

# Coverage, Affordability, and Care for Low-Income People with Diabetes: 4 Years after the Affordable Care Act's Medicaid Expansions



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**KEY WORDS:** diabetes; Medicaid expansions; access to care; disparities.

J Gen Intern Med 35(7):2222–4

DOI: 10.1007/s11606-019-05614-2

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## INTRODUCTION

Diabetes is one of the most common and expensive diseases in the USA. Although the positive impact of the Affordable Care Act (ACA)'s Medicaid expansions on insurance coverage, access, and health have been extensively studied in the general population,<sup>1, 2</sup> the extent to which the ACA Medicaid expansions affect people with diabetes is unclear. These studies have used a smaller subsample of states and have focused only on the years immediately after the ACA Medicaid expansions.<sup>3–5</sup> There is less evidence on the longer term effects of the ACA on patients with diabetes.<sup>6</sup> A study of the nationwide impact of the ACA's Medicaid expansions on health care access, affordability, and care contributes to the literature on healthcare access among those with diabetes, and to the policy debates on Medicaid reforms.

## METHODS

We use data from 2011 to 2017 Behavioral Risk Factor Surveillance System (BRFSS) and compare residents in 24 Medicaid expansion states (Alaska, Arizona, Arkansas, Colorado, Connecticut, Hawaii, Illinois, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Nevada, New Hampshire, New Jersey, New Mexico, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, Washington, and West Virginia) with those in 20 non-expansion states (Alabama, Florida, Georgia, Idaho, Kansas, Louisiana, Maine, Mississippi, Missouri, Nebraska, North Carolina, Oklahoma, South Carolina, South

Dakota, Tennessee, Texas, Utah, Virginia, Wisconsin, and Wyoming) using a difference-in-differences (DD) approach.

The analytic sample includes low-income nonelderly BRFSS respondents (income less than or equal to 138% Federal Poverty Level, ages 19–64) who reported having ever been told that they have diabetes in the 2011 to 2017 BRFSS. Respondents reporting pre-diabetes and borderline diabetes, or gestational diabetes, were excluded. To reveal possible changes in policy effects across the years, we fit two sets of models. The first set considers 2015 and 2016 as the early post-expansion period (year 2 and 3 effect), while the second set uses data from 2017 as the later post-expansion period (year 4 effect). All models control for the following variables: age, gender, educational attainment, language of interview, employment status, marital status, race/ethnicity, self-reported health, income level, number of children in the household, number of adults in the household, state and year-quarter fixed effects, and state annual unemployment rates. Multiple imputations and survey weights are applied using Stata, version 14.2 (StataCorp).

## RESULTS

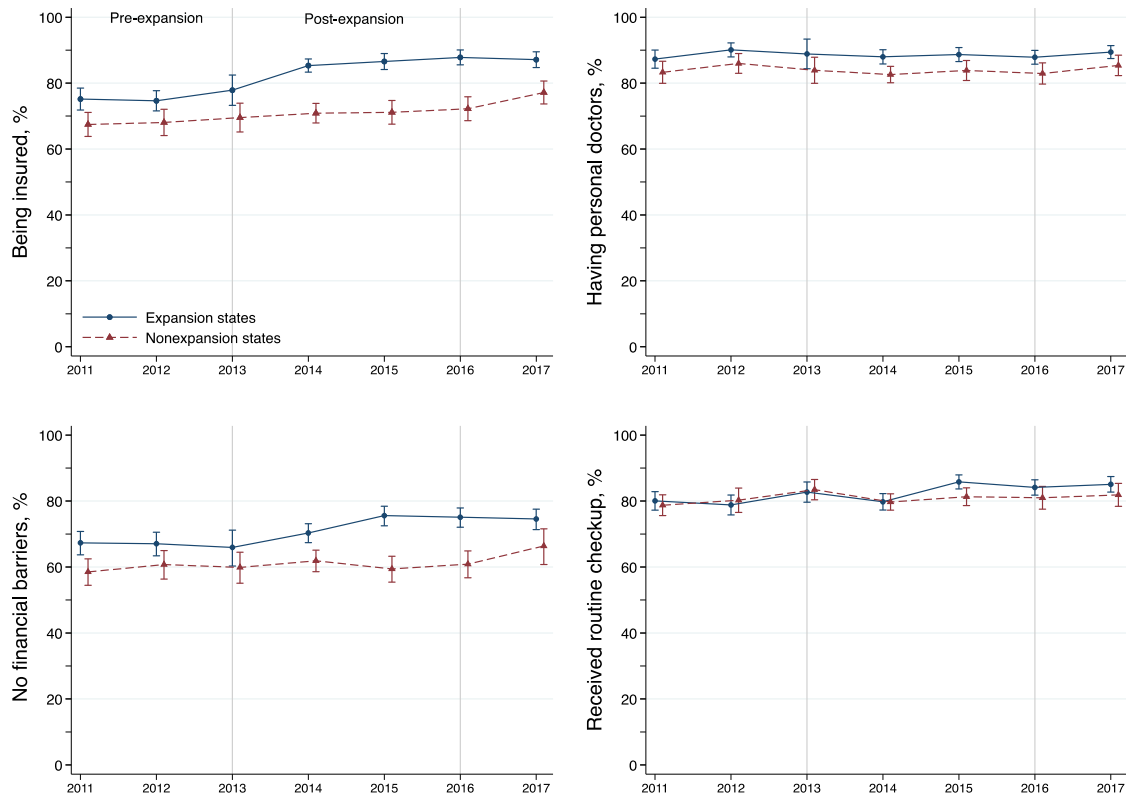
The final sample includes 16,666 respondents from expansion states and 19,176 respondents from non-expansion states. Characteristics of individuals between the two groups are similar. Unadjusted temporal trends of outcomes are displayed in Figure 1. Estimates from difference-in-differences analyses are documented in Table 1. The year 2 and 3 effect of the expansions on health insurance coverage is 7.0 percentage points (pp) (95% CI, 3.1 to 10.8), and is 6.2 pp (95% CI, 2.0 to 10.4) on having no financial barriers to care. However, the effects decreased and became insignificant in 2017. The year 4 effect (3.2 pp) of receiving a routine annual checkup is larger than the year 2 and 3 effect (2.7 pp), but still insignificant. While non-Hispanic whites saw continued gains in health insurance coverage (9.5 pp in year 2 and 3, and 7.0 pp in year 4) and significant increases in routine checkups in year 4 (7.9 pp), blacks and Hispanics did not.

Received October 3, 2019

Revised October 22, 2019

Accepted December 9, 2019

Published online January 2, 2020



Notes: Estimates are based on low-income nonelderly patients with diabetes in the BRFSS data. Multiple imputations were used to account for missing values and survey weights were used to adjust for complex survey design. The pre-expansion period includes 2011-2013 and indicates plausible parallel trends between the two groups.

Figure 1 Trajectory of outcomes by expansion and non-expansion states from 2011 to 2017

### DISCUSSION

The ACA increased coverage and affordability for people with diabetes immediately after the ACA Medicaid expansions, but not after 2016. Closing the coverage and affordability gaps in expansion versus non-expansion states was largely driven by improvements in non-expansion states. Despite this “catch up,” in 2017, healthcare coverage was still 10 pp lower and affordability was 8 pp lower among diabetics in states that decided against expanding Medicaid. Although there were favorable ACA effects for all racial/ethnic groups, our study suggests that non-Hispanic whites benefitted more from the expansions.

Our study offers new evidence on the coverage, affordability, and care for a vulnerable patient group over the early and later years of implementation of the Medicaid expansions under the Affordable Care Act. Future research and practice are warranted on eliminating racial/ethnic disparities, and exploring what drives recent gains in coverage and affordability for low-income diabetic patients from the non-expansion states. These insights could contribute to improving the health and well-being of the over 30 million people with diabetes across the nation.

**Table 1 Changes in Coverage, Affordability, and Care Among Low-Income Nonelderly People with Diabetes, by Race/Ethnicity Groups**

	Year 2 and 3 effect		Year 4 Effect	
	DD (percentage point)	p Value	DD (percentage point)	p Value
All racial/ethnic groups				
Health insurance coverage	7.0	<0.001	2.4	0.33
No financial barriers to accessing care	6.2	0.004	1.1	0.71
Having personal doctors	-0.2	0.91	0.6	0.76
Routine checkups	2.7	0.13	3.2	0.17
N		29,932		23,303
Non-Hispanic whites				
Health insurance coverage	9.5	<0.001	7.0	0.008
No financial barriers to accessing care	7.4	0.007	2.9	0.42
Having personal doctors	-2.5	0.18	1.7	0.38
Routine checkups	4.1	0.06	7.9	0.008
N		16,569		12,953
Non-Hispanic blacks				
Health insurance coverage	2.5	0.50	-6.2	0.22
No financial barriers to accessing care	0.9	0.84	-3.5	0.53
Having personal doctors	2.1	0.53	3.5	0.37
Routine checkups	-1.0	0.75	2.3	0.57
N		6542		5062
Hispanics				
Health insurance coverage	7.7	0.17	-1.8	0.80
No financial barriers to accessing care	NA	NA	NA	NA
Having personal doctors	3.2	0.54	-1.7	0.80
Routine checkups	2.9	0.57	-6.3	0.34
N		3734		2764
Other race/multiracial races				
Health insurance coverage	-0.2	0.97	0.4	0.96
No financial barriers to accessing care	NA	NA	NA	NA
Having personal doctors	NA	NA	NA	NA
Routine checkups	-3.3	0.51	8.9	0.16
N		2987		2502

Notes: DD = Difference-in-Differences expressed as percentage point change. All statistics of outcomes by expansion states and non-expansion states were from weighted analyses of BRFSS respondents who are low-income, nonelderly diabetic adults. N represents the number of observations in the subpopulation of analysis from multiple imputations. 2011–2013 were used as pre-ACA periods, while 2015–2017 were for post-ACA years. Results from analyses violating the parallel assumption of difference-in-difference analyses were not reported and denoted as “NA.” “Other Race” includes American Indian or Alaskan Native, Asian, Native Hawaiian or other Pacific Islander, and other race groups

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#### Compliance with Ethical Standards:

**Conflict of Interest:** The authors declare that they do not have a conflict of interest.

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