

# **Community Health Center Expansion: Roles of Nurse Practitioners and Physician Assistants**

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# Background

- Community Health Centers (CHCs) are a crucial part of the healthcare safety net
- Nurse practitioners (NPs) and physician assistants (PAs) are used extensively in CHCs.
- The CHC system has expanded over the past decade, and the roles of NPs and PAs have also increased.

# Research questions

1. What are the trends in use of PAs and NPs in CHCs between 2006 and 2010?
2. How do patient and visit characteristics vary among provider types?
3. How does time spent with patients vary by provider type, adjusting for patient, provider, and visit characteristics?

# Data source

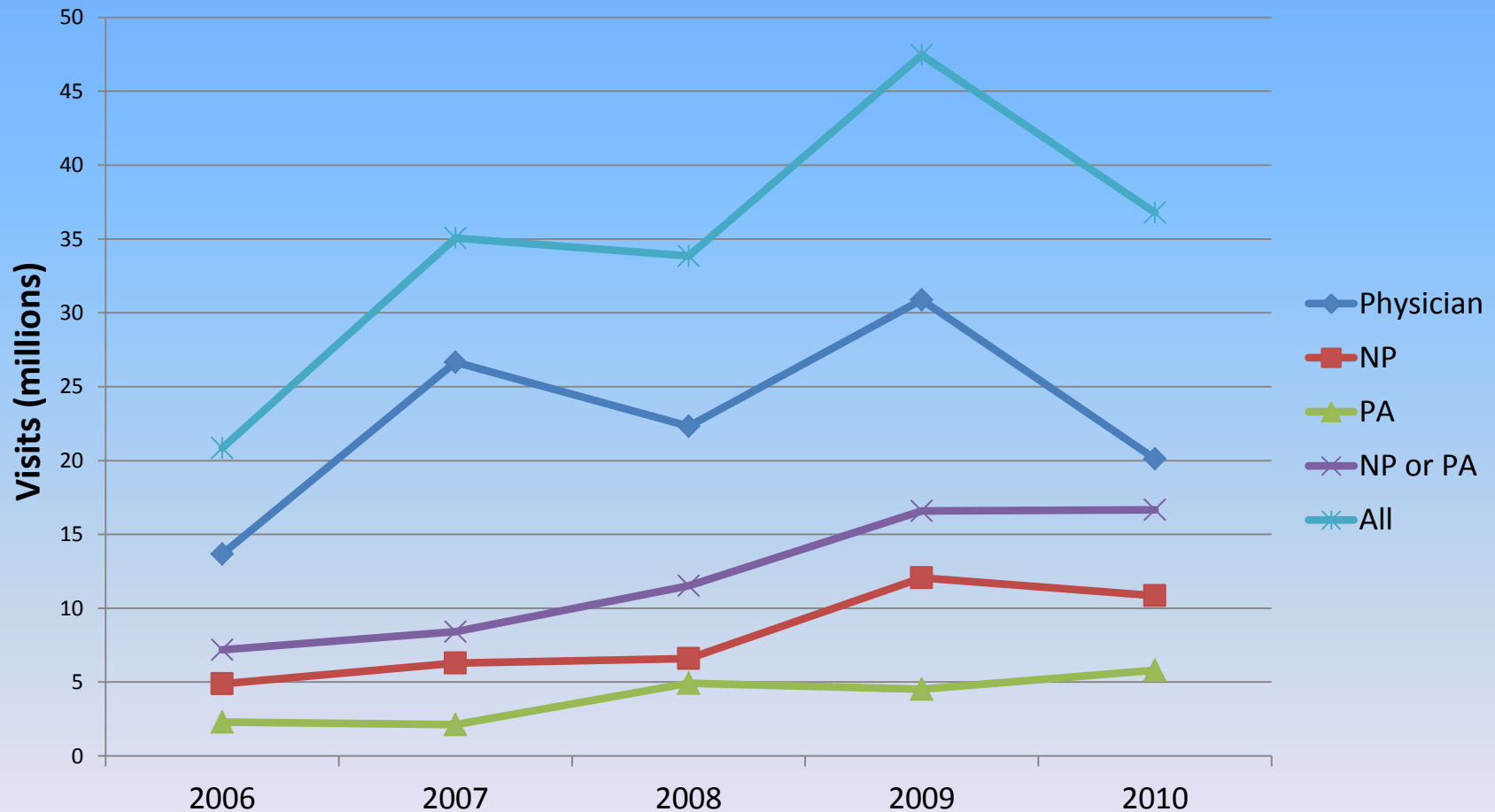
- National Ambulatory Medical Care Survey, Community Health Center sample, 2006-2010
- 4 stage sampling design
  - primary sampling units, clinics, providers
- CHC strata samples NPs, PAs, and Clinical Nurse Midwives (CNMs) as well as physicians.
- Sample included
  - 670 physicians, 245 NPs, and 103 PAs
  - 24528 patient visits

# Methods

- We excluded
  - other provider types
  - visits in which a physician and NP or PA were both recorded (<1%)
- Sampling weights were used to compute national estimates
- CNMs were included with NPs
- To account for the 3 stage sampling strategy, standard errors were computed using Taylor series approximations with Sudaan analytic software.

# Results

# Estimated Number of Community Health Center Visits by Provider Type, 2006-2010



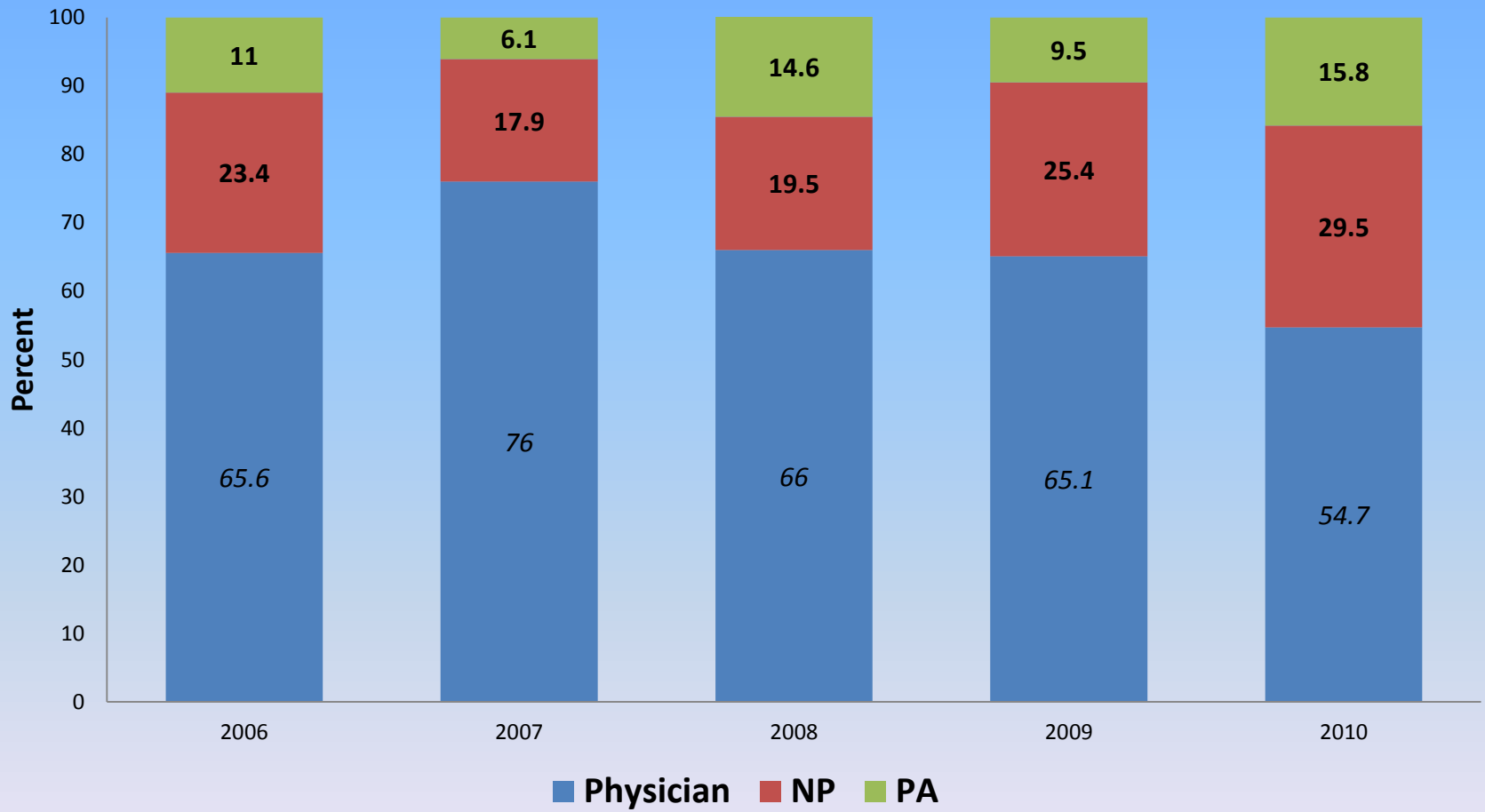
P values for trend tests in # of visits: physician visits = **.039**

PA visits = **.067**

NP visits = **.018**

NP or PA visits = **.039**

# Estimated Percent of Community Health Center Visits by Provider type, 2006-2010



P values for trend tests:

% physician visits = **.048**

% PA visits = **.229**

% NP visits = **.222**

NP or PA visits = **.048**

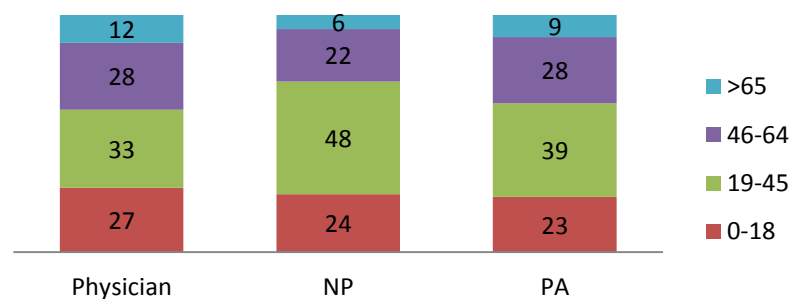


# Demographics of patients who visited CHCs by provider type, 2006-2010

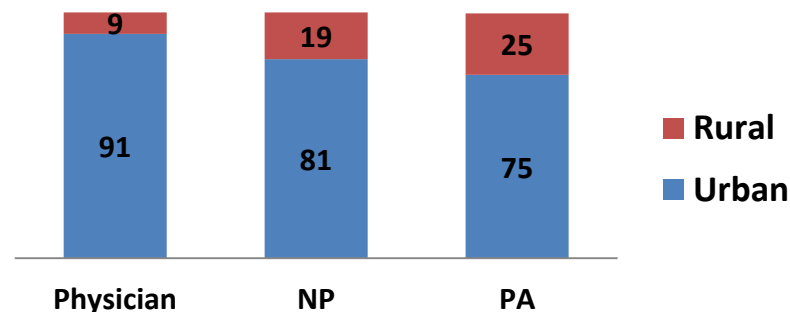
	Column Percent				p value
	Physician	NP	PA	All	
<b>Age group</b>					<b>0.0094</b>
0-18	27	24	23	26	
19-45	33	48	39	37	
46-64	28	22	28	27	
>65	12	6	9	10	
<b>Sex</b>					<b>0.0044</b>
Female	62	74	60	64	
Male	38	26	40	36	
<b>Race/ethnicity</b>					0.1529
NHW	39	46	50	42	
NHB	20	22	17	20	
Hisp	34	27	26	32	
Other	8	5	7 <sup>^</sup>	7	
<b>MSA</b>					<b>0.0409</b>
Urban	91	81	75 <sup>^</sup>	87	
Rural	9	19	25 <sup>^</sup>	13	

<sup>^</sup> Relative standard error > 0.3 for these estimates

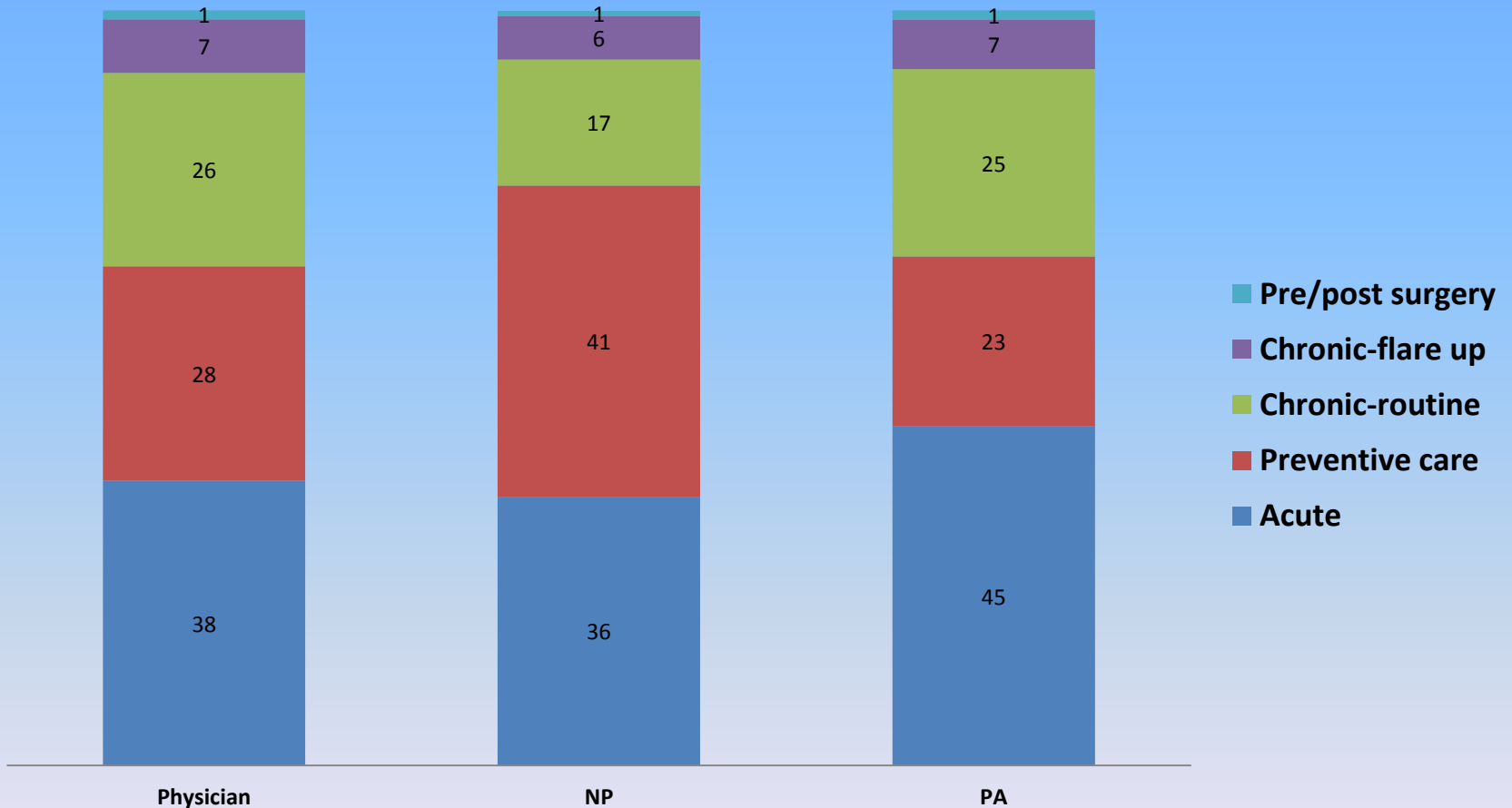
Percent of visits by patient age group



Percent of visits by rural/urban status

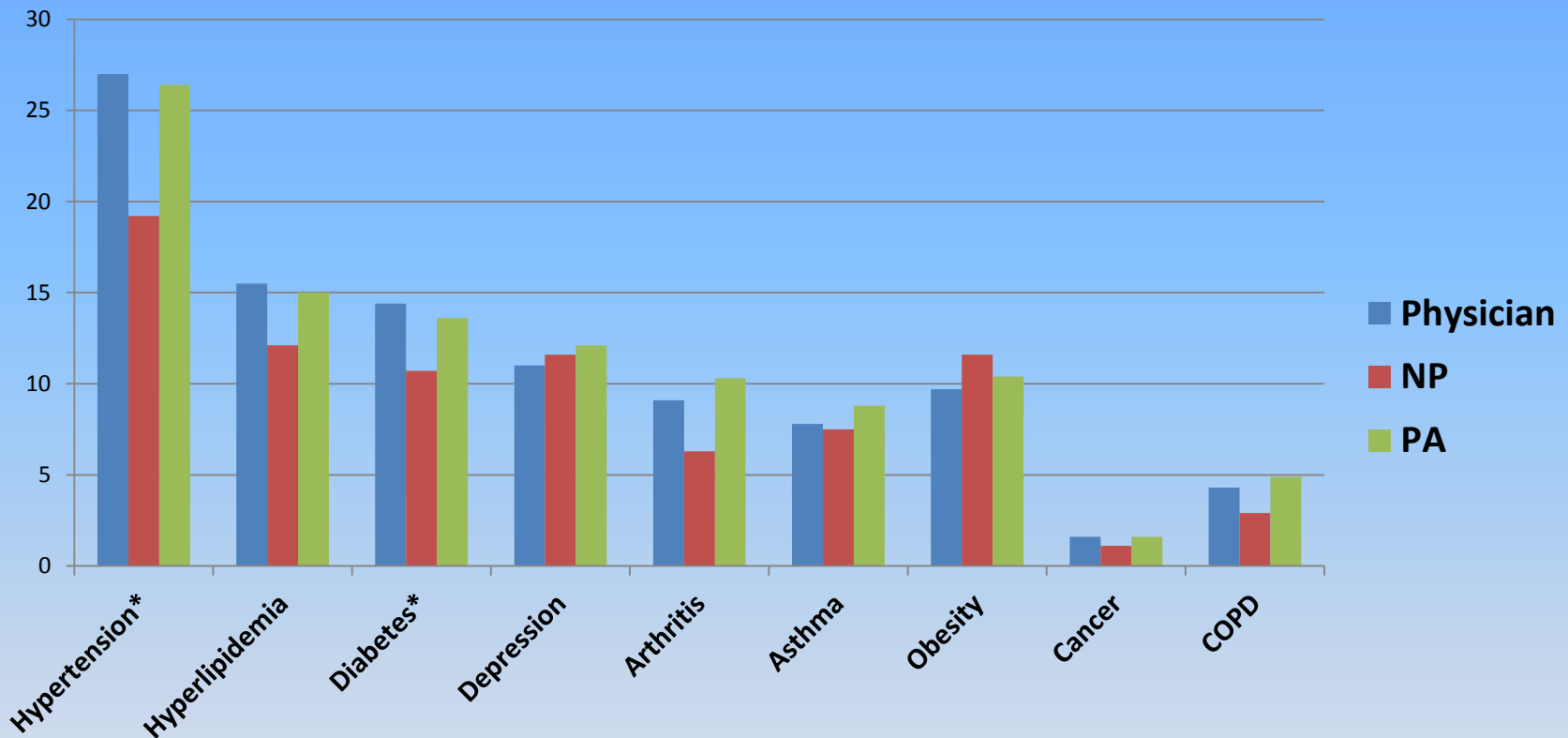


# % of visits by major reason for visit and provider type, 2006-2010



p values: three-way comparison = **0.0456**; physician vs. NP= 0.0613;  
physician vs. PA= 0.3295; NP vs. PA = **0.0117**

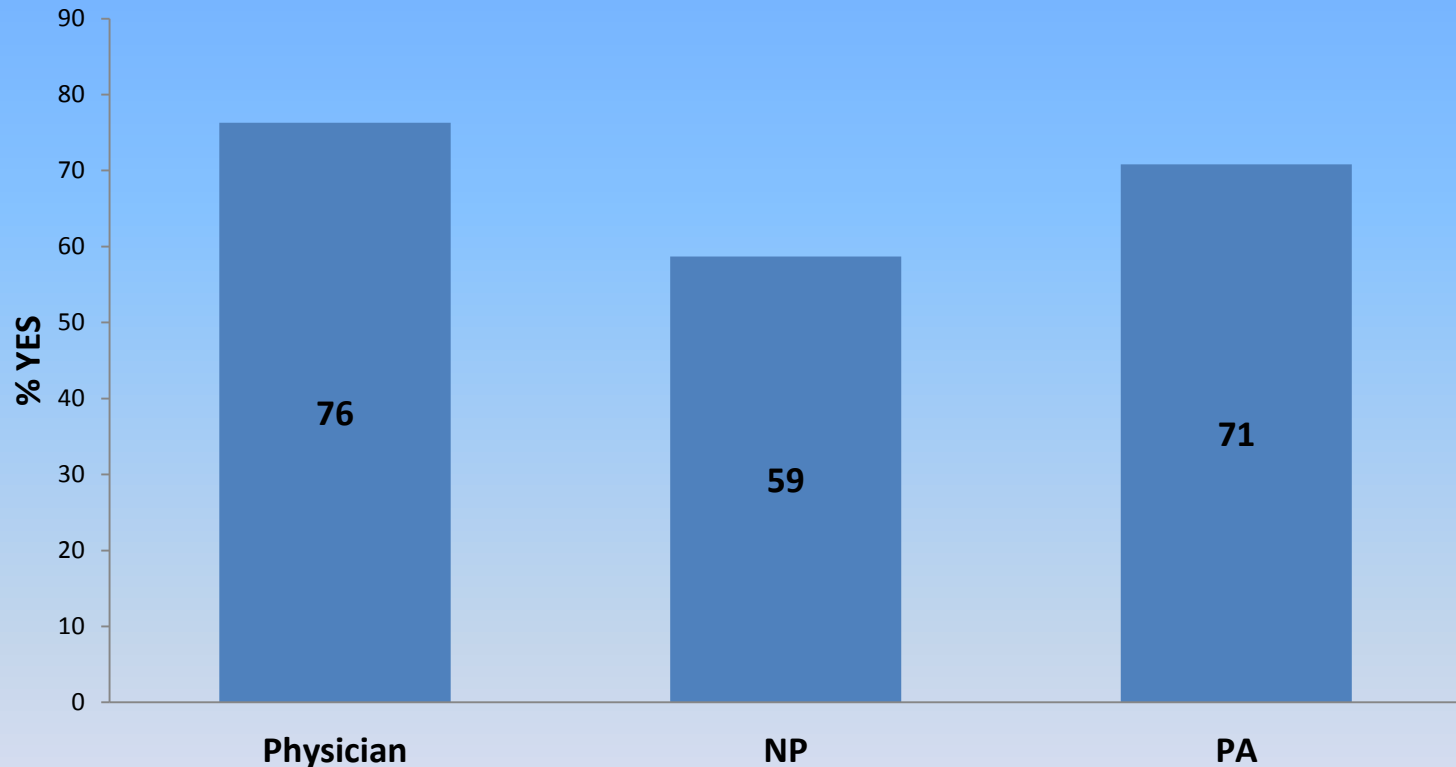
# Percent of CHC visits for which the patient has selected chronic conditions by provider type, 2006-10



\* P < .05

	Provider type			p value		
	Physician	NP	PA	MD vs. NP	MD vs. PA	NP vs. PA
<b>Mean # chronic conditions (out of 14)</b>	<b>1.11</b>	<b>0.89</b>	<b>1.11</b>	.0922	.9815	.1815

# Are you this patient's primary care provider?



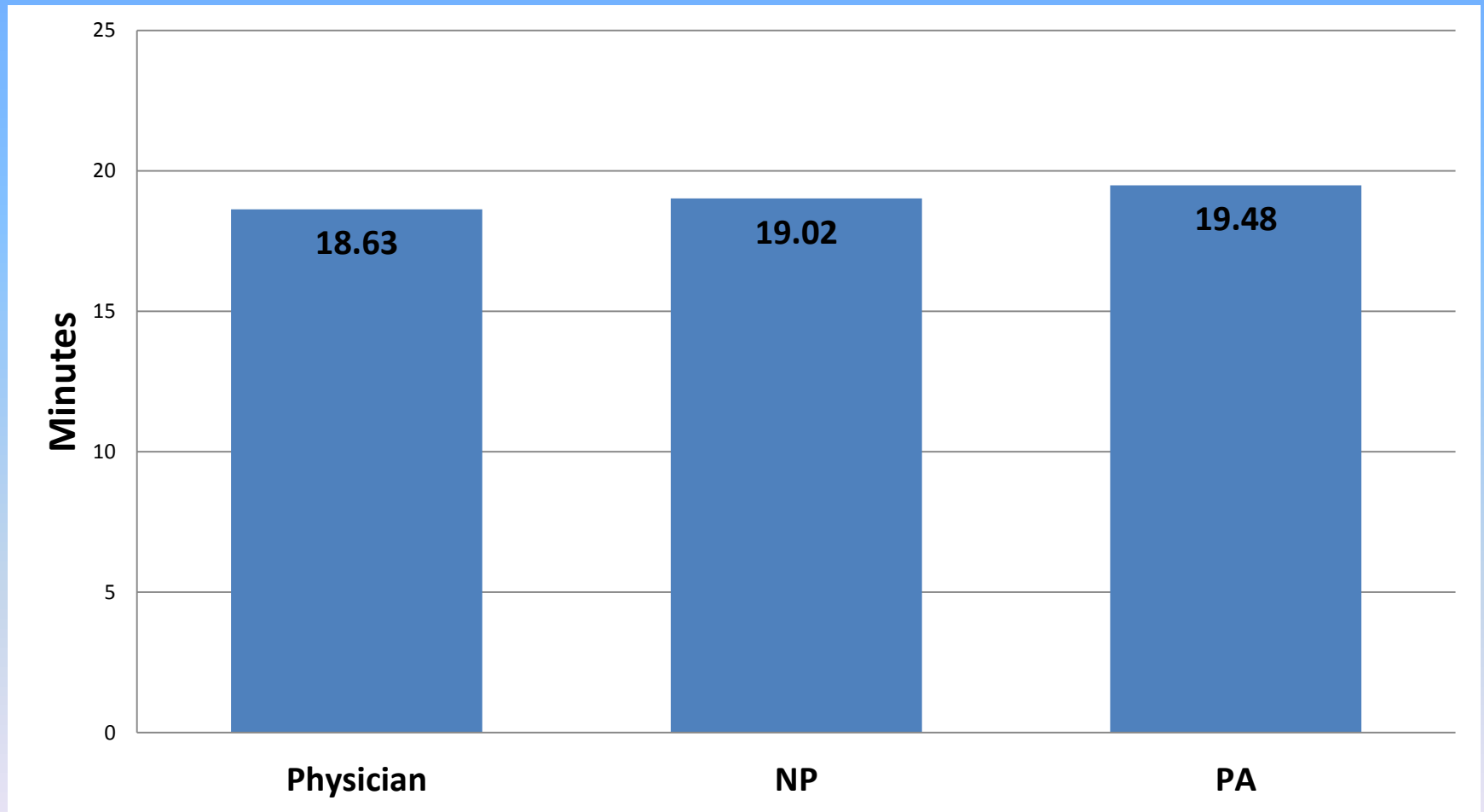
P values: 3 way = .0745

MD vs. NP = .0192

MD vs. PA = .4060

NP vs. PA = .3438

# Time spent with each patient by provider type, 2006-2010, unadjusted



3 way and all 2 way comparisons  $p > .05$

# Time spent with patient, regression analysis

		Beta	P-value
Intercept		18.43	0.0000
Provider type	PA	0.45	0.4630
	NP	0.22	0.6258
	Physician	0	Reference

Controlled for the following variables

- Patient demographic variables (race/ethnicity, age, sex)
- Number of chronic conditions of the patient
- Whether provider was the patient's primary care provider
- Whether the patient had been seen in the clinic before
- Number of visits patient has had to the clinic in the past year
- Major reason for visit
- Services delivered (health education services, prescriptions, other services)
- Payer type
- Survey year and quarter of the year
- Type of care, based on Fenton categorization of ICD-9 codes (acute, chronic, dermatologic, mental health, prevention/pregnancy, ill defined symptoms, or vision and hearing)
- County level mean annual household income

# Summary of results

1. NPs and PAs attended 35% of CHC visits
2. The proportion of visits by physicians decreased
3. There is substantial overlap in characteristics of patients and visits in CHCs among the provider types, but differences include:
  - NP patients more likely female and young adult
  - PAs saw more patients in rural areas, followed by NPs
  - NPs provided more preventive care and less chronic care than PAs and physicians
  - Physicians were more likely to see patients for whom they were the primary care provider (76%), followed by PAs (71%) and then NPs (59%).
4. Physicians, NPs, and PAs spend similar amounts of time with each patient

# Study strengths

- Uses national data at patient and provider level
- Analyzes NPs and PAs separately
- First study to analyze 5 years of NAMCS CHC stratum data
- First study to compare time spent with patients



# Study weaknesses

- Although the NAMCS sample is designed to be representative, the annual estimates of the CHC strata may be unstable due to the relatively small sample (100 sites annually).
- Due to the mostly urban PSUs included in NAMCS, rural sites were under-sampled.
  - National Association of CHCs reports that 48% of CHC patient visits are rural.
- National analysis does not capture local variation.

# Implications

- Increased utilization of NPs and PAs in safety-net settings has potential to increase access to care, especially in rural settings.
- Because NPs and PAs fill unique roles in some settings, health services researchers should determine for each project whether to analyze them separately.
- Future research should analyze the quality and cost impacts of NPs and PAs in a variety of roles

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# References

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