

Recent Changes in Access to Care among Adults in Rural Maine

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ABSTRACT

This study examines changes in access to care among adults in rural Maine from 2018 to 2023, a period of significant transformation in the state's health-care landscape. Using individual-level survey data, we document a substantial increase in the self-reported rate of health insurance coverage across rural Maine during this period, reaching 94 percent in 2023. Coverage gains are most pronounced among adults in more remote and economically disadvantaged rural areas and are accompanied by steep reductions in financial barriers to care. We also find large increases in several measures of primary and preventive care, including higher rates of annual checkups and having a personal doctor. Despite these gains, we find evidence of ongoing access challenges, with over one in four adults in rural Maine delaying medical care for reasons other than costs in 2022, and persistent disparities in access to dental care between adults in metro and rural areas. The findings from our analysis highlight both recent progress and continuing barriers to healthcare access across rural Maine communities.

This study uses individual-level survey response data to examine changes in access to care among adults in rural Maine from 2018 to 2023. Our analysis makes several contributions to our understanding of Maine's rural healthcare landscape during this period. To our knowledge, this study is the first to test for changes in outcomes among adults in rural Maine since the onset of the pandemic. Previous research finds that rural areas of the state have a higher share of low-income childless adults, and that relative to their counterparts in metro areas, adults in rural Maine are more likely to report being uninsured and to have medical bills that are being paid off over time (Croll and Ziller 2019; Ziller et al. 2021).

INTRODUCTION

In recent years, Maine's healthcare landscape has undergone a rapid transformation. In 2019, the state expanded Medicaid coverage to low-income childless adults, resulting in substantial coverage gains. The onset of the COVID-19 pandemic in 2020 led to acute and long-term healthcare challenges in Maine and across the country, driven by a surge in hospital patient volume, deferments of nonemergency care, and providers leaving the workforce. Since 2019, Maine has also experienced substantial demographic changes that have interacted with the state's system of health care, including an aging population and an influx of individuals entering the state. While expanded coverage, structural effects stemming from the pandemic, and demographic changes have affected Maine's healthcare landscape more broadly, the effects of these changes are likely to have varied across rural and metro communities, given baseline variations and disparities in access to care.

However, because these studies rely on survey response data from before 2020, they do not capture more recent changes among rural Maine adults. By using data through 2023, our analysis captures changes in access to care since the onset of the pandemic.

Second, in addition to examining access patterns among adults in rural Maine more broadly, our analysis tests for changes in outcomes across rural areas of the state. The granularity of our data allows us to stratify respondents into residence in large rural areas, small rural areas, and isolated rural areas. This approach enables us to test for differences in measures of access to care across rural areas with varying population densities and commuter patterns and to develop a more comprehensive understanding of changes to Maine's rural healthcare landscape since 2018.

Third, our analysis includes a broad set of outcomes that capture both changes in access to care, as well as the mechanisms underlying these changes. In addition to examining rates of health insurance coverage from 2018 through 2023, we test for changes in self-reported measures of financial and nonfinancial barriers to care among

rural Maine adults. We supplement our analysis of the survey data with national credit report data on medical debt in collections spanning the same period, to examine how changes in coverage and access to care since 2018 have interacted with levels of medical debt among adults in rural Maine counties. The findings from our analysis may be useful to policymakers and community organizations in identifying recent progress in coverage and access to care, as well as ongoing challenges and barriers to healthcare across rural Maine communities.

DATA AND METHODS

Our analysis relies on two primary data sources to assess recent changes in rates of health insurance coverage, access to care, and medical costs among adults in rural Maine. First, we use individual-level survey response data from the 2018–2023 Maine Behavioral Risk Surveillance System (BRFSS) to examine changes in self-reported rates of health insurance coverage, financial barriers to care, and healthcare access and use (Maine CDC 2018–2023). Second, we use 2018–2023 data from the Urban Institute Credit Bureau Panel to examine changes in measures of medical debt in collections across rural Maine counties (Blavin et al. 2024). This section details the key elements of both datasets, including primary outcomes of analysis and methods, as well as our approach to defining rural Maine.

Maine Behavioral Risk Factor Surveillance System

The BRFSS data derives from an annual cell phone and landline survey of over 10,000 noninstitutionalized adults in Maine aged 18 and older. Surveyed individuals are asked a range of questions about their geographic residence, demographic characteristics, socioeconomic status, and health conditions. Our analysis of the BRFSS data focuses on a subset of questions related to health insurance coverage, financial and nonfinancial barriers to care, and healthcare access and use. Examples of these questions include

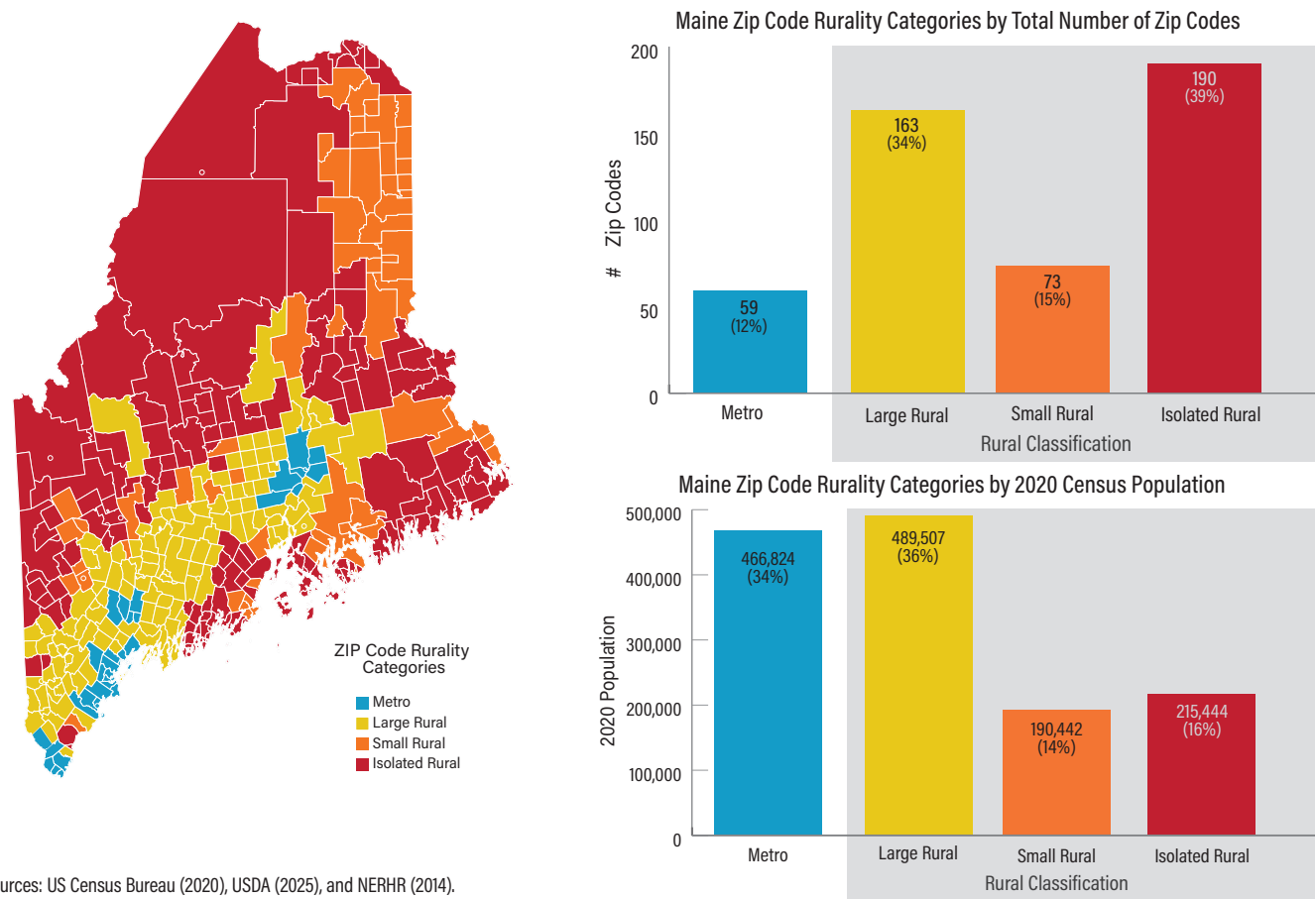
- What is the current primary source of your health insurance? (health insurance coverage)
- Was there a time during the last 12 months when you needed to see a doctor, but could not because of the cost? (financial barriers to care)
- About how long has it been since you last visited a doctor for a routine checkup? (healthcare access and use)

- Other than cost, there are many other reasons people delay getting needed medical care. Have you delayed getting needed medical care for any of the following reasons in the past 12 months? Select the most important reason. (Example: “You couldn’t get an appointment soon.”) (nonfinancial barriers to care)

To distinguish between surveyed adults in metro and rural areas, we link by zip code approximated secondary 2010 Rural-Urban Commuting Area (RUCA) codes from the United States Department of Agriculture (USDA) (Dobis and Sanders 2025). The RUCA codes categorize all zip codes into one of 21 distinct classifications that capture varying levels of population size and commuter flow patterns. We harness the linked RUCA codes to employ the rural residence classification system based on the New England Rural Health Roundtable 2014 Rural Tier assignments (NERHR 2014). This approach to defining and categorizing rural areas has been employed in recent studies that examine policy changes in Maine (Keefe-Oates and Smith 2025; Rhodes and Schneider 2025). In addition to grouping Maine adults into metro and rural areas of residence, this approach enables us to further classify adults in rural areas based on residence in large rural areas, small rural areas, or isolated rural areas. Under this framework, metro areas of the state are centered around Maine’s most populous cities, including Portland, Lewiston, and Bangor, and are characterized by high population density and significant commuter flow patterns into urbanized areas. Zip codes classified as large rural areas include moderately populated towns and small cities with populations between 10,000 and 49,000; residents in these areas tend to commute to larger urbanized areas or to smaller micropolitan areas such as Augusta. Small rural area zip codes encompass urban clusters with populations of less than 10,000, such as Calais, Caribou, and Houlton, and are generally more distant from Maine’s most populous cities. Finally, zip codes classified as isolated rural areas are defined by low population density and location in more remote areas of the state, with limited access to healthcare services and essential resources.

Given these classifications, 66 percent of Maine’s population lived in a rural area in 2020, the highest proportion of them in large rural areas (36 percent). While only 12 percent of Maine zip codes correspond to a metro area based on this classification, more than one-third of Maine’s population lived in a metro zip code in

FIGURE 1: Metro and Rural Maine Zip Codes



Sources: US Census Bureau (2020), USDA (2025), and NERHR (2014).

2020. Conversely, while nearly 40 percent of Maine zip codes correspond to an isolated rural area, only 16 percent of Maine’s population lived in isolated rural zip codes in 2020 (Figure 1).

Our analysis of the BRFSS data consists of two components. First, we examine changes in a subset of primary outcomes throughout the analytic timeframe. This analysis focuses on changes in outcomes among adults in metro and rural areas more broadly and tests for statistical differences across years relative to baseline 2018 levels. Second, we test for changes in a broader set of outcomes between the first and final survey year corresponding to each question, (2022 or 2023), across rural tiers. This analysis further distinguishes between adults in large rural areas, small rural areas, and isolated rural areas. We test for statistical differences both between adults in metro and rural areas within the same year and for changes in outcomes across years but within the same

rural classification. To distinguish between changes in outcomes over time that may be driven by contemporaneous sociodemographic changes (such as an increasing number of individuals who age into Medicare coverage) as opposed to external factors (such as the state’s 2019 Medicaid expansion), the analysis also assesses changes in outcomes after controlling for a range of self-reported demographic and socioeconomic characteristics.

For the purposes of our analysis, we convert all BRFSS outcomes into binary “yes” or “no” responses. With the exception of having health insurance coverage, all survey questions we used are asked regularly throughout the sample period although some questions end in data year 2022. To construct a consistent measure of health insurance coverage, we combine responses from two survey fields. First, for data years 2018 through 2020, we use responses to the question: “Do you have any kind of health care coverage, including health

insurance, prepaid plans such as HMOs, or government plans such as Medicare?” Individuals who answered “Yes” are coded as having coverage, while individuals who answered “No” are coded as uninsured. Because this question was not asked after 2020, we instead use responses to the question “What is the current primary source of your health insurance?” for data years 2021 through 2023. Individuals reporting any form of coverage, such as “Medicare” or “Medicaid,” are coded as insured, while individuals who responded “No coverage of any type” are coded as uninsured. Although our measure uses two different survey questions, there is substantial overlap. In addition, by examining both changes within rural areas over time as well as cross-sectional differences between metro and rural areas, we can assess how coverage gaps have evolved across areas without requiring consistency in the question throughout the period of analysis.

To test for differences in outcomes both across metro and rural areas within the same year and within metro and rural areas over time, we run linear probability models and deem estimates with a p-value threshold of .05 or less as statistically significant. All analysis incorporates survey design features to adjust for the complex sampling strategy used by BRFSS, including survey weights that are intended to produce estimates that reflect Maine’s adult population. This work has been deemed approved human subjects research by the University of Southern Maine’s Institutional Review Board.

Urban Institute Credit Bureau Panel

The Urban Institute Credit Bureau Panel comprises a nationally representative sample of consumer data from a major credit bureau. The data are reported annually at the national, state, and county level. Our analysis of this data focuses on two measures of medical debt: the share of adults with medical debt in collections and the median amount of medical debt among those who have medical debt in collections.

Our analysis of the credit bureau data consists of two components. First, we compare changes in measures of medical debt

in collections between adults in Maine and the United States from 2018 to 2023. Second, we examine changes in medical debt in collections across Maine counties from 2018 to 2023. We define rural Maine counties as having 100 percent of their respective populations in zip codes classified as rural based on the NERHR 2014 Rural Tier assignments. This approach designates all counties except for Androscoggin County, Cumberland County, Penobscot County, and York County as rural (Table 1).

While the credit bureau data offers a valuable lens through which to examine changes in medical debt across Maine counties over time, these data have several limitations. First, because the data are only available at the county level or higher levels, adults living in rural areas of Maine’s four nonrural counties are excluded. Second, because these data are limited to individuals with credit reports, adults without credit histories are excluded; as a result, these data do not capture all Maine residents with medical debt. Third, the analytic period overlaps with two significant policy changes that affect

TABLE 1: **Maine Counties’ Rural Population Distribution**

County	Population	Metro (%)	Rural			
			All (%)	Large rural (%)	Small rural (%)	Isolated rural (%)
Androscoggin	115,272	70	30	27	3	
Aroostook*	66,776		100		74	26
Cumberland	313,809	67	33	30		3
Franklin*	30,902		100		34	66
Hancock*	56,946		100	15	54	31
Kennebec*	128,461		100	100		
Knox*	40,981		100		56	44
Lincoln*	36,491		100	33		67
Oxford*	60,039		100	33	37	31
Penobscot	156,840	57	43	27	8	9
Piscataquis*	17,432		100	8		92
Sagadahoc*	37,582		100	100		
Somerset*	51,338		100	38	28	34
Waldo*	40,617		100	51	23	26
Washington*	31,383		100		29	71
York	220,143	46	54	41	5	8

* Denotes rural classification. Metro and rural population percentages are based on a zip code to county crosswalk. Because some zip codes span multiple counties, actual population distributions may vary slightly. Sources: US Census Bureau (2020) and USDA (2025).

both the proportion of individuals with medical debt in collections and the reported amount of such debt. In July 2022, major credit bureaus stopped reporting medical debt in collections less than a year old, and in April 2023, they removed medical debts of under \$500 from credit reports. Together, these policy changes reduce the visibility of individuals with medical debt and the reported total amount of such debt.

RESULTS

Self-Reported Sociodemographic Characteristics

The 2018–2023 Maine BRFSS data consist of 68,000 respondents, corresponding to over 6.5 million (weighted) adults. A majority of Maine BRFSS respondents reside in rural areas (61 percent). Within rural areas, large rural areas are home to the greatest number of adults in Maine (34 percent), followed by isolated rural areas (15 percent), and small rural areas (12 percent). Roughly 10 percent of respondents did not provide a zip code when surveyed; these individuals are included in the total population count but excluded from our analysis stratified by tiers of rurality.

There are several notable demographic and socioeconomic differences between adults in metro and rural areas of the state. First, relative to metro areas, rural areas have a higher percentage of older adults; while nearly 30 percent of adults in rural areas are 65 years of age or older, only 23 percent of adults in metro areas are within this age group (Table 2). Conversely, while half of adults in metro areas are between 18 and 49 years of age, only 41 percent of adults in rural areas are within this age group.

Second, adults in rural Maine reported, on average, lower educational attainment than their metro counterparts. Four in ten adults in rural Maine have at most a high school diploma, compared to under one-third of adults in metro areas. Conversely, just over one-quarter of adults in rural Maine have a bachelor's degree or higher, compared to 37 percent of adults in metro areas.

Third, adults in rural Maine reported, on average, lower income and employment levels compared to their metro counterparts. Nearly 40 percent of adults in rural Maine reported household income of less than \$50,000 per year compared to just over 30 percent of adults in metro areas. Relative to their metro counterparts, adults in rural Maine are less likely to be employed (54 percent vs 59 percent), more likely to be retired (26 percent vs 21 percent), and more likely to be unable to work (8 percent

vs 6 percent). The magnitude of the differences between metro and rural areas tends to increase across tiers of rurality, with adults in isolated rural areas generally exhibiting the most pronounced differences in demographic and socioeconomic characteristics compared to adults in metro areas.

Changes in Health Coverage, Costs, and Use

Adults in both metro and rural Maine reported significant changes in coverage and access to care from 2018 to 2023, including increased rates of health insurance coverage; declines in financial barriers to care; greater healthcare use; and increased nonfinancial barriers to care (Figure 2).

Changes in health insurance coverage rates

Maine adults reported significant increases in rates of health insurance coverage throughout the period of analysis (Figure 2). Among adults in rural Maine, the self-reported likelihood of having health insurance coverage increased by nearly 5 percentage points (pp) from 2018 to 2023, rising from 89 percent to 94 percent. While adults in metro areas also reported significant increases in coverage rates during this period, the growth rate is less pronounced because of a higher baseline self-reported coverage rate in 2018 (92 percent).

Adults in isolated rural parts of the state reported the most substantial coverage gains from 2018 to 2023, increasing from 87 percent to 95 percent (Table 3). The change in coverage rates among adults in isolated rural areas remains high in magnitude and statistically significant when controlling for demographic and socioeconomic characteristics, suggesting that self-reported coverage gains were the result of external factors rather than changing sociodemographic characteristics during this period. As a result, the statistical difference in coverage rates between adults in metro and rural areas in 2018 is no longer present in 2023. However, adults in small rural areas were less likely to report having health insurance coverage in 2023 relative to their metro counterparts (92 percent vs 95 percent).

Changes in self-reported financial barriers to care

The increases in self-reported rates of health insurance coverage are associated with declines in several measures of financial barriers to care. From 2018 to 2023, the self-reported probability of foregoing medical care due to costs decreased from over 11 percent to 8 percent among adults in both metro and rural areas (Figure 2).

TABLE 2: Sample Counts and Sociodemographic Characteristics by Rurality

Zip code rurality category		All	Metro	Rural			
				All	Large rural	Small rural	Isolated rural
Respondents	Unweighted count	68,068	12,761	49,110	19,241	11,682	18,187
	Unweighted percent	100.00	18.75	72.15	28.27	17.16	26.72
	Weighted count	6,680,158	1,925,450	4,081,129	2,238,892	810,206	1,032,032
	Weighted percent	100.00	28.82	61.09	33.52	12.13	15.45
Age group (%)	18–49	44.37	49.56	41.37*	43.41*	41.31*	37.00*
	50–64	27.35	26.12	28.86*	28.86*	28.05*	29.09*
	65+	26.57	23.33	29.10*	26.96*	29.83*	33.18*
	Missing	1.71	1.00	<1	<1	<1	<1
Sex (%)	Female	51.48	52.06	51.91	51.94	52.04	51.75
	Male	48.45	47.86	48.04	48.00	47.90	48.22
	Missing	<1	<1	<1	<1	<1	<1
Race (%)	White only, non-Hispanic	90.89	89.84	92.74*	92.82*	92.06*	93.08*
	Minoritized racial or ethnic group	6.89	8.61	5.52*	5.49*	6.11*	5.11*
	Missing	2.21	1.55	1.75	1.69	1.83	1.81
Education (%)	Less than or some high school	7.41	5.89	7.85*	7.27*	8.97*	8.21*
	High school diploma or GED	31.74	26.35	34.20*	33.46*	34.54*	35.54*
	Some college	30.69	30.36	31.07	31.66	31.10	29.75
	Bachelor's degree or higher	29.71	37.19	26.72*	27.47*	25.21*	26.27*
	Missing	<1	<1	<1	<1	<1	<1
Income (%)	Less than \$25,000	14.42	13.07	15.49*	13.06	19.08*	17.93*
	\$25,000–\$49,999	20.94	18.95	22.92*	21.74*	24.37*	24.35*
	\$50,000 or more	42.47	48.64	41.83*	45.00*	37.40*	38.42*
	Missing	22.18	19.35	19.76	20.20	19.14	19.30
Employment status (%)	Employed	55.36	59.33	53.50*	55.56*	51.77*	50.39*
	Homemaker	3.51	2.91	3.77*	3.60*	3.61	4.26*
	Out of work	4.14	4.16	4.11	4.17	4.24	3.88
	Retired	24.47	21.33	26.49*	25.01*	27.02*	29.30*
	Student	3.51	5.06	2.66*	2.81*	2.70*	2.30*
	Unable to work	7.63	6.41	8.49*	7.83*	9.62*	9.04*
	Missing	1.38	<1	0.97	1.01	1.04	<1*

* Difference relative to adults in metro areas is statistically significant at the 5 percent level.

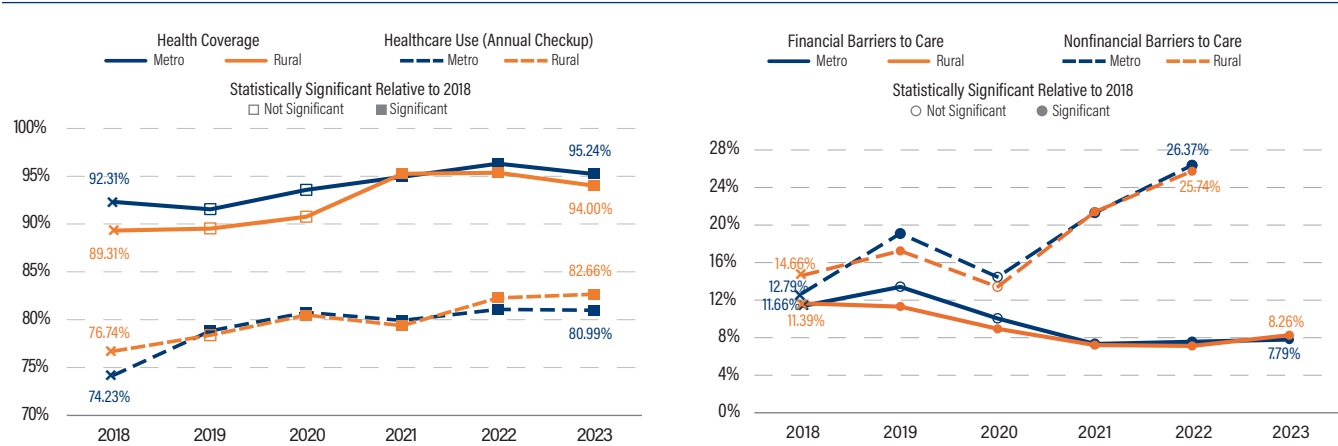
Note: 6,197 respondents did not provide a zip code (10.1%). These individuals are included in the "All" column but excluded from assignment into a metro or rural area.

Sources: Maine CDC (2018–2023) and USDA (2025).

Adults in isolated rural areas reported the greatest (in magnitude) decline in the likelihood of foregoing medical care due to costs, decreasing from 12 percent in 2018 to 7 percent in 2023 (Table 4). While adults in metro areas also reported a substantial decline in the likelihood of foregoing care due to costs during this period, this

change is not statistically significant when controlling for demographic and socioeconomic factors, suggesting that contemporaneous changes in these characteristics may have contributed to this decline. However, adults in both metro and rural areas reported steep declines in the likelihood of foregoing prescribed medication due to costs,

FIGURE 2: **Changes in Self-Reported Coverage, Costs, and Access to Care among Adults in Metro and Rural Areas of Maine (2018-2023)**



Notes: Panel A questions: (1) Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare? (2018-2020, [Yes]/[No]), What is the current primary source of your health insurance? (2021-2023, [Type of plan]/[No coverage of any type]). (2) About how long has it been since you last visited a doctor for a routine checkup? (2018-2023, [Within the past year]/[2 years - Never]).

Panel B questions: (1) Was there a time in the past 12 months when you needed to see a doctor, but could not because of the cost? (2018-2023, [Yes]/[No]). (2) Other than cost, there are many other reasons people delay getting needed medical care. Have you delayed getting needed medical care for any of the following reasons in the past 12 months? (2018-2022, [Reason, including Other]/[No, I did not delay getting needed medical care/Did not need medical care]).

Sources: Maine CDC (2018-2023) and USDA (2025).

TABLE 3: **Changes in Self-Reported Coverage Rates by Rurality**

Data Year	All	Metro	Rural			
			All	Large rural	Small rural	Isolated rural
2018 (%)	90.02	92.31	89.31*	89.36*	91.93	87.29*
2023 (%)	94.11	95.24	94.00	94.31	91.87*	95.10
Unadjusted change (pp)	4.09 ^a	2.93 ^a	4.69 ^a	4.95 ^a	-0.06	7.81 ^a
Adjusted change (pp)	2.94 ^a	1.44	3.50 ^a	3.32 ^a	0.16	6.51 ^a

* Difference relative to adults in metro areas is statistically significant at the 5 percent level.
a Difference in outcomes from 2018 to 2023 is statistically significant at the 5 percent level. Adjusted changes control for demographic and socioeconomic characteristics in Table 2.
Questions: "Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?" (2018, [Yes]/[No]), "What is the current primary source of your health insurance?" (2023, [Type of Plan]/[No coverage of any type]).
Sources: Maine CDC (2018-2023) and USDA (2025).

decreasing from roughly 9 percent in 2018 to 5 percent in 2022 (Table 4).

The self-reported reductions in financial barriers to care are associated with a decline in the likelihood of having healthcare bills being paid off over time. While over one-quarter of Maine adults reported having such

bills being paid in 2018, less than one in five Maine adults reported this outcome in 2022 (Table 4). The magnitude of the decline from 2018 to 2022 is largely uniform across adults in metro and rural areas.

Changes in self-reported access to care and use

Maine adults reported significant increases in several measures of care. From 2018 to 2023, the self-reported likelihood of having an annual checkup increased from 74 percent to 81 percent among adults in metro areas and from 77 percent to 83 percent among adults in rural areas (Figure 2). Adults in isolated rural areas reported the largest increase in annual checkup rates during this time, rising from 76 percent in 2018 to 85 percent in 2023, and were statistically more likely to report having an annual checkup in 2023 relative to their metro counterparts (Table 5).

TABLE 4: **Changes in Self-Reported Financial Barriers to Care by Rurality**

Data year	All	Metro	Rural			
			All	Large rural	Small rural	Isolated rural
A. Did not see doctor due to costs during the past year?						
2018 (%)	11.77	11.39	11.66	11.64	11.34	11.92
2023 (%)	8.67	7.79	8.26	8.65	8.96	6.80
Unadjusted change (pp)	-3.10 ^a	-3.60 ^a	-3.39 ^a	-2.99 ^a	-2.39	-5.12 ^a
Adjusted change (pp)	-1.96 ^a	-2.13	-2.36 ^a	-1.81	-1.58	-3.97 ^a
B. Did not take prescribed medication due to costs during the past year?						
2018 (%)	8.64	9.21	8.63	8.92	9.75	7.11
2022 (%)	5.23	5.49	5.02	4.96	6.02	4.36
Unadjusted change (pp)	-3.41 ^a	-3.71 ^a	-3.61 ^a	-3.96 ^a	-3.74 ^a	-2.75 ^a
Adjusted change (pp)	-3.05 ^a	-3.49 ^a	-3.25 ^a	-3.52 ^a	-3.55 ^a	-2.64 ^a
C. Currently have health care bills that are being paid off over time?						
2018 (%)	26.84	26.79	27.16	28.61	26.24	24.60
2022 (%)	18.76	18.59	18.88	18.80	19.07	18.88
Unadjusted change (pp)	-8.08 ^a	-8.20 ^a	-8.28 ^a	-9.81 ^a	-7.17 ^a	-5.72 ^a
Adjusted change (pp)	-7.42 ^a	-7.54 ^a	-7.42 ^a	-8.93 ^a	-7.19 ^a	-4.77 ^a

* Difference relative to adults in metro areas is statistically significant at the 5 percent level.
a Difference in outcomes from 2018 to 2022/2023 is statistically significant at the 5 percent level. Adjusted changes control for demographic and socioeconomic characteristics in Table 2.
Panel A question: Was there a time during the last 12 months when you needed to see a doctor, but could not because of the cost? (2018 & 2023, [Yes]/[No]).
Panel B question: Was there a time in the past 12 months when you did not take your medication as prescribed because of cost? Do not include over-the-counter (OTC) medication. (2018 & 2022, [Yes]/[No, No medication was prescribed]).
Panel C question: Do you currently have any health care bills that are being paid off over time? (2018 & 2022, [Yes]/[No]).
Sources: Maine CDC (2018-2023) and USDA (2025).

Maine adults also reported a significant increase in having a regular source of primary care across the sample period. Statewide, the likelihood of having a personal doctor increased by 5 percentage points from 2018 to 2023, rising from 85 percent to 90 percent (Table 5). Adults in metro and isolated rural areas reported the largest increases in the likelihood of having a personal doctor during this time, rising by 6 percentage points from 85 percent and 86 percent, respectively. While the unadjusted changes from 2018 to 2023 are not statistically significant, these changes are statistically significant and large in magnitude when controlling for sociodemographic characteristics, suggesting a policy-driven increase in the likelihood of having a personal doctor during this period.

Increases in measures of access to primary and preventive care are associated with a higher likelihood of receiving a flu shot throughout the period of analysis. From 2018 to 2023, the likelihood of having a flu shot increased by nearly 18 percentage points among Maine adults, rising from 32 percent to 50 percent (Table 5). While adults in both metro and rural areas reported significant increases in the likelihood of receiving a flu shot during this period, the increase is more pronounced among adults in metro areas (21 percentage points vs 17 percentage points). As a result, although in 2018 there was no statistical difference between adults in metro and rural areas in the likelihood of receiving a flu shot, adults in metro areas were more likely to receive a flu shot in 2023 relative to their rural counterparts.

Despite increases in self-reported measures of primary and preventive care, Maine adults did not report increases in the likelihood of ever having a mammogram or of having a dental visit during the past year, two measures of screening and specialty care. From 2018 to 2023, the self-reported rate of ever having a mammogram declined by over 1 percentage point among women 45 years of age and older, with the highest in magnitude reduction among women in metro areas (Table 5). Over one-third of Maine adults reported not visiting the dentist during the past year in both 2018 and 2023, and adults in rural areas were statistically less likely to have visited the dentist relative to their metro counterparts in both years.

Changes in self-reported nonfinancial barriers to care

Despite increases in several measures of care, Maine adults were significantly more likely to report

TABLE 5: Changes in Self-Reported Measures of Access to Care and Use by Rurality

Data Year	All	Metro	Rural			
			All	Large Rural	Small Rural	Isolated Rural
A. Checkup within the past year?						
2018 (%)	75.74	74.23	76.74	76.44	78.46*	76.12
2023 (%)	81.64	80.99	82.66	81.42	83.68	84.63*
Unadjusted change (pp)	5.90 ^a	6.76 ^a	5.92 ^a	4.97 ^a	5.22 ^a	8.51 ^a
Adjusted change (pp)	4.66 ^a	5.54 ^a	4.72 ^a	3.61 ^a	5.33 ^a	6.59 ^a
B. Do you have a personal doctor?						
2018 (%)	85.19	84.82	85.92	86.24	84.67	86.14
2023 (%)	90.27	91.23	90.56	90.28	89.66	91.94
Unadjusted change (pp)	5.08	6.41	4.64	4.03	4.99	5.80
Adjusted change (pp)	4.17 ^a	4.92 ^a	3.76 ^a	2.91 ^a	5.01 ^a	5.0 ^a
C. Received a flu shot during the past year?						
2018 (%)	32.41	34.83	31.89	31.78	32.46	31.70
2023 (%)	49.91	56.30	48.29*	48.10*	48.37*	48.64*
Unadjusted change (pp)	17.50 ^a	21.47 ^a	16.40 ^a	16.32 ^a	15.91 ^a	16.94 ^a
Adjusted change (pp)	15.10 ^a	19.11 ^a	14.21 ^a	13.77 ^a	16.08 ^a	14.21 ^a
D. Ever had a mammogram?						
2018 (%)	97.10	98.31	96.62*	96.57*	97.04	96.42
2022 (%)	95.77	96.83	96.22	96.50	95.92	95.90
Unadjusted change (pp)	-1.33 ^a	-1.48	-0.40	-0.07	-1.12	-0.51
Adjusted change (pp)	-1.69 ^a	-1.98 ^a	-0.84	-0.51	-1.26	-1.15
E. Visited a dentist during the past year?						
2018 (%)	65.46	69.28	63.86*	65.72	60.86*	62.06*
2022 (%)	65.65	69.28	64.07*	65.67	59.61*	64.15*
Unadjusted change (pp)	0.19	0.00	0.20	-0.05	-1.25	2.09
Adjusted change (pp)	-1.80	-2.00	-1.73	-1.98	-3.23	-0.27

* Difference relative to adults in metro areas is statistically significant at the 5 percent level.

^a Difference in outcomes from 2018 to 2023 is statistically significant at the 5 percent level. Adjusted changes control for demographic and socioeconomic characteristics in Table 2.

Panel A question: About how long has it been since you last visited a doctor for a routine checkup? (2018 & 2023, [Within the past year]/[1+ to 5 or more years]).

Panel B question: Do you have one person you think of as your personal doctor or health care provider? (2018 & 2023, [Yes one, Yes more than one]/[No]).

Panel C question: During the past 12 months, have you had either a seasonal flu shot or a seasonal flu vaccine that was sprayed in your nose? (2018 & 2023, [Yes]/[No]).

Panel D question: A mammogram is an x-ray of each breast to look for breast cancer. Have you ever had a mammogram? (2018 & 2022, [Yes]/[No]).

Panel E question: "How long has it been since you last visited the dentist or a dental clinic for any reason?" (2018 & 2022, [Within the past year]/[1+ to 5 or more years]).

Sources: Maine CDC (2018-2023) and USDA (2025).

nonfinancial barriers to care in 2022 than in 2018. Across both metro and rural areas, less than one in six Maine adults reported delaying care due to nonfinancial reasons in 2018, while over one in four Maine adults reported delaying care due to nonfinancial reasons in 2022 (Figure 2). The change in the likelihood of reporting delaying medical care for nonfinancial reasons is largely uniform across rural tiers from 2018 to 2022 (Table 6).

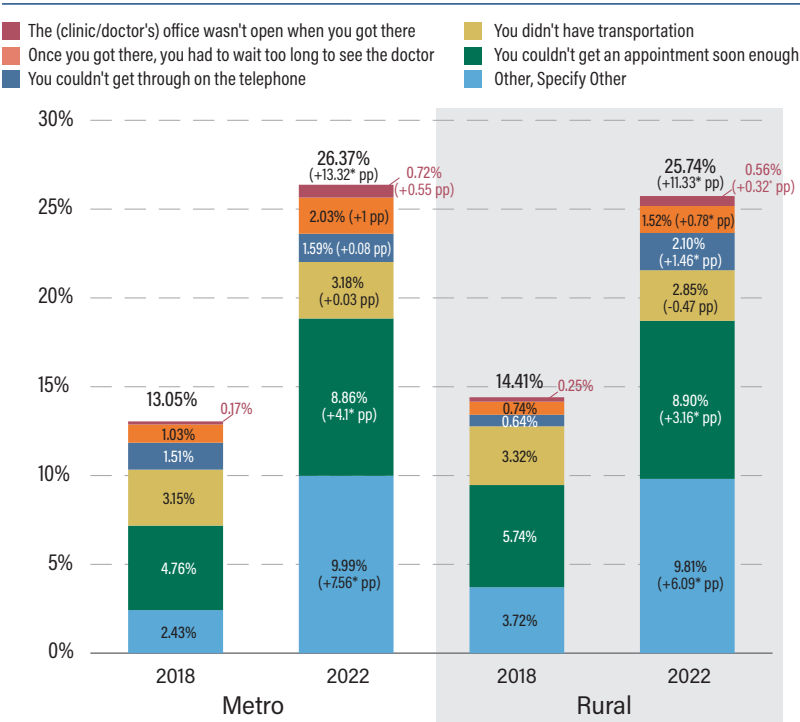
In addition to examining the change in the overall likelihood of delaying medical care for nonfinancial reasons, we also explored the underlying drivers of these changes (Figure 3). Among adults in metro areas, the increase from 2018 to 2022 was primarily driven by more adults reporting that they could not get an appointment soon enough or "other" reasons not specified in the survey. In rural areas, the same reasons contributed to

TABLE 6: **Changes in Self-Reported Nonfinancial Barriers by Rurality**

Data year	All	Metro	Rural			
			All	Large rural	Small rural	Isolated rural
Delayed getting medical care for reasons other than costs during the past year?						
2018 (%)	13.78	13.05	14.41	14.99	14.18	13.31
2022 (%)	26.05	26.37	25.74	24.73	27.27	26.64
Unadjusted change (pp)	12.27 ^a	13.32 ^a	11.33 ^a	9.74 ^a	13.08 ^a	13.32 ^a
Adjusted change (pp)	13.20 ^a	14.14 ^a	11.99 ^a	10.51 ^a	13.11 ^a	14.19 ^a

* Difference relative to adults in metro areas is statistically significant at the 5 percent level.
a Difference in outcomes from 2018 to 2023 is statistically significant at the 5 percent level. Adjusted changes control for demographic and socioeconomic characteristics in Table 2.
Question: Other than cost, there are many other reasons people delay getting needed medical care. Have you delayed getting needed medical care for any of the following reasons in the past 12 months? (2018–2022, [Reason, including Other]/[No I did not delay getting needed medical care/Did not need medical care]).
Sources: Maine CDC (2018–2023) and USDA (2025).

FIGURE 3: **Nonfinancial Barriers that Caused Delay in Needed Medical Care in 2018 and 2022**



* Difference in outcomes from 2018 to 2022 is statistically significant at the 5 percent level.
Labels include the percentage of respondents (%) (top) and percentage point change (pp) (bottom).
Question: "Other than cost, there are many other reasons people delay getting needed medical care. Have you delayed getting needed medical care for any of the following reasons in the past 12 months?" (2018–2022, [Reason, including Other]/[No I did not delay getting needed medical care/Did not need medical care]).
Sources: Maine CDC (2018–2023) and USDA (2025).

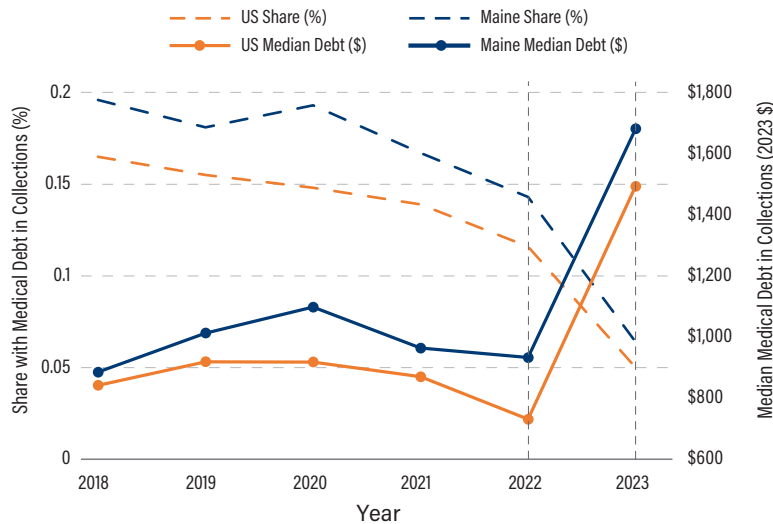
the increase, but adults also reported delays due to difficulties getting through on the phone, long waits for both appointments and to see a provider after arriving, and provider offices not being open when they arrived.

Changes in medical debt in collections

Despite reported coverage gains and declines in financial barriers to care from 2018 to 2023, Maine adults were both more likely to have medical debt in collections in their credit reports and to have higher levels of medical debt in collections relative to all US adults during this period. In 2018, nearly 20 percent of sampled Maine adults had medical debt in collections in their credit reports compared to 17 percent of US sampled adults, and the median amount of medical debt in collections among sampled Maine adults was over \$1,000 compared to \$900 among sampled US adults (Figure 4). From 2020 to 2023, the share of US adults with medical debt in their credit reports declined substantially, dropping from 15 percent to 5 percent. The decline in the share of adults with medical debt in collections has been largely attributed to credit bureaus stopping the reporting of medical debt in collections beginning in July 2022 and removing medical debts of under \$500 beginning in April 2023. As a result, while the share of adults with medical debt in collections declined during this period, median levels of medical debt in credit reports increased significantly, rising from \$900 in 2020 to \$1,500 in 2023. Maine adults continued to have relatively higher shares of medical debt in collections and higher levels of such debt in their credit reports after these policies were implemented.

Relative to adults in metro Maine counties, adults in rural Maine counties tended to have higher shares and higher levels of medical debt in collections in their credit reports in both 2018 and

FIGURE 4: Measures of Medical Debt in Collections across Maine and the United States (2018–2023)



Notes: Vertical dashed lines denote that, since July 2022, credit reporting agencies have stopped reporting medical debt in collections that are less than a year old and, since April 2023, credit reporting agencies have stopped reporting medical debt in collections of less than \$500.

Source: Urban Institute Credit Bureau Panel (2024).

2023 (Table 7). Rural Maine counties with the highest shares of adults with medical debt in collections in 2018, including Kennebec County, Lincoln County, and Somerset County, generally experienced the largest declines in the share of adults with medical debt in collections from 2018 to 2023. However, these counties continued to have among the highest shares of adults with medical debt and among the highest levels of medical debt in collections in 2023.

DISCUSSION

While our findings are not intended to capture the causal drivers of increased coverage rates during this period, the empirical approach we employ strongly suggests that policy initiatives were a significant contributing factor. Our analytic timeframe overlaps with several policies aimed at expanding and preserving coverage among adults in Maine and nationally, including the state’s 2019 Medicaid expansion; the Medicaid continuous coverage provision, which paused redeterminations during the public health emergency; and enhanced subsidies for Marketplace consumers, which substantially reduced the costs of

monthly premiums for plans purchased through CoverME.gov. The reported increase in coverage rates from 2018 to 2023 significantly reduced disparities in coverage between adults in metro and rural areas during this time. In addition, the coverage gains are most pronounced among adults in underserved areas; we document the largest in magnitude increase in self-reported coverage rates among adults in isolated rural areas, who, compared to adults in metro areas, have lower educational attainment and income, are less likely to be employed, and had significantly lower rates of coverage in 2018.

The findings from our analysis highlight the link between coverage increases and expanded access to care in Maine during this period. Adults in isolated rural areas of the state reported the largest increases in both rates of health insurance coverage and measures of primary and preventive care from 2018 to 2023, including having an annual checkup and access to a personal doctor. Adults in isolated rural areas also reported steep declines in the likelihood of foregoing medical care due to costs from 2018 to 2023, suggesting a causal link between coverage expansions, reduced financial barriers to care, and increased access to care among income-constrained adults.

In addition to coverage gains and reduced financial barriers, increased access to primary care during this period may also reflect greater use of telehealth. Our analytic timeframe overlaps with both the rapid expansion of telehealth during the pandemic and significant efforts to expand broadband access and telehealth capacity throughout the state. From 2019 to 2021, the share of primary care payments associated with telehealth services increased from less than 1 percent to between 6.2 percent (MaineCare) and 13.5 percent (commercial coverage) and remained elevated through 2022 relative to historical levels (Harrington 2024). Since 2021, more than \$250 million has been invested in expanding access to broadband across Maine, and substantial federal funding has supported the statewide development of telehealth infrastructure in recent years (MCA 2025; MaineBiz Staff 2018; MCD Global Health 2024). However, internet access remains more limited in rural areas

TABLE 7: **Changes in Measures of Medical Debt across Maine Counties**

	Share with medical debt in collections			Median medical debt in collections (2023 \$s)		
	2018 (%)	2023 (%)	Change (pp)	2018 (\$)	2023 (\$)	Change (\$)
United States	16.50	5.00	-11.5	842	1,493	651
Maine	19.60	6.40	-13.2	885	1,681	796
Rural Maine counties median	19.20	7.50	-11.75	1,048	1,798	750
Maine counties						
Androscoggin	18.80	4.80	-14	774	1,243	469
Aroostook*	5.50	3.00	-2.5	649	1,675	1,026
Cumberland	18.10	4.40	-13.7	784	1,529	745
Franklin*	13.30	3.00	-10.3	381		
Hancock*	21.90	8.40	-13.5	1,519	1,887	368
Kennebec*	25.40	11.70	-13.7	1,121	1,802	681
Knox*	15.40	5.00	-10.4	579	1,645	1,066
Lincoln*	23.30	9.00	-14.3	1,175	1,793	618
Oxford*	18.20	5.70	-12.5	819	1,828	1,009
Penobscot	22.30	6.20	-16.1	745	1,562	817
Piscataquis*	17.30	4.90	-12.4			
Sagadahoc*	22.70	10.70	-12	1,105	2,461	1,356
Somerset*	23.60	13.70	-9.9	1,061	2,366	1,305
Waldo*	19.30	6.80	-12.5	1,048	1,694	646
Washington*	19.10	8.10	-11	838	1,619	781
York	20.40	5.40	-15	1,092	1,448	356

* Denotes rural classification.
Note: Median medical debt in collections in Franklin County (2023) and Piscataquis County (2018 and 2023) excluded from raw data due to sample size suppression; credit bureau metrics are not reported by the Urban Institute when based on fewer than 50 people.
Source: Urban Institute Credit Bureau Panel (2024), US Census Bureau (2020), and USDA (2025).

of the state; while, statewide, 11 percent of Maine households lack an internet subscription, the share is significantly higher in Maine’s most remote counties, including Aroostook County (20 percent), Piscataquis County (16 percent), and Washington County (17 percent).¹ Future research should examine whether the utilization gains observed in rural areas, including higher rates of receiving an annual checkup, are linked to increased telehealth use, and whether these gains are concentrated in areas with recently expanded broadband access.

We document varying changes in coverage and access to care across rural areas of the state. Although we find substantial gains in self-reported coverage among

adults in isolated rural areas, we find no change in coverage rates among adults in small rural areas from 2018 to 2023. However, adults in small rural areas reported higher baseline rates of coverage in 2018 relative to adults in isolated rural areas (92 percent vs 87 percent). In addition, despite no reported change in coverage rates from 2018 to 2023, adults in small rural areas reported an uptick in the likelihood of having an annual checkup during this period. These findings may be explained by regional differences inherent in the geographic classification of small and isolated rural areas. While zip codes associated with isolated rural areas are distributed throughout large swaths of the state, many zip codes corresponding to small rural areas are centered around northeastern Maine, including Caribou and Houlton (Figure 1). Additional research is needed to determine whether regional differences, such as varying seasonal employment patterns, contributed to the variation in reported changes in coverage across adults in small and isolated rural areas during this time.

Although our analysis captures evidence of expanded coverage and increased healthcare use among adults in rural areas from 2018 to 2023, we find ongoing access challenges. In line with recent reporting, we find no change in the likelihood of having a dental visit from 2018 to 2022 among adults in rural areas and continued disparities in access to dental care between adults in metro and rural areas throughout the sample period (Lawlor 2023, 2024). Access challenges appear to be at least partially driven by nonfinancial barriers to care, with over one in four adults in rural Maine reporting having delayed medical care for reasons other than costs in 2022.

Two interconnected factors may have contributed to the rise in nonfinancial barriers to care during this period: worsening healthcare workforce shortages and the impact of the COVID-19 pandemic on the demand for and availability of healthcare services. Across the United States, physician specialties such as primary care, OB/GYN, pediatrics, and geriatrics are facing growing shortages (NIHCMF 2025). These challenges are particularly acute in Maine, where both the general population and the healthcare workforce are aging (OSE 2023). Older patients typically have more complex healthcare needs that increase the demand for services, while the share of healthcare workers aged 55 to 64 has increased from 11 percent in 2001 to 20 percent in 2021 (Dawson 2022). This combination of higher care needs and impending retirements may help explain the increase in the share of respondents who reported delaying care because they could not get an appointment quickly enough. The COVID-19 pandemic may have compounded these issues and contributed to more delays in accessing care, perhaps because of concerns about spreading the virus. Future data collected further from the height of the pandemic will help clarify whether these factors were the primary drivers of the increase in self-reported financial barriers during this period; however, ongoing workforce shortages may make this assessment difficult.

While our findings capture a substantial decline in the self-reported likelihood of having healthcare bills that are being paid off over time among adults in rural areas, our analysis of the credit bureau data finds that levels of medical debt in collections remained elevated in rural Maine counties throughout the study period. Because medical debt in collections generally captures debt associated with care from prior years, future studies should examine whether the observed coverage gains and reduced financial barriers to care among rural adults translate into lower future levels of medical debt. Recently passed legislation (LD 1937—An Act to Require Hospitals and Hospital-affiliated Providers to Provide Financial Assistance Programs for Medical Care) that requires Maine's nonprofit hospitals to provide free, medically necessary care to individuals with incomes up to 200 percent of the federal poverty level (FPL), (up from the previous threshold of 150 percent FPL), may also contribute to future reductions in levels of medical debt in rural Maine.

Implications of Recent Policy Changes

Recent and upcoming policy changes, however, may dampen the gains reported in this article. First, our analytic period overlapped with the Medicaid continuous coverage provision, which paused MaineCare redeterminations throughout the COVID-19 public health emergency. Despite Maine's thoughtful and gradual approach to the *unwinding* of this provision, which resulted in over 345,000 MaineCare members successfully renewing and retaining coverage, nearly 70,000 members were disenrolled during the process (Maine DHHS 2024). These closures may not have translated into absolute coverage losses, as some individuals likely obtained coverage through other sources, such as employer-sponsored coverage, or successfully reenrolled in MaineCare. However, because Maine's unwinding period was not over until December 2024, the full impact on coverage rates and access to care in rural areas will not be evident until 2025 data becomes available.

Second, provisions in the Budget Reconciliation Bill signed into law on July 4, 2025, (also referred to as HR 1), will make significant cuts to the Medicaid program through policy changes that are projected to total \$990 billion over the next decade (CBO 2025). These include new work requirements for MaineCare members covered through the childless adult expansion program, which will take effect in January 2027 and are projected to result in upwards of 31,000 MaineCare members losing coverage in the first year (Maine DHHS 2025). Findings from our analysis suggest that cuts to the Medicaid program through HR 1 may have a significant and outsized impact on rural Maine communities; just as adults in rural areas experienced the largest coverage gains from 2018 to 2023, they are likely to face the steepest reductions in coverage under policies that scale back the MaineCare expansion program.

At the same time, Maine has submitted a comprehensive and innovative application for the Rural Health Transformation Program (RHTP), a \$50 billion fund included in HR 1 that aims to strengthen healthcare and improve health outcomes in rural communities (Office of Governor 2025). However, this funding is not intended to offset the Medicaid coverage losses resulting from HR 1, and RHTP allocations will fall substantially short of the projected reductions in federal Medicaid expenditures, amounting to roughly 5 percent (\$50 billion out of \$990 billion). Despite this, Maine's proposed RHTP

initiatives are designed to bolster the state's rural health infrastructure and may expand access to care through other avenues, such as improving provider efficiency, supporting workforce recruitment and retention, and strengthening the financial stability of rural providers. Careful monitoring of both cuts to the Medicaid program under HR 1 and the state's RHTP initiatives will be crucial to assessing their combined impacts on access to care and health outcomes across rural Maine communities in years to come.

Finally, upcoming changes in commercial health insurance markets may also weaken the coverage and access gains that we observe in rural communities. Enhanced premium tax credits (EPTCs), which were established through the 2021 American Rescue Plan Act and have significantly lowered monthly premiums for rural Maine households with Marketplace coverage, will expire at the end of 2025 without Congressional action. Recent analysis finds that Marketplace consumers in isolated rural areas may face especially steep premium increases if EPTCs expire (Rhodes and Schneider 2025). At the same time, employers across the country are projecting growth in the cost of providing health benefits of 6.5 percent from 2025 to 2026 (Mercer 2025). If Maine employers experience similar increases, the combination of Medicaid cuts, reduced Marketplace subsidies, and higher employer health costs could lead to coverage losses across rural communities. These changes may impose financial strain on rural healthcare providers by reducing reimbursement and patient volume, with potential spillover effects onto individuals whose coverage is not directly affected by these policies. The findings from our analysis suggest that isolated rural areas—which, by definition, are in more remote regions of the state and already have limited access to care—may be most vulnerable to these upcoming coverage changes.

Looking ahead, Maine will need creative solutions to address issues of workforce shortages, increased healthcare costs, and rural vs metro disparities. In addition to the initiatives outlined in Maine's RHTP application, several ongoing efforts may improve access to care in rural areas, including initiatives to expand the healthcare workforce. In 2024, the Maine DHHS launched the Careers with Purpose marketing campaign to recruit and retain direct service workers in healthcare fields, while the Maine Department of Labor expanded healthcare apprenticeship programs and hosted job fairs (Maine DHHS and DOL 2025).² Healthcare Training for ME, an

initiative that provides free or low-cost training, career guidance, and financial support to help Maine residents to enter and advance in healthcare jobs, has continued to train and provide tuition remissions for healthcare workers since its launch in 2022 (Maine DHHS 2023). Community health workers (CHWs), who have previously been deployed for COVID-19 response actions, chronic disease prevention, and other public health issues, are also positioned to support communities during a period of uncertain access (NASHP 2025).

CONCLUSION

This analysis finds significant changes in Maine's rural health care landscape in recent years. While we observe gains in coverage, affordability, and primary care access from 2018 to 2023, our findings highlight the need for creative solutions to address nonfinancial barriers to care in rural Maine, especially in the face of upcoming policy changes. Because our analysis is specific to Maine's adult population, more research is needed to assess the full extent of changes to Maine's rural healthcare landscape during this period, including coverage and access to care among Maine children, as well as access to care patterns among vulnerable populations that are especially sensitive to both financial and nonfinancial barriers to care, such as individuals with chronic conditions, older adults, and pregnant women.

NOTES

- 1 "Types of Computers and Internet Subscriptions." American Community Survey, 2023 ACS 5-Year Estimates Subject Tables, Table S2801, US Census Bureau, [https://data.census.gov/table/ACSST5Y2023.S2801?q=computer&g=010XX00US_040XX00US23,23\\$0500000](https://data.census.gov/table/ACSST5Y2023.S2801?q=computer&g=010XX00US_040XX00US23,23$0500000)
- 2 "Careers with Purpose," Maine DHHS and DOL, <https://mainecareerswithpurpose.org/>; "Workforce Development and Retention," Maine DHHS, Office of Aging and Disability Services, <https://www.maine.gov/dhhs/oads/providers/workforce-development-and-retention>

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