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State Medicaid Expansion Decisions and Disparities in Women's Cancer Screening

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Abstract

Background—There are substantial disparities in breast and cervical cancer screening that stem from lack of health insurance. Although the Affordable Care Act (ACA) expands insurance coverage to many Americans, there are differences in availability of Medicaid coverage across states.

Purpose—To understand the potential impact of Medicaid expansions on disparities in preventive care for low-income women by assessing pre-ACA breast and cervical cancer screening across states currently expanding and not expanding Medicaid to low-income adults.

Methods—Data from the 2012 Behavioral Risk Factor Surveillance System (analyzed in 2014) were used to consider differences in demographics among women for whom screening is recommended, including income and race/ethnicity, across expansion and non-expansion states. Self-reported screening was compared by state expansion status overall, for the uninsured, and for low-income women. Logistic regressions were estimated to assess differences in self-reported screening across expansion and non-expansion states controlling for demographics.

Results—Women in states that are not expanding Medicaid had significantly lower odds of receiving recommended mammograms (OR=0.87, 95% CI=0.79, 0.95) or Pap tests (OR=0.87, 95% CI=0.79, 0.95). The difference was larger among the uninsured (OR=0.72, 95% CI=0.56, 0.91 for mammography; OR=0.78, 95% CI=0.65, 0.94 for Pap tests).

Conclusions—As women in non-expansion states remain uninsured while others gain coverage, existing disparities in cancer screening by race and socioeconomic status are likely to widen. Health risks and associated costs to underserved populations must be taken into account in ongoing debates over expansion.

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Introduction

Evidence suggests that women with health insurance are more than twice as likely to receive breast and cervical cancer screening¹⁻⁷ and are likely to be diagnosed at earlier stages.⁸ Treatment of early-stage disease detected through population-wide screening can reduce morbidity and mortality.^{9,10} Although mortality rates have fallen over recent decades, these benefits are not distributed equally across the population.¹¹ There are substantial disparities in breast and cervical cancer diagnosis and outcomes in the U.S. by race/ethnicity, SES, and insurance.^{1,12,13} The Affordable Care Act (ACA) aims to increase health insurance coverage through various pathways. In particular, in approximately half of states, non-elderly adults with incomes below 138% of the federal poverty level (FPL) are now eligible for Medicaid regardless of family structure or disability status. Nonetheless, almost half of states have not chosen to expand Medicaid.

This paper considers variation in self-reported screening across states currently expanding Medicaid and those not expanding to draw implications for the effects of coverage changes on disparities and to understand where additional effort may be needed to increase screening among underserved populations. An understanding of the role of Medicaid expansions in addressing or perpetuating differences in health care across groups is needed to narrow existing disparities.

Methods

The 2012 Behavioral Risk Factor Surveillance System (BRFSS) provided data on self-reported screening and individual demographics.¹⁴ Information on state Medicaid expansion decisions as of February 2014 came from the Centers for Medicare and Medicaid Services.¹⁵ Based on U.S. Preventive Services Task Force guidelines,^{16,17} receipt of mammograms among women with non-missing data aged 52–64 years and Pap tests among women aged 24–64 years who have not undergone a hysterectomy were examined. Outcomes of interest were guideline-consistent screening, specifically mammogram or Pap test within the past 2 or 3 years, respectively.

The independent variable of interest was an indicator of residence in a non-Medicaid expansion state. Models controlled for age, race/ethnicity, income, employment, marital status, education, and insurance status. The BRFSS asks whether individuals have insurance but not type of coverage. Therefore, the insurance variable is an indicator of any coverage. Income as a percentage of FPL was constructed by assigning individuals the median household income in the reported category and applying Census Bureau poverty guidelines by household size. For example, in 2012 poverty thresholds were \$11,945 for a single person and \$23,364 for a family of four.¹⁸

Demographic characteristics were compared across expansion and non-expansion states. Unadjusted rates of self-reported screening were calculated by insurance and income group, comparing women with incomes less than 138% FPL (eligible for Medicaid in expansion states), between 138% and 400% FPL (eligible for subsidies through healthcare marketplaces), and more than 400% FPL.

Multiple logistic regression models estimated self-reported screening outcomes as a function of state Medicaid expansion status, controlling for insurance, income, and the set of other demographic covariates. Models were estimated for each outcome variable for all women in the sample, uninsured women, and women below 138% FPL. ORs for differences in outcomes between expansion and non-expansion states were calculated for all models. All analyses employed survey weights accounting for complex sampling design. Statistical analyses were conducted in 2014 using Stata, version 11 (StataCorp LP, College Station TX).

Results

Table 1 presents demographic characteristics and outcomes for the mammogram and Pap test samples by state Medicaid expansion status. Women in states that have not expanded Medicaid were significantly more likely to be black or white (as opposed to Asian or other race) and have income less than 138% FPL.

Figure 1 presents unadjusted rates of screening by state expansion status across insurance and income groups. Insured women were far more likely to receive screening than uninsured women. Further, uninsured women in non-expansion states were 15.1% (95% CI=5.5%, 24.7%) less likely to receive a mammogram (Figure A) and 8.7% (95% CI=3.5%, 13.8%) less likely to receive a Pap test (Figure B) than uninsured women in expansion states. Among women with income less than 138% FPL, those in non-expansion states were 8.1% (95% CI=1.6%, 14.6%) less likely to receive a mammogram (Figure C) and 8.3% (95% CI=4.9%, 11.8%) less likely to receive a Pap test (Figure D) than low-income women in expansion states.

Table 2 presents logistic regression results, which further support the descriptive results. Columns 1 and 2 present results for the full sample and show that, controlling for a rich set of demographic characteristics, women in non-expansion states have significantly lower odds of being screened at baseline. Columns 3 and 4 restrict the sample to uninsured women, and show that in non-expansion states, uninsured women have lower odds of receiving a mammogram (OR= 0.72, 95% CI=0.56, 0.91) or a Pap test (OR=0.78, 95% CI=0.648, 0.939). Columns 5 and 6 restrict the sample to less than 138% FPL and show that in non-expansion states, odds of mammography are lower (OR=0.85, 95% CI=0.69, 1.05) albeit not statistically significant, and odds of receiving a Pap test are significantly lower (OR=0.79, 95% CI=0.66, 0.95).

The gaps in screening between expansion and non-expansion states are larger for uninsured women than for the general population. Predicted probabilities of screening based on the results in Columns 3 and 4 suggest that, conditional on a rich set of demographic covariates, uninsured women in non-expansion states are 7.9 and 4.9 percentage points less likely to receive recommended mammograms or Pap tests, respectively, than women in expansion states.

Discussion

Low-income and uninsured women are less likely to receive potentially lifesaving recommended cancer screening services. Although the CDC funds screening and diagnostic services for uninsured and underinsured women through the Breast and Cervical Cancer Early Detection Program, evidence suggests limited success reaching the targeted population.¹⁹ Differences across states in Medicaid coverage under the ACA may lead to a widening of racial and income disparities in cancer between states that expand and those that do not.

This study faces some limitations. Although measures of women's cancer screening in the BRFSS have been validated,^{20,21} there is evidence of over-reporting of screening, particularly among minorities.^{22,23} If anything, this may bias the present estimates of state differences downward. Response rates also vary across states and are low for some. Nonetheless, average response rates are similar across expansion (45%) and non-expansion states (47%); the analysis employs survey weights constructed to reduce non-response bias, and this is among the best data for tracking cancer screening at the state level.

Low-income women in non-expansion states have the lowest baseline breast and cervical cancer screening rates. As women in non-expansion states, who are more likely to be low-income and African American, remain uninsured while those in other states gain coverage, existing disparities by race and SES are likely to widen. Despite existing public cancer screening programs, uninsured women are still screened at significantly lower rates than women with insurance. States that do not expand their Medicaid programs are likely to perpetuate national disparities in cancer screening. The health risks and associated costs to underserved populations who do not receive preventive care must be taken into account in ongoing debates over expansion.

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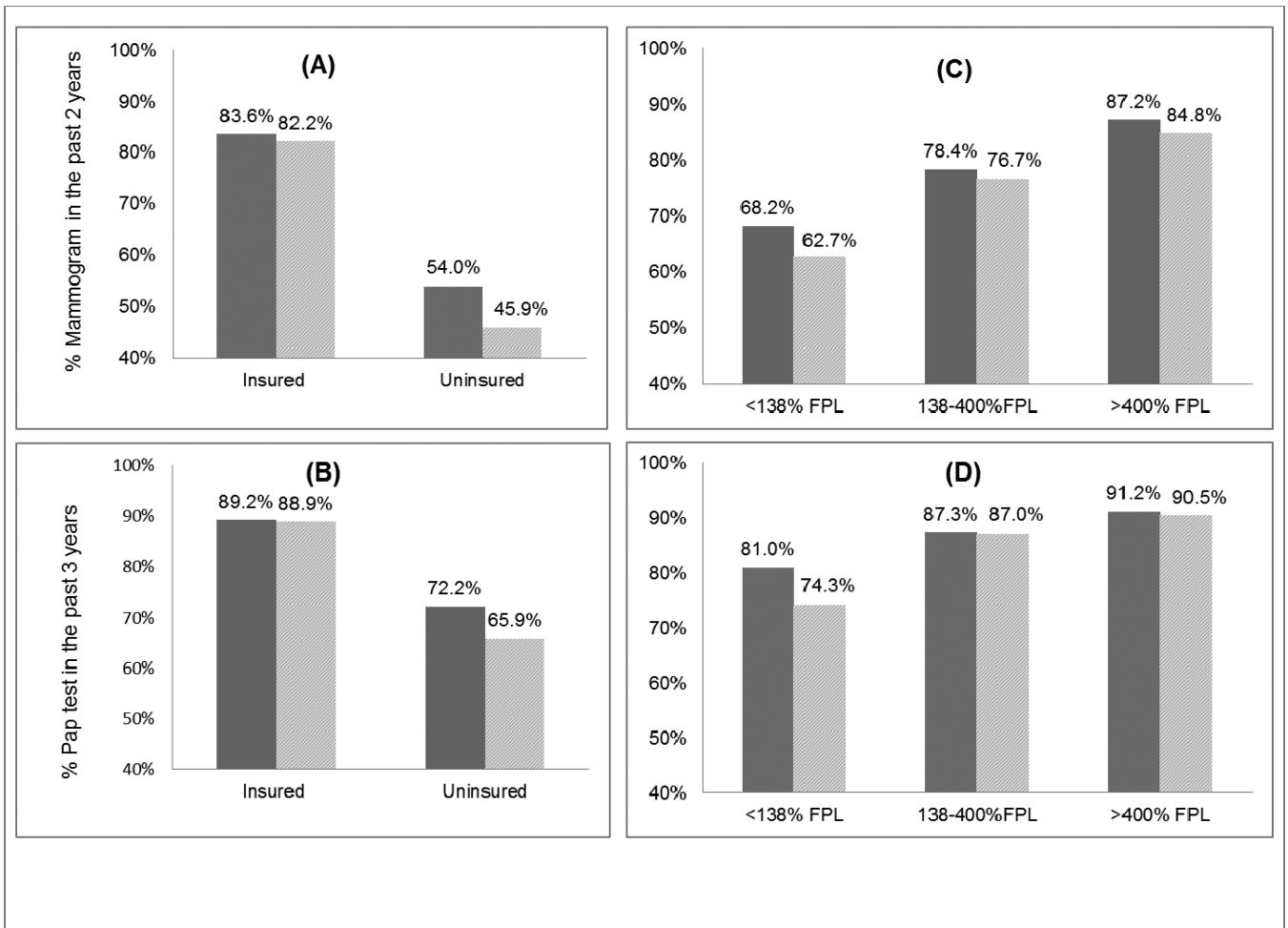


Figure 1. Unadjusted screening rates by state Medicaid expansion status, insurance, and income

Table 1

Descriptive statistics for mammogram and Pap test samples by 2014 state Medicaid expansion status

Characteristic	Mammogram Sample		Pap test Sample	
	Expansion States (N=28752)	Non-expansion States (N=27732)	Expansion States (N=45603)	Non-expansion States (N=39264)
Mean age (years)	57.6± (.048)	57.7± (.049)	45.7±(.113)	45.6±(.110)
Age group (%)				
24–34 years			18.5	18.3
35–49 years			40.6	41.8
50–54 years ^a	27.9	26.8	16.5	15.9
55–59 years	36.6	36.7	12.8	12.7
60–64 years	35.4	36.5	11.6	11.3
Race (%)				
White	80.4	81.2 ^{**}	76.9	78.7 ^{**}
Black	8.9	14.8 ^{**}	9.2	15.0 ^{**}
Asian	6.4	1.1 ^{**}	8.5	2.3 ^{**}
Other race	4.3	2.8 ^{**}	5.4	4.0 ^{**}
Hispanic ethnicity (%)	8.9	6.1 ^{**}	15.4	9.8 ^{**}
Income (%)				
<138% of FPL	16.9	20.1 ^{**}	24.1	24.4
138–100% of FPL	41.6	41.5 ^{**}	48.3	49.8 ^{**}
>400% of FPL	41.5	38.4 ^{**}	27.7	25.8 ^{**}
Education				
Less than high school	8.3	9.8 ^{**}	9.9	8.7 ^{**}
High school	26.4	31.0 ^{**}	22.0	25.3 ^{**}
Some college	33.7	32.9 ^{**}	31.3	31.8 ^{**}
College or more	31.6	26.3	36.9	34.2 ^{**}
Employed (%)	59.9	54.2 [*]	66.2	64.2 ^{**}
Insured (%)	89.0	85.7 ^{**}	86.4	82.1
Mammogram in past 2 years (%)	80.4	77.0 ^{**}		
Pap test in past 3 years (%)			86.9	84.8 ^{**}

Note: cells represent weighted mean (standard error) or weighted percentage of sample. All analyses employ survey weights accounting for the BRFSS complex sampling design.

** p<0.01

* p<0.05 in test of difference by state Medicaid expansion status. Results with significant p-values indicated in **bold**.

^aThe age range for the mammogram sample is 52 to 64 years; the youngest age in each sample is the number of years of the recommended screening interval past the recommended age for initiation of routine screening.

Table 2

Logistic regressions of screening outcome measures on state Medicaid expansion status

	Full sample			Uninsured sample			Low-income sample		
	Mammogram in past two years	Pap test in past three years	Mammogram in past two years	Pap test in past three years	Mammogram in past two years	Pap test in past three years	Mammogram in past two years	Pap test in past three years	
N	56,484	84,867	6,488	11,149	9,757	17,237			
Non-expansion state	0.870 (0.794 - 0.953)	0.871 (0.794 - 0.954)	0.715 (0.562 - 0.909)	0.780 (0.648 - 0.939)	0.853 (0.691 - 1.054)	0.789* (0.658 - 0.945)			
Expansion state	1.00	1.00	1.00	1.00	1.00	1.00			
Insured	3.939 (3.475 - 4.466)	3.038 (2.683 - 3.440)			3.453 (2.797 - 4.263)	2.425 (2.010 - 2.927)			
Uninsured	1.00	1.00	1.00	1.00	1.00	1.00			
>400% of FPL	1.845 (1.576 - 2.159)	1.835 (1.569 - 2.146)	2.197 (1.496 - 3.228)	2.096 (1.457 - 3.016)					
138-400% of FPL	1.277 (1.111 - 1.469)	1.332 (1.162 - 1.527)	1.065 (0.824 - 1.376)	1.076 (0.866 - 1.335)					
Income < 138% FPL	1.00	1.00	1.00	1.00					
Age 60-64 years	1.216 (1.076 - 1.374)	0.545 (0.459 - 0.648)	1.321 (0.990 - 1.762)	0.660 (0.482 - 0.902)	1.084 (0.832 - 1.413)	0.570 (0.425 - 0.766)			
Age 55-59 years	1.082 (0.961 - 1.219)	0.558 (0.468 - 0.666)	0.887 (0.661 - 1.191)	0.476 (0.346 - 0.654)	0.974 (0.751 - 1.264)	0.510 (0.385 - 0.676)			
Age 50-54 years	1.00	0.650 (0.547 - 0.772)	1.00	0.487 (0.354 - 0.669)	1.00	0.581 (0.442 - 0.763)			
Age 35-49 years		0.822* (0.696 - 0.970)		0.771 (0.578 - 1.028)		0.729* (0.561 - 0.947)			
Age 24-34 years [†]		1.00		1.00		1.00			
Black	2.131 (1.783 - 2.547)	1.859 (1.541 - 2.241)	2.291 (1.584 - 3.312)	2.311 (1.709 - 3.125)	1.786 (1.369 - 2.330)	1.848 (1.406 - 2.429)			
Asian	1.282 (0.830 - 1.980)	0.540 (0.386 - 0.756)	0.968 (0.342 - 2.741)	1.302 (0.650 - 2.608)	0.752 (0.302 - 1.869)	0.753 (0.346 - 1.641)			
Other Race	0.830 (0.661 - 1.043)	0.830 (0.668 - 1.031)	0.966 (0.647 - 1.442)	0.729 (0.489 - 1.087)	1.196 (0.861 - 1.662)	0.815 (0.585 - 1.135)			
White	1.00	1.00	1.00	1.00	1.00	1.00			
Hispanic	1.609 (1.248 - 2.075)	2.283 (1.841 - 2.831)	1.544 (0.997 - 2.390)	2.362 (1.698 - 3.286)	1.478* (1.002 - 2.180)	2.562 (1.911 - 3.436)			
Non-Hispanic	1.00	1.00	1.00	1.00	1.00	1.00			

	Full sample			Uninsured sample			Low-income sample		
	Mammogram in past two years	Pap test in past three years	Mammogram in past two years	Pap test in past three years	Mammogram in past two years	Pap test in past three years	Mammogram in past two years	Pap test in past three years	
Married	1.359 ^{**} (1.229 - 1.501)	1.471 ^{**} (1.332 - 1.626)	1.297 [*] (1.018 - 1.651)	1.321 ^{**} (1.097 - 1.591)	1.434 ^{**} (1.144 - 1.798)	1.324 ^{**} (1.101 - 1.593)			
Unmarried	1.00	1.00	1.00	1.00	1.00	1.00			
College or more	1.473 ^{**} (1.191 - 1.821)	2.091 ^{**} (1.654 - 2.644)	0.931 (0.633 - 1.368)	1.174 (0.840 - 1.639)	1.047 (0.736 - 1.491)	1.562 ^{**} (1.129 - 2.162)			
Some college	1.339 ^{**} (1.089 - 1.646)	1.454 ^{**} (1.162 - 1.820)	1.066 (0.730 - 1.557)	0.983 (0.715 - 1.351)	1.196 (0.885 - 1.614)	1.214 (0.911 - 1.619)			
High School	1.210 (0.988 - 1.480)	1.289 [*] (1.040 - 1.598)	1.031 (0.723 - 1.469)	0.944 (0.700 - 1.272)	0.975 (0.739 - 1.286)	1.207 (0.932 - 1.564)			
Less than high school	1.00	1.00	1.00	1.00	1.00	1.00			
Employed	1.086 (0.982 - 1.201)	1.014 (0.911 - 1.129)	1.130 (0.899 - 1.421)	0.968 (0.795 - 1.177)	1.024 (0.800 - 1.309)	0.949 (0.783 - 1.151)			
Not employed	1.00	1.00	1.00	1.00	1.00	1.00			

Note: Cells represent odds ratios with 95% CI in parentheses. All analyses employ survey weights account for complex sampling design of the Behavioral Risk Factor Surveillance System.

FPL = Federal poverty level.

Boldface indicates statistical significance

* p<0.05

** p<0.01