses 2006–2010 data from the National Ambulatory Medical Care Survey (NAMCS) Community Health Center Stratum.[26] The NAMCS is designed to reflect physician practice in the U.S. and uses a three stage probability sample based on geographic primary sampling units (PSUs), physician practices within the PSUs, and patient visits within physician practices. The NAMCS CHC sample draws CHCs from a health center roster and takes representative samples of physicians, NPs and PAs within those centers. This CHC stratum was added to the NAMCS family of surveys in 2006 and consists of approximately 104 CHCs per year. Sampled CHCs include Federally Qualified Health Center (FQHC) clinics that receive Section 330 grants under the Public Health Service Act, "look-alike" health centers that meet FQHC requirements, and federally-qualified Indian Health Service clinics. Separate response rates taking CHC participation and visit response into account were computed by provider type. Among CHC non-physician providers (NPs, PAs, and CNMs), the combined response

rate was 86.6%; among CHC physicians, it was 85.5% (unpublished calculations by authors).

Our study includes only visits to Section 330 grantees and "look-alike" CHCs.[27] Our study included 670 physicians, 245 NPs, and 103 PAs, as well as the 24,528 visits that patients made to these providers in CHCs from 2006–2010. The 2010 data are the most recent data available. All sampled providers were asked to complete a provider induction survey and 30 patient visit forms for a randomly selected sample of patients over a randomly selected one-week period. Our estimates are based on the provider type who actually saw the patient. For some patients, time spent with the patient was recorded for two provider types, suggesting that two providers saw the patient. These visits were rare (0.4% of visits) and were excluded from our analysis.

The nonresponse rate for most questions was less than 5%. Exceptions were race (20.9%), ethnicity (16.4%), and number of past visits during the previous 12 months (10.5%). All of these variables, however, were imputed by National Center for Health Statistics analysts and used in our analysis. Imputation was accomplished by randomly assigning a value from another record with similar characteristics. Imputations, in general, were based on physician specialty, geographic region, and diagnosis codes.[28]

Sampling weights were used to obtain national estimates for all analyses. To adjust for the complex sample design, standard errors were obtained using Taylor-series approximation with SUDAAN software.

Because CNMs constituted a very small portion of our sample (1.7%), we included them in the NP category. When possible, we analyzed PAs separately from NPs. For the provider demographics and trend analyses, NP or PA sample size limitations frequently produced unreliable estimates, so we combined NPs and PAs into a single group for analysis. However, we only combined NPs and PAs into a single analytic category after first confirming that both were more similar to each other than either as a separate category was similar to physicians with regard to the attribute being analyzed.

We used a weighted least-squares regression analysis to determine the significance of trends in numbers and percent of each provider type by year.[29] All other analyses combined all five years of data. We compared provider characteristics and time with patient variables across provider types using t tests and chi square tests of association. We performed linear regression on the time spent with provider, adjusting for the patient and visit factors that might affect the amount of time required for a visit. We adjusted for patient demographic and socioeconomic factors, reason for visit, visit complexity (measured by number of chronic conditions of the patient and number of services provided at the visit), factors indicating the patient's relationship to the clinic and to the provider (whether the provider is the patient's primary care provider, whether the patient is new to the clinic, number of times the patient has been seen in the clinic during the previous twelve months), and timing (study year and time of year). This regression analysis was performed at the visit level and included 21,125 patient encounters. Because our previous work[42] with this dataset showed that patient visit attributes for PAs were often more similar to those of physicians than to those of NPs, we did not combine PA and NP visits for the visit level regression analysis. We used a significance level of $p < 0.05$ for all analyses.

The Duke University Medical Center Institutional Review Board declared this research exempt from full review.

3. Results

When taking all five years together, physicians constituted 69% of CHC providers, NPs 21%, and PAs 10%. Due to sample size limitations, separate annual estimates for NPs and PAs are not