

# Effect of state Medicaid expansion status on insurance coverage and stage at diagnosis in head and neck cancer patients

N Osazuwa-Peters, PhD, MPH<sup>1</sup>; JM Barnes, MS<sup>1</sup>; U Megwalu, MD, MPH<sup>2</sup>; E Adjei Boakye, PhD<sup>3</sup>; ME Gaubatz<sup>1</sup>; KJ Johnston, PhD<sup>1</sup>; N Panth, MD, MPH<sup>4</sup>; RKV Sethi, MD, MPH<sup>5</sup>; MA Varvares, MD, FACS<sup>6</sup>

<sup>1</sup>Saint Louis University, Saint Louis, MO

<sup>2</sup>Stanford University School of Medicine, Stanford, CA

<sup>3</sup>Southern Illinois University School of Medicine, Springfield, IL

<sup>4</sup>Yale School of Medicine, New Haven, CT

<sup>5</sup>University of Michigan Medical School, Ann Arbor, MI

<sup>6</sup>Harvard Medical School, Boston, MA



## PURPOSE / OBJECTIVES

- Early evidence suggests that Medicaid expansion mandated by the Affordable Care Act (ACA) has had a positive impact on the following:
  - Access to care for nonelderly cancer patients<sup>1-2</sup>
  - Stage at diagnosis for nonelderly cancer patients<sup>3-4</sup>
  - Access to care for head and neck cancer (HNC) patients<sup>5</sup>
- Medicaid expansion effects on stage at diagnosis have not been studied in HNC and impacts on socioeconomic disparities are unknown.
- HNC is among the most expensive to treat,<sup>6</sup> so improvements in access to care may have a large economic impact as well as impact on prognosis.
- Our objective was to evaluate Medicaid expansion-associated changes in insurance and stage at diagnosis overall and by subgroups.

## MATERIALS & METHODS

- We utilized the Surveillance, Epidemiology, and End Results 18 (SEER) database to identify HNC patients 18-64 years diagnosed with a first primary malignancy in 2011-2015
- Cases diagnosed 3 months before and 3 months after the date of expansion were excluded to allow for a wash-out / phase-in period<sup>1</sup>
- We compared changes in insurance rates (Medicaid & uninsured) and early (0-II) stage in cases from states that expanded Medicaid (EXP) by 2014 to states that did not (NEXP)
- We used difference-in-differences analyses<sup>7</sup> applied to linear probability models with robust standard errors to quantify the expansion-associated effects
- Models were adjusted for covariates (age, race, sex, marital status, county-level income and education, metropolitan residence, and cancer site).
- Additional analyses were performed excluding states that expanded early (2010-2011) as earlier expansion may nullify results.

## RESULTS

Table 1: Association Between Expansion and Insurance Status

	Population	Expansion Effect (95% CI), percentage points (PP)	Effect Differences: p-value
Medicaid	Overall	<b>3.36 (1.32, 5.41)</b>	<0.001
	Q1 income	<b>5.06 (1.25, 8.87)</b>	
	Q2 income	<b>11.05 (6.52, 15.58)</b>	
	Q3 income	-1.69 (-5.22, 1.84)	
	Q4 income	1.3 (-4.55, 7.16)	
Uninsured	Overall	<b>-1.67 (-3.26, -0.09)</b>	0.039
	Q1 income	<b>-4.17 (-6.84, -1.51)</b>	
	Q2 income	-2.73 (-5.84, 0.38)	
	Q3 income	-0.04 (-2.75, 2.67)	
	Q4 income	-3.24 (-9.23, 2.76)	

Note the Uninsured Overall analysis did not meet parallel trends assumption. Abbreviations: Q1: first / lowest quartile of income, Q2: second quartile, Q3: third quartile, Q4: fourth / highest quartile of income

Table 2: Association Between Expansion & Stage at Diagnosis

	Population	Expansion Effect (95% CI), PP	Effect Differences: P-value
Early Stage (0-II)	Overall	2.6 (-0.48, 5.67)	0.098
	18-34y	<b>17.22 (1.34, 33.11)</b>	
	35-49y	1.02 (-5.46, 7.49)	
	50-64y	1.93 (-1.17, 5.03)	
	65-74y	2.89 (-1.96, 7.74)	
	Male	0.53 (-2.09, 3.14)	
	Female	<b>7.54 (2, 13.08)</b>	
	Unmarried	<b>3.83 (0.3, 7.35)</b>	
	Married	1.06 (-2.27, 4.39)	

Note the analyses for White patients did not meet parallel trends assumption.

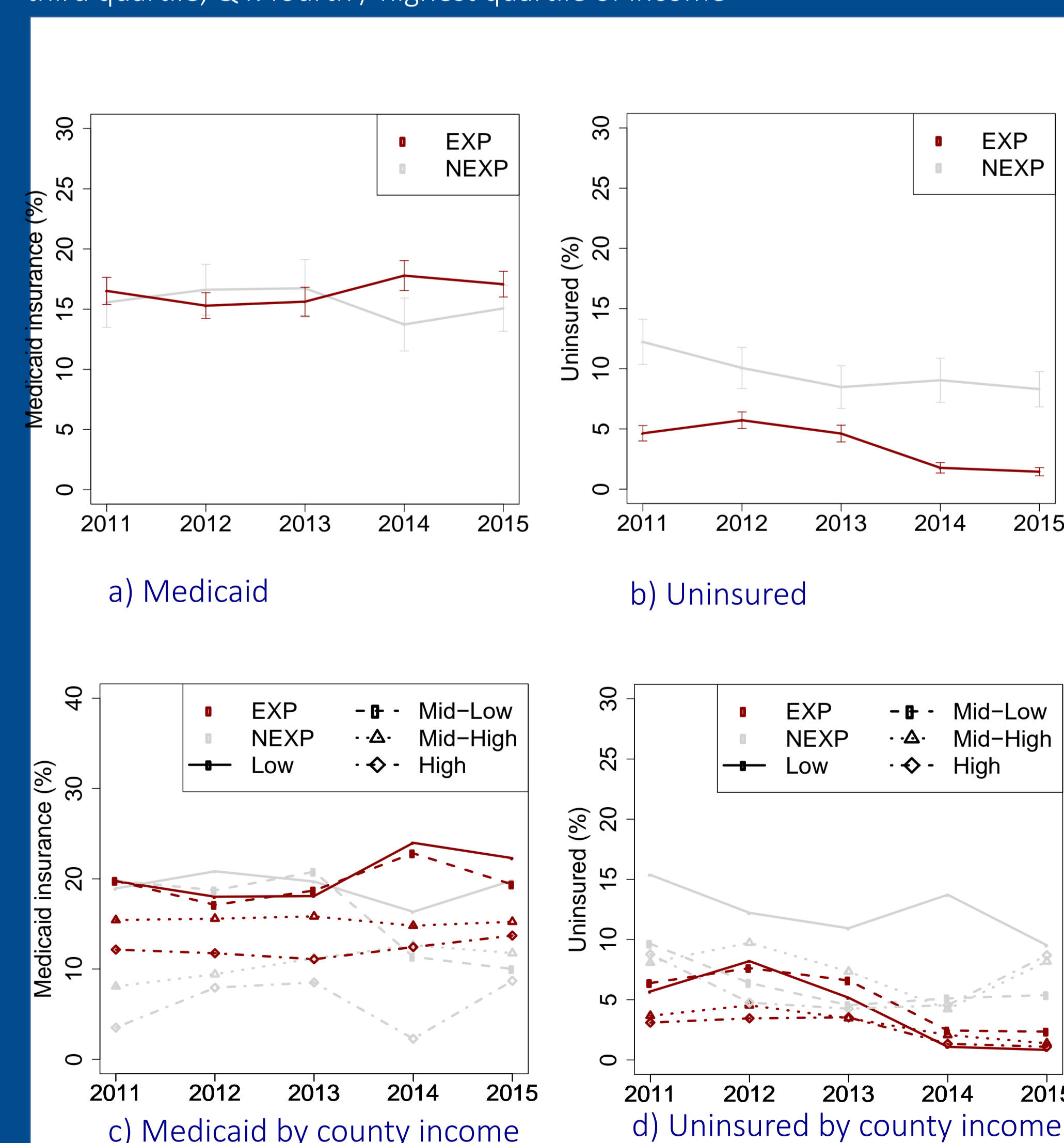


Figure 1: Insurance Changes Overall (a, Medicaid; b, Uninsured) and by County Income (c, Medicaid; d, Uninsured).

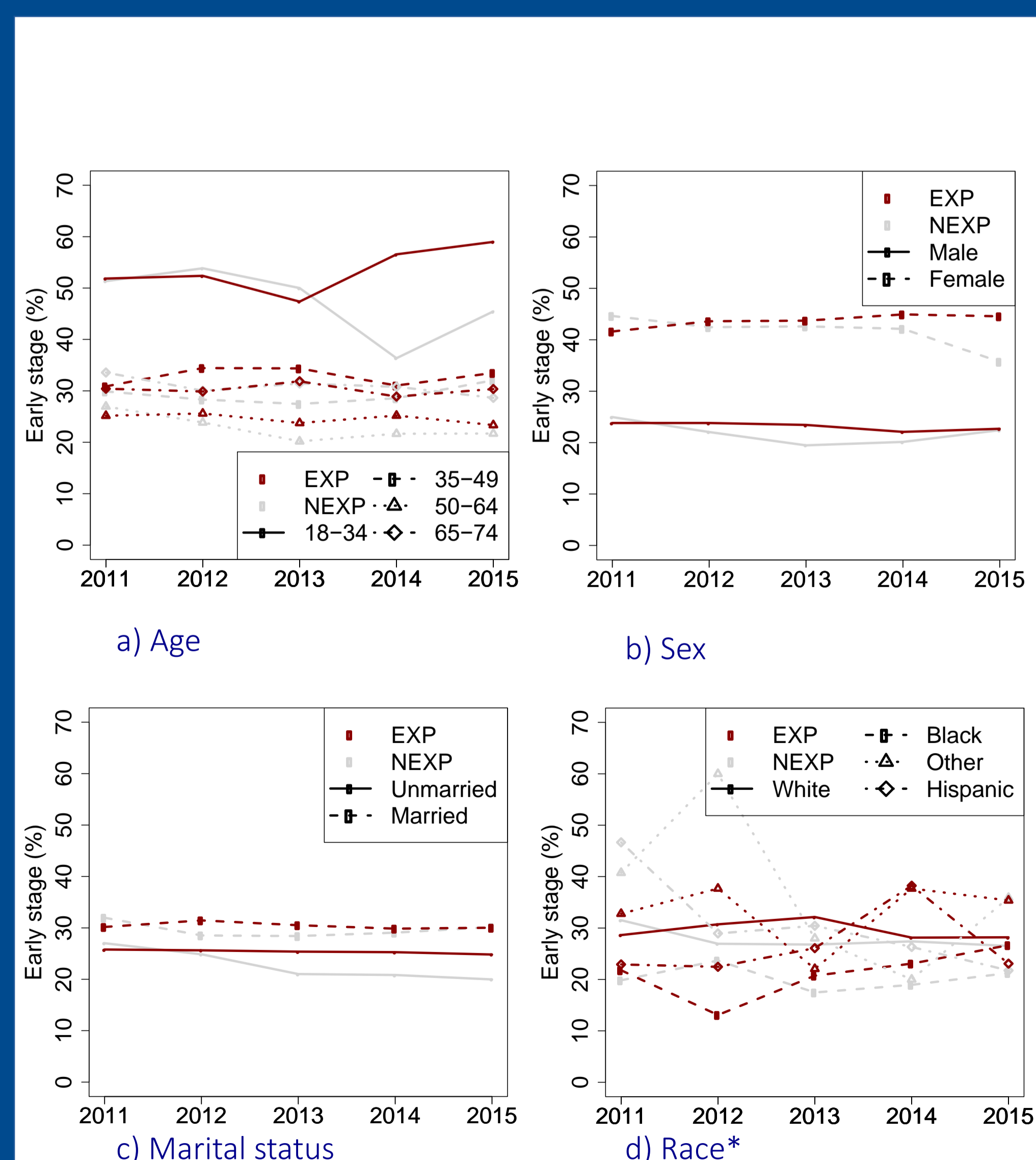


Figure 2: Early Stage at Diagnosis Changes by (a) age, (b) sex, (c) marital status, and (d) race.

\*Note these analyses exclude states expanding Medicaid in 2010-2011.

- A total of 26,330 cases were identified
- **Insurance Status**
  - Increase in Medicaid insurance and decrease in uninsured in expansion relative to non-expansion states, especially for residents of low-income counties (Table 1, Figure 1).
- **Stage at Diagnosis**
  - Increases in early stage among young adults, females, unmarried patients (Table 2, Figure 2a-c)
  - Increased early stage diagnoses for cancer of the lip (13.5 PP, 95% CI = 2.67, 24.30, p=0.015).
  - Some evidence for greater expansion-associated increases in early stage diagnoses for non-Hispanic blacks (8.53 PP, 95% CI = -0.03 to 17.1, p=0.051) and other races (20.4 PP, 95% CI = 1.29 to 39.4, p=0.036) relative to white HNC patients (p=.025) when excluding early Medicaid expanding states (Figure 2d).

## SUMMARY / CONCLUSIONS

- Medicaid expansion is associated with increases in Medicaid and decreases in the rates of uninsured, particularly among low income counties.
- Medicaid expansion is associated with increases in early stage diagnoses for some subgroups.
- Improved access to care particularly relevant at a time when there is debate in the United States about healthcare financing, Medicaid, and the Affordable Care Act.

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Contact Information: Email Nosa Osazuwa-Peters at [nosazuwa@slu.edu](mailto:nosazuwa@slu.edu)