A Comparison Study on Quality of Care and Practice Patterns of Primary Care Physicians, Nurse Practitioners, and Physician Assistants for Medicaid Patients in New York

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- The Center for Health Workforce Studies (CHWS) — established in 1996—is an academic research center based at the School of Public Health at the University at Albany, State University of New York (SUNY)

- Mission: To provide timely, accurate information and conduct policy-relevant research about the health workforce

- Goal: To assist health, professional, and educational organizations, policy makers, planners, and other stakeholders to understand issues related to the supply, demand, distribution, and the use of health workers

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Research Framework

Objective:

- To better understand current primary care services in NY by comparing the quality of care and practice patterns of primary care physicians (PCMDs), nurse practitioners (NPs), and physician assistants (PAs) in ambulatory care settings in New York.

Methods:

- Multivariate regressions were conducted to estimate the impact of receiving primary care from NPs/PAs vs PCMDs.

Design-based method VS Model-based method

Background

- Recognition of the important roles that NPs and PAs play in primary care has been growing.
- By 2018, NY's total Medicaid enrollment grew by 14%, to nearly 6.5 million.
- Shortage of primary care physicians in NY's underserved areas calls for additional workforce.
- Quality of primary care provided by PCMDs, NPs, and PAs in all ambulatory care settings has not been thoroughly studied in NY.

NY Medicaid Claims Data

- 23 million Medicaid claims from the NYS Medicaid Data Warehouse:
  - 3-year period from Jan 2016 to Dec 2018
  - 21,392 NY PCMDs, 3,492 NPs, 1,951 PAs
  - 6.3 million NYS Medicaid patients

- Claims data includes – date, demographics, location, procedures, diagnosis, enrollment status, licensures, profession type, referrals, costs etc.

Inclusions/Exclusions

- PCMDs, NPs and PAs were selected using 3-digit profession code.
- Providers were limited to primary care specialists residing in ambulatory care settings with 1+ claims.
- Non-pregnant patients over 18 years of age were included.
- Medicaid patients seen by more than one provider type were excluded (e.g., patients seen by both MD & NP)
- Midwife-NPs were excluded.

Indicators/Variables

- **Literature Review** was conducted to select 3 quality of care indicators and 4 indicators for practice patterns.

Quality of Care Indicators	Type	Description
1. Smoking cessation treatment	Binary	Numerator: Received smoking cessation intervention (i.e., nicotine replacement therapy or medications ordered, supplied, administered, or continued and/or smoking cessation counseling)
		Denominator: Visits by adults who were screened for tobacco use and identified as smokers
2. Depression treatment	Binary	Numerator: Antidepressants ordered, supplied, administered, or continued and/or psychotherapy or mental health counseling
		Denominator: Visits by adults with depression
3. Hyperlipidemia treatment	Binary	Numerator: Statin ordered, supplied, administered, or continued
		Denominator: Visits by adults with hyperlipidemia

Indicators/Variables (Cont.)

Practice Patterns Indicators	Type	Description
4. General exam	Binary	General medical exam/physical exam provided
5. Ultrasonography	Binary	Any of the ultrasound services recommended by primary care practitioners that were ordered/provided during the visit
6. Medications	Count	The 50 common drugs that were ordered, supplied, administered or continued during the visit: prescription and over-the-counter drugs, immunizations, and dietary supplements
7. Referral	Binary	Claims with code marked 'referred to other physician'

Models

- Simple linear regressions were conducted on individual indicator to inform next step
- Covariates were added to satisfy nonlinearity assumptions
- Multivariate regressions were conducted on 7 indicators, while controlling for patients' age, gender, race, ethnicity, marital status, health home eligibility, Medicaid/Medicare dual eligibility etc.
- Design-based inference and model-based inference were used to estimate the impacts of indicators

Results

- Demographic characteristics were largely similar among provider types although a greater proportion of NPs were female.

Table 1. NY Medicaid Provider, Ambulatory Care, 2016-18

Patient Characteristic	PCMD (n=21,392)	NP (n=3,492)	PA (n=1,951)	p-value
Age (mean)	48.2	47.5	47.7	0.60
Gender (%)				
Female	51.4	93.0	65.2	<0.01
Race / Ethinicity (%)				
White Non-Hispanic	72.3	84.3	83.5	<0.01
Black Non-Hispanic	10.6	6.4	5.6	<0.01
Other Non-Hispanic	9.7	3.8	3.4	<0.01
Hispanic	7.4	5.5	7.5	

Results (cont.)

Table 2. NY Medicaid Patients, Ambulatory Care, 2016-18

Patient Characteristic (n=6,329,337)	PCMD (n=4,650,438)	NP (n=1,171,075)	PA (n=507,824)	p-value
Age (mean)	40.8	38.7	39.0	0.38
Gender (%)				
Female	67.2	76.8	71.5	<0.01
Race /Ethnicity (%)				
White Non-Hispanic (NH)	26.7	39.6	61.9	<0.01
Black NH	12.6	20.8	13.8	0.03
Asian / Pacific Islander, NH	11.6	5.5	3.1	<0.01
Other, NH	24.6	9.3	7.1	
Hispanic	24.5	24.8	14.1	<0.01
Marital Status (%)				
Single	59.8	61.6	60.8	
Married	18.3	15.6	20.9	0.60
Other	21.9	22.8	18.3	
Health Home Eligibility (%)				
Eligible	14.5	15.7	16.8	0.50
Medicare Status (%)				
Dual Eligible	4.1	3.8	4.4	0.23
OPWDD Eligibility (%)				
OPWDD Recipient	1.5	1.8	1.9	0.33

Results (cont.)

Primary care services provided by PCMDs, NPs, and PAs are comparable in NY:

- Four (Depression, Hyperlipidemia, General exam, and Ultrasonography) of the 7 indicators had no statistically significant differences in NP/PA-provided care compared with PCMDs
- Patients seen by NPs were more likely to receive recommended smoking cessation treatments
- Patients seen by PAs received significantly more ultrasonography services than patients seen by PCMDs

Results (cont.)

Table 3. Effect of Practitioner Type on Care in NY, 2016-18

Design-Based Method (PCMD as reference group)

Quality of Care Indicator (Adjusted Odds Ratio, CI)		
Outcome (n= # of claims)	**NP Claim**	**PA Claim**
Smoking cessation treatment (n=405,294)	**1.58**** (1.13-2.22)	1.12 (0.64-1.93)
Depression treatment (n=324,210)	0.79 (056-1.13)	1.07 (0.60-1.84)
Hyperlipidemia treatment (n=1,283,101)	0.98 (0.75-1.30)	1.08 (0.70-1.67)
Practice Pattern Indicator (Adjusted Odds Ratio, CI)		
Outcome (n= # of claims)	**NP Claim**	**PA Claim**
General exam (n=2,245,992)	0.99 (0.74-1.33)	1.02 (0.72-1.44)
Medications (n=6,680,198)	0.96 (0.87-1.06)	0.99 (0.90-1.09)
Ultrasonography (n=1,651,646)	0.96 (0.79-1.17)	**1.32**** (1.12-1.56)
Physician referral (n=54,038)	1.08 (0.87-1.35)	**1.39**** (1.16-1.73)

Discussion

- Primary care services provided by NP/PAs were largely equivalent to those provided by PCMDs.
- A greater use of NPs and PAs is likely to produce equivalent quality primary care services (as estimated by 7 outcomes).
- Policy makers should be confident in the contributions of NPs and PAs to high-quality primary care.
- The comparable outcomes could produce cost-saving opportunities, especially in underserved areas in NY.

Questions?

- For more information, please email me at:

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