

# How Many Nurse Practitioners in Primary Care?

*There are significant differences  
depending on how you count them*

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*AcademyHealth Annual Research Meeting  
June 8, 2014*

**This work was funded by the Robert Wood Johnson Foundation**



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# NPs seen as answer to (perceived) primary care physician shortage

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- National debate whether primary care shortage is here or will soon emerge
- Numerous studies\* suggest primary care shortages could be offset by increased use of NPs
- HRSA's model projects shortage of 20,400 primary care physician FTEs in 2020 that could be reduced to 6,400 with full deployment NPs and PAs
- But these projections assume we know:
  - how many NPs are in active practice in the United States; and
  - how many are in primary care

# Conflicting national data on total numbers of Nurse Practitioners

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- National Provider Identification number—  
**106,113** (Skillman et al), **106,073** (AHRQ-Graham Center),  
**121,517** (AHRF)
- American Academy of Nurse Practitioners (2011)—  
**140,000**
- National Sample Survey of Registered Nurses (2008) —  
**158,348**
- National Center for Health Workforce Analysis (2012) —  
**154,000** (had license), **132,000** (in workforce)
- Pearson Report/Kaiser Facts (2011) — **180,233**

# And how many NPs are actually practicing in primary care?

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## Highly variable range of estimates:

- **89%** of NPs are prepared in primary care and over **75%** provide primary care (AANP 2010)
- Approximately **70-80%** of APRNs work in primary care (Naylor and Kurtzman 2010)
- **65%** of NPs are employed in ambulatory or primary care (HRSA 2008)
- **52%** of NPs practicing in primary care using NPI data and collocation of NPs with physicians (Petterson et al 2013)
- **48%** of NPs in primary care according to National Center for Health Workforce Analysis' NP sample survey

# This study sought to understand how different ways of counting NPs affect estimates of primary care NP supply

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## Study Aims

Conduct a sensitivity analysis of using four different definitions to identify which NPs are in primary care.

NPs were coded to primary care by examining:

1. type of educational program completed
2. type of national certification currently held
3. primary practice setting
4. self- reported specialty

# Data Sources

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- Data are from the North Carolina Board of Nursing initial licensure and annual renewal forms
- Not a survey; full census of NPs in active practice in North Carolina in 2011
- Data collected annually and cleaned by staff at the North Carolina Health Professions Data System at the Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill

# Sample: Nurse Practitioner regulations in North Carolina

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## ***Education:***

As of Jan. 1, 2005, all new NP grads must have at least a Masters Degree in nursing or related field

## ***Certification:***

National certification required after Jan. 1, 2000

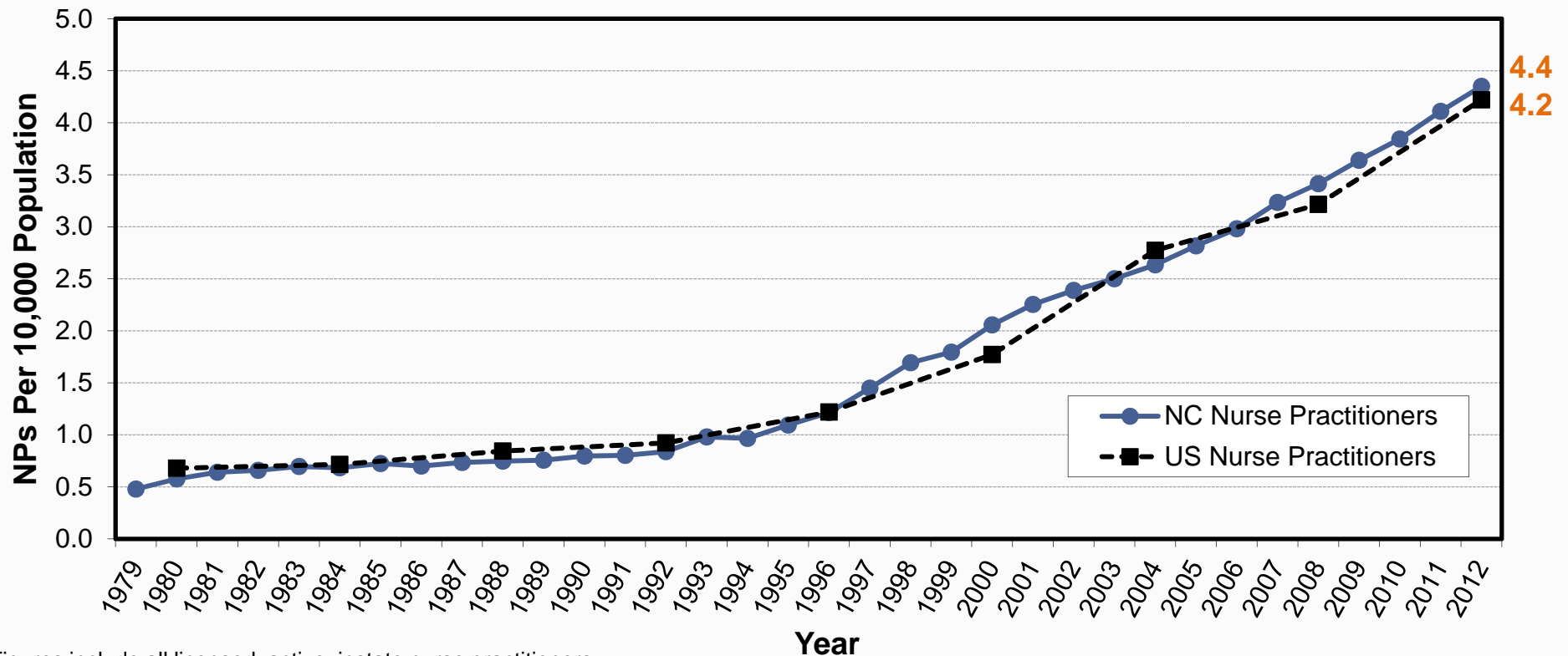
## ***Regulation:***

Must have an active approval to practice. Requires supervising physician. NPs are regulated by the Joint Subcommittee of the Medical Board and the Board of Nursing

*Sample used in this analysis: **3,972** active, instate NPs with an active approval to practice in NC in 2011*

# Per capita supply of NPs in North Carolina about same as national supply

Nurse Practitioners per 10,000 Population, US and NC, 1979 to 2012



Figures include all licensed, active, instate nurse practitioners.

Sources: North Carolina Health Professions Data System, 1979 to 2012; The Registered Nurse Population- Findings from the National Sample Survey of Registered Nurses, 2008, 2004, 2000, 1996, 1992, 1988, 1984, 1980; National Center for Health Workforce Analysis, HRSA, 2014, <http://bhpr.hrsa.gov/healthworkforce/supplydemand/nursing/nursepractitionersurvey/npsurveyhighlights.pdf>; North Carolina Office of State Planning; U.S. Bureau of the Census. North Carolina population data are smoothed figures based on 1980, 1990, 2000, and 2010 Censuses.



# Demographic Characteristics:

## Age

	Age	Number	Percent
	<25	9	0.2%
	25-29	260	7%
	30-34	540	14%
	35-39	565	14%
<b>Average Age</b> <b>NC: 45</b> <b>US: 48</b>	40-44	547	14%
	45-49	600	15%
	50-54	617	16%
	55-59	530	13%
	60-64	237	6%
	65 & over	67	2%
	<b>Total</b>	<b>3,972</b>	<b>100%</b>

Sources: North Carolina Health Professions Data System with data derived from the North Carolina Board of Nursing, 2011.  
 Figures include all licensed, active, instate NPs licensed in NC as of October 31, 2011.

# Demographic Characteristics: Mostly female, mostly white workforce

## Sex

	Number	Percent
Male	274	7%
Female	3,693	93%
<b>Total</b>	<b>3,967</b>	<b>100%</b>

*Note: 5 NPs were missing sex data*

## National Comparison

The national NP workforce is:

- 7% Male
- 85% White, not Hispanic
- 5% Black, not Hispanic
- 3% Hispanic

## Race

Race	Number	Percent
White, not Hispanic	3,172	82%
Black, not Hispanic	271	7%
American Indian/ Alaskan Native	37	1%
Hispanic	41	1%
Asian/Pacific Islander	54	1%
Other	29	1%
Multi-racial	14	0.4%
<b>Total</b>	<b>3,618</b>	<b>100%</b>

*Note: 354 NPs were missing race data*

# Vast majority hold MSN as highest degree but more than a third entered workforce with ADN or Diploma

## Entry Degree

	Number	Percent
Diploma	391	10%
Associate	1,099	29%
BSN	2,225	59%
MSN	74	2%
<b>Total</b>	<b>3,819</b>	<b>100%</b>

Note: 153 NPs were missing data on entry degree

### National Comparison-highest degree

#### The national NP workforce holds

94% Graduate degree in some field

86% *Master's - Nursing*

5% *Doctoral -Nursing*

3% *Grad degree Non-Nursing*

## Highest Degree

	Number	Percent
Diploma	56	1%
Associate	65	2%
BSN	293	8%
Bacc. in other field	21	1%
MSN	3,132	84%
Masters in other field	62	2%
Doctorate in nursing	78	2%
Doctorate in other field	31	1%
<b>Total</b>	<b>3,738</b>	<b>100%</b>

Note: 234 NPs were missing data on highest degree

# 1<sup>st</sup> Definition: NPs by Type of Education Program Completed

## Nurse Practitioner Education Type, North Carolina, 2011

Primary Care	Number	Percent
Family Nurse Practitioner	2,165	55%
Adult NP	693	17%
Pediatric NP	312	8%
Family Planning NP	0	0%
Women's Health NP	72	2%
School NP	0	0%
<b>Total Primary Care</b>	<b>3,242</b>	<b>82%</b>

Specialty Care	Number	Percent
Geriatric	74	2%
Ob/gyn	75	2%
Acute Care NP	114	3%
Neonatal	205	5%
Psychiatric NP	94	2%
Occupational NP	2	0%
Phys. Med. Nurse (Rehab)	0	0%
Pediatric acute care NP	29	1%
<b>Total Specialty Care</b>	<b>593</b>	<b>15%</b>
<i>Note: Missing education type</i>	<i>137</i>	<i>3%</i>

# 2<sup>nd</sup> Definition: NPs by Current National Certifications

## Nurse Practitioner Certification Type, North Carolina, 2011

Primary Care Certifications			Specialty Care Certifications		
	Number	Percent		Number	Percent
Family NP	2,024	51%	Geriatric	75	2%
Adult NP	712	18%	Ob/gyn	55	1%
Pediatric NP	310	8%	Acute Care NP	118	3%
Women's Health	86	2%	Neonatal	168	4%
School NP	1	0%	Psychiatric NP	100	3%
Multiple certifications— all primary care	9	0%	Occupational NP	0	0%
Multiple certifications— at least one in PC	31	1%	Pediatric acute care NP	26	1%
<b>Total Primary Care</b>	<b>3,173</b>	<b>80%</b>	Multiple Certifications- all specialty care	1	0%
			<b>Total Specialty Care NPs</b>	<b>543</b>	<b>14%</b>
			<i>Note: Missing certification type</i>	256	6%

# 3<sup>rd</sup> Definition: NPs by Primary Practice Setting

## Nurse Practitioner Practice Setting, North Carolina, 2011

Primary Care Settings	Number	Percent
Physician Group Practice	1,562	39%
Nursing group practice	12	0%
Home Health	13	0%
Community Health	281	7%
Long-Term Care	91	2%
School Health	33	1%
<b>Sub-total Primary Care</b>	<b>1,992</b>	<b>50%</b>

Specialty Care Settings	Number	Percent
Hospital In-patient	502	13%
Hospital outpatient	315	8%
Hospital Emergency	112	3%
Hospital no IPE, OPD	136	3%
Industry	63	2%
Mental Health	79	2%
<b>Sub-total Specialty Care</b>	<b>1,207</b>	<b>31%</b>

Other Settings	Number	Percent
Nursing School	2	0%
Medical School	23	1%
HMO	11	0%
Retail Clinic	67	2%
Self employed as NP	67	2%
Other	275	7%
<b>Sub-total other Settings</b>	<b>170</b>	<b>12%</b>

*Note: 328 NPs (8%) were missing practice setting.*

# 4<sup>th</sup> Definition: NPs by self-reported specialty categories

## Nurse Practitioner Medical Specialty Type, North Carolina, 2011

Primary Care Specialties	Number	Percent	Non-primary care specialties	Number	Percent
Family Medicine (FM)	988	25%	Neonatal-Perinatal care	215	5%
General Practice	97	2%	Psychiatry	175	4%
Pediatrics	308	8%	OB-GYN	154	4%
Internal Medicine	314	8%	Geriatrics	121	3%
<b>Sub-total Primary Care NPs</b>	<b>1,707</b>	<b>43%</b>	Emergency Medicine	114	3%
			Fam Med/Hospice & Palliative	101	3%
			Gynecology	54	1%
			Neurology	53	1%
			Vascular Neurology	49	1%
			Gastroenterology	48	1%
			Other Specialties	1,175	30%
			<b>Sub total specialty NPs</b>	<b>2,259</b>	<b>57%</b>

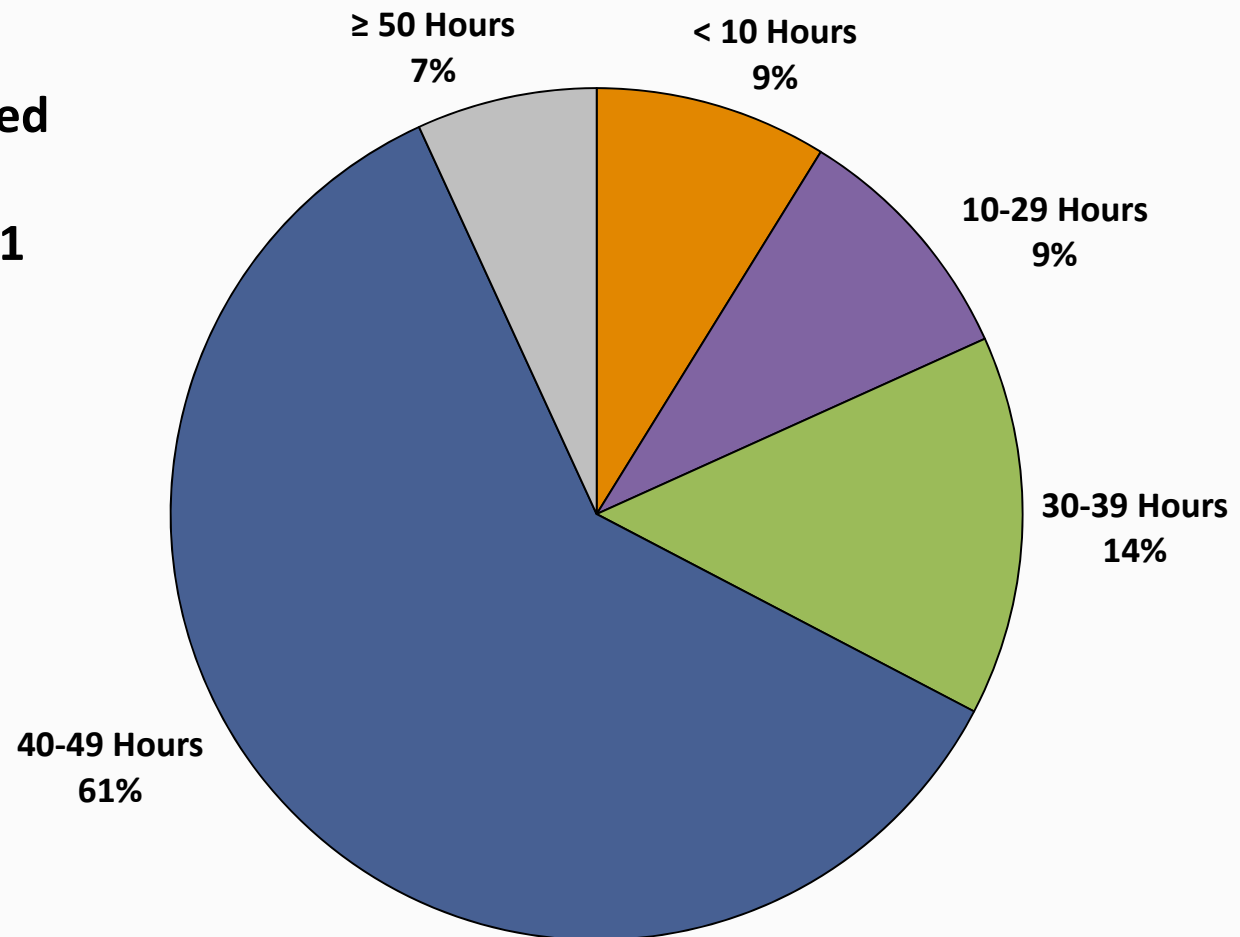
*Note: 6 NPs were missing specialty data.*

# “Effective” workforce supply is driven by hours worked: vast majority of NPs work >30 hrs/week

## Average Hours Worked by NPs per Week, North Carolina, 2011

**N=3,606**

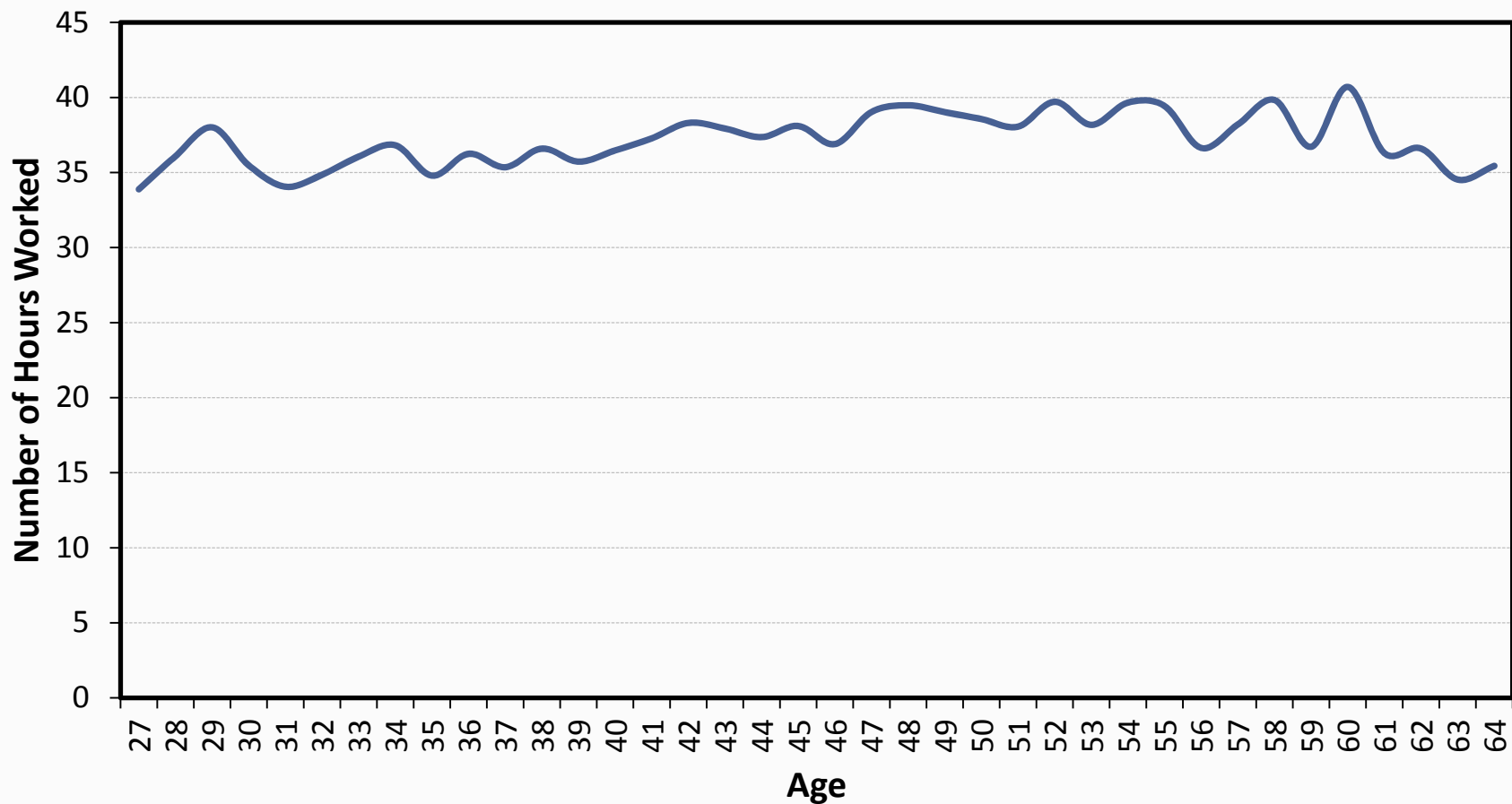
Note: 366 NPs were missing hours worked per week.





# Hours do not vary much by age

Hours per Week by Age, NPs in North Carolina, 2011



Sources: North Carolina Health Professions Data System with data derived from the North Carolina Board of Nursing, 2011.  
Figures include all licensed, active, instate NPs licensed in NC as of October 31, 2011.

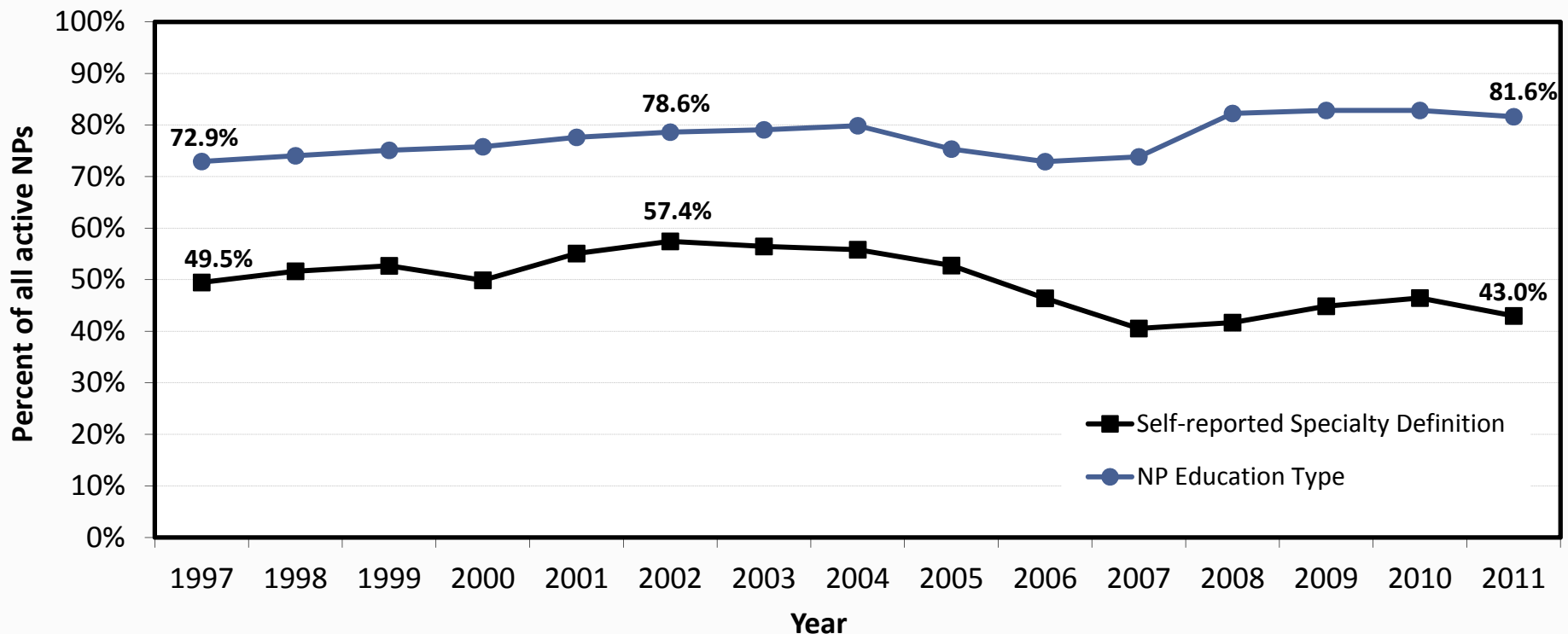
# Summary of Findings

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- NP education and national credential type yields highest estimates of primary care (~80%)
- NP self-reported specialty and practice setting produce much lower estimates (~50%)
- Does this mean that NPs are prepared to practice in primary care but not finding jobs?
- Do numbers of NPs in primary care change over time?

# Higher percent educated in primary care but lower percent report practice in primary care

Comparison of NP Education Credential versus Self-Reported Specialty in Primary Care, North Carolina, 1997-2011



**Notes:** Data for primary specialty include active, in-state NPs indicating a primary specialty of family practice, general practice, internal medicine, Ob/Gyn, or pediatrics, who were licensed in NC as of October 31 of the respective year. Data for physician extender type include active-instate NPs indicating a physician extender type of family nurse practitioner, adult nurse practitioner, ob/gyn nurse or pediatric nurse practitioner who were licensed as of October 31 of the respective year. **Source:** North Carolina Health Professions Data System, Cecil G. Sheps Center for Health Services Research, University of North Carolina at Chapel Hill, with data derived from the NC Medical Board. Chart prepared on 12/07/2012.

# NPs (and PAs) are a flexible workforce, could change specialty depending on market

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- Previous analyses found 10% of NPs and 20% of PAs switched between primary care and specialties between 1996-2007
- Perri Morgan undertaking work (under our HRWC cooperative agreement with HRSA) to understand:
  - timing of switches and
  - how individual's age, sex, birth cohort, graduation cohort, time since graduation, rural/urban practice location affect changes between specialty and primary care

# Limitations and Policy Implications

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- These studies still rely on “counting noses”
- News of shortages of number of primary care providers grab headlines but we don’t understand content of practice (i.e. capacity of workforce to provide primary care)
- Need better understanding of services that NPs provide in both primary and specialty settings
- What definitions of primary care and data sources can we use?
- Should future workforce models include different scenarios?

# Questions?

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Program on Health Workforce Research & Policy

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North Carolina Health Professions Data System

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