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Nurse practitioners, physician assistants, and physicians in community health centers, 2006–2010



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ABSTRACT

Purpose: Community health centers (CHCs) fill a vital role in providing health care to underserved populations. This project compares characteristics of patient visits to nurse practitioners (NPs), physician assistants (PAs), and physicians in CHCs.

Methods: This study analyzes 2006–2010 annual survey data from the National Ambulatory Medical Care Survey CHC sample, a representative national sample of CHC providers and patient visits. We examine trends in provider mix in CHCs and compare NPs, PAs, and physicians with regard to patient and visit attributes. Survey weights are used to produce national estimates.

Results: There were, on average, 36,469,000 patient visits per year to 150,100 providers at CHCs; 69% of visits were to physicians, 21% were to NPs, and 10% were to PAs. Compared to visits to NPs, visits made to physicians and PAs tended to be for chronic disease treatment and for patients whom they serve as primary care providers. Visits to NPs tended to be for preventive care.

Conclusions: This study found more similarities than differences in characteristics of patients and patient visits to physicians, NPs, and PAs in CHCs. When statistical differences were observed, NP patient and visit characteristics tended to be different from those of physicians.

Implications: Results provide detailed information about visits to NPs and PAs in a setting where they constitute a significant portion of providers and care for vulnerable populations. Results can inform future workforce approaches.

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1. Background

Since their creation as part of the *War on Poverty* in the 1960s, community health centers (CHCs) have filled an important role in providing health care to underserved populations in the United States.¹ Infusions of federal support over the past decade have expanded this role,^{2,3} with the number of patient visits to CHCs increasing from 15,681,407 in 2001² to 56,105,525 in 2010.⁴

Nurse practitioners (NPs) and physician assistants (PAs) have been employed extensively in CHCs for decades,⁵ but their use has increased, with NPs and PAs together providing 30% of CHC visits in 2006–2007.⁶ With primary care physician shortages predicted,⁷ CHC use of NPs and PAs is expected to continue to grow.

In primary care in the U.S., NPs and PAs fill a variety of roles, including serving as the primary care provider for patients, providing acute care, and providing chronic disease management.⁸

How the work of primary care is divided among teams of physicians, NPs, and PAs depends on many factors, such as the regulatory environment, local availability of providers, and local population needs. For example, NPs and PAs more often provide care and serve as patients' primary care providers in rural areas, where physicians are scarcer, and in states with less restrictive practice regulations.^{9–14}

CHCs may provide a model for NP and PA use in emerging modes of care designed for efficient service delivery to high-need populations.¹⁵ The population served by CHCs is medically and socially complex.¹⁶ In 2010, over 75% of CHC patients earned less than 200% of the federal poverty level; 76% were uninsured or covered by Medicaid; 62% belong to racial or ethnic minority groups; and 5% were homeless.⁴ Physician vacancy rates in CHCs are persistently high.¹⁷ Despite these challenges, CHC quality^{18,19} and cost¹⁶ outcomes compare favorably with other settings. As CHCs adapted to care for high-need populations with constrained budgets and chronic staffing shortages, many features of CHCs have evolved to resemble those of patient-centered medical home (PCMH) models. For example, many CHCs have adopted a holistic approach, accessibility, care coordination, and team approaches.^{3,20} For these

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reasons, the CHC care environment may demonstrate emerging patterns of NP and PA care for complex patients using team-based approaches similar to the PCMH care model.^{20,21}

While sometimes considered interchangeable, NPs and PAs are trained in different educational models and may have different strengths. NPs are trained using a nursing model that places high value on psycho-social aspects of care^{22,23} and may be especially suited to provide preventive care and chronic disease management.^{24,25} PAs are trained in a medical model similar to the physician's approach that focuses on treatment of disease states.⁵

Past research has sometimes been limited on information about NPs and PAs because data sources did not accurately represent them.²⁶ The sample design of the core National Ambulatory Medical Care Survey (NAMCS) provides national estimates for physicians, but not for NPs and PAs.²⁶ Starting in 2006 the NAMCS survey added a CHC stratum designed to accurately represent CHC physicians, NPs and PAs. This stratum provides an opportunity to compare patient care activities by provider type. Earlier studies have reported data on 2006–2008.²⁷ Our project presents a more detailed analysis of patient and visit data to CHC providers and extends through 2010 to encompass a time period of known rapid growth in CHCs and in the NP and PA professions. We analyze NPs and PAs separately and describe differences in their practice patterns in CHCs.

2. Methods

This study used data from the National Ambulatory Medical Care Survey (NAMCS) Community Health Center stratum from 2006 to 2010.²⁸ The NAMCS uses a three stage probability sample designed to reflect physician practice in the U.S. This sample is based on geographic primary sampling units (PSUs), physician practices within the PSUs, and patient visits within physician practices. The NAMCS CHC sample is drawn from a roster of health centers and takes, within those centers, representative samples of physicians, NPs and PAs. This CHC stratum, consisting of approximately 104 CHCs each year, was added to the NAMCS family of surveys in 2006. 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 but do not receive federal funding, and federally-qualified urban Indian Health Service clinics. Among CHCs, the response rate was 86.6% among NPs, PAs, and nurse midwives (NMs) and 85.5% among physicians (unpublished calculations by authors).

Our study included only visits to Section 330 grantees and “look-alike” CHCs, and used all available data to date. Altogether, the sample included 670 physicians, 245 NPs/NMs, and 103 PAs in these CHCs, and 24,528 patient visits that were made to these CHC providers from 2006 to 2010. All sampled providers were asked to complete a provider induction survey and patient visit forms for a randomly selected sample of up to 30 patient visits over a randomly selected one-week period. Our estimates were based on the provider type that actually saw and provided care to the patient. For 107 visits (0.4%), time spent with the patient was recorded for a physician and an NP or PA; we attributed these visits to the physician.

Since the sample of NMs was too small (1.7%) to support valid statistical analysis as a separate group, NM were included in the NP category. Since NM patient care activities vary from those of NPs, we conducted sensitivity analyses (including vs. excluding NM visits) to determine if combining NMs with NPs significantly affected the outcomes. Outcomes were statistically similar for all variables (data available upon request).

Among the CHC visits, the nonresponse rates for most questions were less than 5%. Exceptions were race (15.8%), ethnicity (16.4%), and number of past visits during the previous 12 months (10.5%). Missing data for these variables were imputed and used in our analysis. Missing data for these items were imputed by National Center for Health Statistics analysts by randomly assigning a value from another record with similar characteristics. Imputations, in general, were based on physician specialty, geographic region, and diagnosis codes.²⁹

Patient characteristics analyzed included patient age group, sex, race/ethnicity, urban/rural status (Table 1), major reason for visit and presence of selected chronic conditions (Table 2), and factors describing the patient's relationship to the clinic, such as whether the patient was new to the clinic, how many times the patient had been seen in the clinic over the previous 12 months, and whether the provider seen was the patient's primary care

Table 1
Characteristics of patients and patient visits in CHCs by provider type, 2006–2010.
Source: National Ambulatory Medical Care Survey

	Physician (%)	NP or PA (%)	NP (%)	PA (%)	p Values			
					Physician vs. NP or PA	Physician vs. NP	Physician vs. PA	NP vs. PA
Age group					< 0.01	< 0.01	0.27	0.20
Children (age 0–18)	27	24	24	23				
Young adults (age 19–45)	33	45	48	39				
Middle-aged adults (age 46–64)	28	24	22	28				
Older adults (age > 65)	12	7	6	10				
Sex					< 0.01	< 0.01	0.41	< 0.01
Female	62	69	74	60				
Male	38	31	26	40				
Race/ethnicity					0.10	0.22	–	–
Non-Hispanic white	39	47	46	50				
Non-Hispanic black	20	20	22	17				
Hispanic	34	27	27	26				
Other	8	6	5	7 ^a				
Metropolitan statistical area					< 0.05	0.06	–	–
Urban	91	79	81	75 ^a				
Rural	9	21	19	25 ^a				

^a The estimates for PAs from these categories had large standard errors with relative standard error > 0.3.

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