



Variation of preventive service utilization by state Medicaid coverage, cost-sharing, and Medicaid expansion status

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ARTICLE INFO

Keywords:

Preventive health services
Medicaid
Patient Protection and Affordable Care Act
Health services accessibility
Minority health
Healthcare disparities

ABSTRACT

Preventive services can help reduce costs associated with chronic conditions. Medicaid beneficiaries have high rates of chronic conditions, but state Medicaid coverage and cost-sharing of preventive services varies widely. States that chose to expand Medicaid under the ACA were incentivized to cover recommended preventive services at no cost-sharing. This study evaluates whether state Medicaid policy and Medicaid expansion were associated with overall utilization, and disparities in utilization of preventive services among vulnerable populations.

We used Medicaid policy data from Kaiser Family Foundation and MEPS data (2009–2014, $n = 15,610$), collected and analyzed in 2017. We used multivariable logistic regression, difference-in-differences, and difference-in-difference-in-differences models to examine the association between state Medicaid preventive service policy and Medicaid expansion on overall utilization, and disparities in utilization among race/ethnicity and income groups for blood pressure check, cholesterol screening, and flu shot.

Medicaid coverage of flu shot was significantly associated with utilization ($p < 0.001$). Medicaid expansion significantly increased flu shot utilization among near-poor individuals ($p < 0.01$), Asians, and Latinos and blood pressure screening among African Americans ($p < 0.05$).

For flu shot, the ACA is reaching its target audience: those in the coverage gap between Medicaid and private insurance. Increasing access to preventive services may not be enough to increase utilization, especially for vulnerable populations and/or the previously uninsured. Focusing on provider adherence to preventive service guidelines and education around who is eligible for what service and when could help increase utilization of preventive services in the future.

1. Introduction

Healthcare accounted for 17.9% of GDP in 2016 (Centers for Medicare and Medicaid Services, 2018), and 85% of health expenditures in 2013 were for chronic disease related illnesses (Thorpe et al., 2017). Preventive care has been considered as a cost-effective mechanism through which populations can detect illness at an early stage, prevent disease progression, and improve health care quality (Centers for Disease Control and Prevention, 2017). Preventive care could also reduce health care costs in the long run (Centers for Disease Control and Prevention, 2017). Two million life years could be potentially saved annually if preventive care had been more widely adopted (Maciosek et al., 2010).

Chronic disease rates among Medicaid beneficiaries are the highest compared to those of the privately insured (Smolen et al., 2014) and

uninsured (Kaiser Commission on Medicaid and the Uninsured, 2012a). It is reasonable to expect that access to timely preventive service utilization can help Medicaid beneficiaries with chronic diseases better prevent and manage their health conditions and improve quality of life (Government Accountability Office, 2009).

Cost-sharing has been documented as a substantial barrier to healthcare access (Solanki and Schauffler, 1999), especially for low-income individuals. Coverage and cost-sharing for preventive services varied significantly among state Medicaid programs in the era before the Affordable Care Act (ACA). In 2010, 14 of 48 states surveyed covered all recommended preventive services, and six states covered all services without cost-sharing (Kaiser Commission on Medicaid and the Uninsured, 2012b).

The ACA aimed to increase preventive service coverage among Medicaid programs by providing an incentive of a one percentage point

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<https://doi.org/10.1016/j.ypmed.2018.08.020>

Received 10 April 2018; Received in revised form 9 August 2018; Accepted 21 August 2018

Available online 23 August 2018

0091-7435/ © 2018 Published by Elsevier Inc.

increase in federal match rate for preventive care to any state that covers all recommended preventive services without cost-sharing (Gates et al., 2014). As of January 2013, eight of 40 states surveyed (including DC) covered all recommended preventive services, and four states covered all services with no cost-sharing (Gates et al., 2014).

The ACA also gave states the option to expand their Medicaid programs to all adults up to 138% Federal Poverty Level (FPL) beginning January 1, 2014 and stipulated that expansion plans must cover recommended preventive services at no cost-sharing. As of January 2018, 33 states, including DC, opted to expand their Medicaid programs (Kaiser Family Foundation, 2018). Previous Medicaid expansions were associated with an increase in preventive service utilization (Wright et al., 2016; Simon et al., 2017). Current evidence suggests that the ACA Medicaid expansion increased utilization of preventive services for low-income individuals in at least one southern state (Sommers et al., 2016) but did not increase utilization of preventive services for low-income individuals overall (Miller and Wherry, 2017).

This study aims to examine the variation of preventive service utilization and disparities of preventive service utilization under various Medicaid policies. We focus on two policy impacts: 1) Medicaid coverage and cost-sharing of preventive care if any; and 2) Medicaid expansion status under the ACA. Particularly, we explore the association between Medicaid expansion and preventive service utilization among vulnerable populations, including racial and ethnic minorities and low-income populations. We hypothesize that utilization of preventive services among Medicaid beneficiaries will be positively associated with Medicaid coverage of preventive services and negatively associated with cost-sharing. Next, we hypothesize that utilization of preventive services will increase in expansion states. Finally, we hypothesize that expansion will result in a reduction in disparities in utilization of preventive services among vulnerable populations.

2. Methods

2.1. Data sources

2.1.1. Medical Expenditure Panel Survey (MEPS)

We used individual-level data on preventive service utilization as well as demographic, socioeconomic, geographic (state identifiers), and health status and access variables from MEPS, a set of large-scale surveys that assesses healthcare services utilized by Americans (Agency for Healthcare Research and Quality, 2009).

2.1.2. Medicaid preventive services and expansion data

We used two Kaiser Family Foundation surveys of state Medicaid program coverage of cost-sharing of preventive services, in 2010 (48 states) (Kaiser Commission on Medicaid and the Uninsured, 2012b) and 2013 (39 states plus DC) (Gates et al., 2014). We also used Kaiser data on Medicaid expansion status on January 1, 2014 (see Table S1).

2.2. Measures

2.2.1. Dependent variables

We focused on three preventive services: 1) blood pressure check, 2) cholesterol check, and 3) flu shot. We used the United States Preventive Services Task Force (USPSTF) recommendations to develop these measures and identify eligible individuals. For each preventive service, we constructed an indicator variable (eligible but did not receive versus eligible and did receive).

2.2.2. Key independent variables

To examine whether state Medicaid coverage and cost-sharing of preventive services were associated with utilization rates, we constructed a state-level categorical policy variable (no state coverage, coverage with copay, and coverage without copay).

To examine whether Medicaid expansion affected utilization of

preventive services, we constructed an interaction variable between a state-level indicator variable for Medicaid expansion status as of January 1, 2014 (not expanding versus expanding) and a post-expansion indicator variable (pre-expansion [2009–2013] versus post-expansion [2014]).

Lastly, to examine whether Medicaid expansion affected disparities in preventive service utilization among vulnerable populations, we constructed interaction terms between an expansion state indicator, a post-expansion indicator, and 1) race/ethnicity (non-Latino White, Black, Asian/Hawaiian/Pacific Islander, Latino, and other race), and 2) income as percent of FPL (poor [$< 100\%$ FPL], near poor [$100\%–124\%$], low-income [$125–199\%$], and medium- and high-income [$200 + \%$]).

2.2.3. Other independent variables

We controlled for demographic variables (age, sex, race and ethnicity, and marital status), socioeconomic status variables (education, employment, and income), health status variables (number of chronic conditions and self-reported health status), and geographic variables (US census region, metropolitan statistical area, and state). We also controlled for interview language and year of survey.

2.3. Study sample

The total sample included all individuals in MEPS 2009–2014 who reported continuous Medicaid coverage over the past year and were eligible for at least one of the three preventive services analyzed ($n = 15,610$). The USPSTF recommends that blood pressure screening be performed on all adults ($n = 15,401$) and cholesterol screening be performed on males beginning at age 35 and females beginning at age 45 ($n = 7417$) (United States Preventive Services Task Force, 2017). The Centers for Disease Control and Prevention (CDC) recommends that everyone has a flu shot annually ($n = 15,320$) (Grohskopf et al., 2016).

2.4. Statistical analysis

We first examined the proportions of those eligible for each service over all independent variables. Next, we examined the proportion of those eligible who received each service across all years to check for unadjusted linear trends in utilization rates. We then used multivariable logistic regression models to evaluate the association of Medicaid coverage and cost-sharing policy for each service, controlling for demographic, socioeconomic, geographic, and healthcare status variables, as well as state fixed effects. Since our Medicaid policy data were only for two years (2010 and 2013), we only used 2010 and 2013 MEPS data in this test.

Next, we examined the association between preventive service utilization and Medicaid expansion status pre-/post-expansion using MEPS 2009–2014. We used linear probability difference-in-differences models to evaluate the association of Medicaid expansion with utilization of each service. The first difference was state expansion status, and the second difference was pre-/post-expansion. Difference-in-differences models rely on the parallel trends assumption, which assumes the change in outcome in the control group is what would be expected in the treatment group, had the treatment not occurred. Previous studies examining the effect of Medicaid expansion on utilization of preventive services have used and tested this assumption (Simon et al., 2017; Sommers et al., 2016; Miller and Wherry, 2017).

Lastly, we used linear probability difference-in-difference-in-differences models to evaluate the effect of Medicaid expansion on disparities in preventive service utilization among vulnerable populations. We added a third difference to two separate models: race/ethnicity and income.

Data for this study were collected and analyzed in 2017. We used Stata 14 (StataCorp; College Station, Texas) to perform all analyses, and we used *svy* commands, which allow researchers to obtain population

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