

Health in Rural Ohio: 2019 Update

May 2021



AUTHORS

Anirudh V. S. Ruhil¹, Heather Robinson², Piyali Das²,
Danaye Nixon^{2, 3}, Concetta Reda², Douglas Spence², Brian
Fowler⁴, Schuyler Schmidt⁵

¹ The Voinovich School of Leadership
& Public Affairs, Ohio University

² The Ohio Colleges of Medicine
Government Resource Center

³ The Ohio State University

⁴ The Ohio Department of Health

⁵ The Ohio Department of Medicaid

EXECUTIVE SUMMARY

Where one lives is a well-established determinant of health outcomes and health care experiences. In this chartbook, we document current and historical similarities and differences in select health care experiences and outcomes of two specific groups of Ohioans living in Rural or Non-Rural counties -- adults and children either (1) covered by Medicaid, or (2) potentially eligible for Medicaid coverage but report that they do not have Medicaid coverage at the time of their Ohio Medicaid Assessment Survey interview.

Key Findings

- Rural adults were more likely to report fair/poor health status, and to be obese than Non-Rural adults – regardless of Medicaid status.
- Rural and Non-Rural adults with Medicaid were more likely to report a disability than potentially Medicaid-eligible adults. Moreover, since 2015 the percentage of adults reporting a disability appears to have risen sharply. Trends in disability rates were less clear for children.
- Children with Medicaid were more likely to have one or more adverse childhood experiences than potentially Medicaid-eligible children, regardless of rurality.
- Rural adults were more likely to be current smokers than Non-Rural adults, regardless of Medicaid status. Those with Medicaid were, however, more likely to be current smokers than the potentially Medicaid-eligible.
- Prescription pain pill misuse was the highest within the Rural Medicaid population.
- Overall, for the populations under review in this chartbook, rurality did not always matter for health behaviors or outcomes. Rather, Medicaid coverage appeared to make the difference. Further, when rurality did matter, it was not necessarily the case that outcomes were always worse for Rural Ohioans.

Continued on next page →

EXECUTIVE SUMMARY

Impact of COVID-19

Our findings are from the pre-COVID19 era. Since March 2020, almost one in two Ohio households (47.7%) has seen employment income decline, 41.4% of households report having delayed medical care, and 23.1% report being housing insecure.¹⁰

While this pandemic and the resulting economic crisis it has generated is far from over, we expect (1) the prolonged deterioration in the socioeconomic condition of vulnerable Ohioans, and (2) the delayed (perhaps even zero access) to all but critical health care services to have both worsened their overall health status and increased the need for health care and non-health services.

Visit grc.osu.edu/OMAS for additional information about OMAS, including public use files, codebooks, and methods

CONTENTS

Background	Page 6	References	Page 62
Objectives	Page 7	Appendix	Pages 63
Methods	Page 8	Acknowledgements	Page 79
Results			
Health Status & Chronic Conditions	Page 12		
Health Behaviors	Page 29		
Sources & Utilization of Care, Unmet Needs	Page 37		
Summary of Results	Page 59		
Policy Considerations	Page 60		

BACKGROUND

For several decades, poorer health outcomes have been documented for rural versus urban residents. Increasing socioeconomic disadvantage in rural households is often cited as the reason for poor health.¹ The rural-urban divide has garnered renewed interest because of last decade's focus on "diseases of despair" which led to numerous studies^{2,3,4,5} and reports – many by the Centers for Disease Control and Prevention -- charting rural-urban divides in health behaviors, chronic diseases, and leading causes of death.^{6,7,8} This renewed focus on rural health will, scholars argue, persist so long as "structural urbanism" continues to push health policy proposals that favor urbanized areas with larger populations.⁵

Geographic health divides in Ohio have been explored as recently as two years ago when the 2017 Appalachian Medicaid and Appalachian Ohio Health, Socioeconomic Status, and Ecological OMAS Assessment Study⁹ identified access to health care, health care utilization, chronic health conditions, quality of care, risky health behaviors and unmet health care needs challenges faced by Ohioans living in Appalachia versus other parts of the state.

This chartbook extends the Appalachian study in three ways:

1. By looking at similarities and differences in experiences related to these health care challenges in two specific populations – adults and children who report Medicaid coverage, and those who were potentially Medicaid-eligible but did not report that they had Medicaid coverage at the time they were interviewed by the OMAS.
2. By tracking changes in access, utilization, outcomes, unmet needs, chronic health conditions and health behaviors as documented by the 2012, 2015, 2017, and 2019 Ohio Medicaid Assessment Surveys (OMAS).
3. By consolidating the geographic boundaries into broad classifications of *rural* and *non-rural* counties.

As a result of these decisions, whereas the Appalachian study was broad in scope, this chartbook focuses on specific subpopulations of interest -- individuals who have Medicaid or are potentially eligible for Medicaid health insurance coverage and are living either in rural or in non-rural counties in Ohio.

OBJECTIVES

The purpose of this chartbook is to document notable similarities and differences in the health experiences of adults and children living in Ohio's rural and non-rural counties. In particular, we seek to:

1. Identify and describe similarities and differences in experiences related to health status, health behaviors, health care needs, and health care utilization of two specific populations – adults and children who report Medicaid coverage, and those who were potentially Medicaid-eligible but did not have Medicaid coverage at the time they were interviewed by the OMAS.
2. Tracking changes in access, utilization, outcomes, unmet needs, chronic health conditions and health behaviors as documented by the 2012, 2015, 2017, and 2019 Ohio Medicaid Assessment Surveys (OMAS).

METHODS

Description of Data Sources

- The primary source of data for this chartbook is the 2019 Ohio Medicaid Assessment Survey (OMAS), and earlier OMAS surveys from 2012, 2015, and 2017.
- Data from the Ohio Medicaid Administrative data

Further Details on the 2019 OMAS

- The 2019 OMAS is an Ohio-specific assessment that provides health status and health system-related information about residential Ohioans at the state, regional and county levels, with a concentration on Ohio's Medicaid, Medicaid-eligible, and non-Medicaid populations.
- This multi-mode study collected data through a sample of landline and cellular phones in Ohio through random digit dialing, as well as by web-based or paper versions through address-based sampling.
- A total of 31,558 surveys of Ohioans 19 years of age and older and proxy interviews for 7,404 children 18 years of age and younger were completed by researchers in 2019: 30,068 by phone, 950 by web, and 540 by mail-in paper survey.
- The 2019 OMAS is the eighth iteration of the survey.
- For details, please see the OMAS methodology

documentation available at grc.osu.edu/OMAS.

Variable Definitions

- *Adults* are 19-64 years-old, and *children* are 18 years-old or younger as identified in the OMAS.
- Adults/children identified in the survey as holding Medicaid health insurance coverage are assigned to the *Medicaid* sub-population. Adults/children without Medicaid but at or below 138% of the Federal Poverty Level (FPL) are assigned to the *Potentially Medicaid-Eligible* sub-population.
- OMAS assigns counties to one of four mutually exclusive county types – rural Appalachian, rural non-Appalachian, metropolitan, and suburban. OMAS defines these county types in accordance with federal definitions, as follows: (1) Appalachia is defined using the Appalachian Regional Commission (ARC) standard; (2) Metropolitan is defined using US Census Bureau definitions incorporating urban areas and urban cluster parameters; (3) rural is defined by the Federal Office of Rural Health Policy at the Health Resources and Services Administration (HRSA), excluding Appalachian counties;

Continued on next page →

METHODS

Variable Definitions *(continued)*

(4) suburban is defined by the US Census Bureau and is characterized as a mixed-use or predominantly residential area within commuting distance of a city or metropolitan area.

These designations were originally set by the Ohio Department of Health in 1997 for the 1998 Ohio Family Health Survey (OFHS) and were slightly adjusted in 2004 and again adjusted in 2010 to include Ashtabula and Trumbull counties as Appalachian, in accordance with a federal re-designation. Guidance for these categories was provided by National Research Council's Committee on Population and Demography staff – for original designations and revisions.

This chartbook compares two groups, **rural**, composed of rural Appalachian and rural non-Appalachian counties, and **non-rural**, made up of metropolitan and suburban counties. We recognize that this rural versus non-rural grouping ignores important differences in the health needs, health utilization, health status, and health behaviors of Metropolitan versus Suburban Ohioans. This is an important limitation of this chartbook that should be noted.

- *Poor/Fair Health* status combines the mutually exclusive self-reported health categories of Poor and Fair as recorded in the OMAS.

- *Binge Drinking* is at least one instance of drinking 4 or more or 5 or more alcoholic beverages for adult women or men, respectively, in the past 30 days as recorded in the OMAS.
- *Mental Health Impairment (MHI)* is at least 14 days in the past 30 days where mental health prevented work or day-to-day activities as recorded in the OMAS.
- *Adverse Childhood Experiences (ACEs)* summarize whether the child experienced violence, divorce, substance abuse, racism, etc. either personally or in the home as recorded in the OMAS.
- A proxy measure is used to determine whether an adult or child has a disability or disabilities in 2012-2017 or 2019
 - For adults in the 2012-2017 OMAS iterations, this is whether the adult needs long term day to day assistance, has a current need for assistance with personal care, domestic tasks or needs social/emotional support and is in poor/fair health, has a potentially disabling mental health condition, has Medicaid ABD/Waiver or Medicare and is less than 65 years old, or has a developmental disability.

METHODS

Variable Definitions *(continued)*

- For adults in the 2019 OMAS, this is whether the adult has serious difficulties hearing, seeing (even when wearing glasses), walking or climbing stairs, dressing or bathing, concentrating, remembering or making decisions, doing errands alone (such as visiting a doctor's office or shopping), has had more than 19 days in the past 30 days where mental health prevented work/activities, has Medicaid Aged, Blind and Disabled (ABD)/Waiver or Medicare and is less than 65 years old, or has a developmental disability.
- For children in the 2012-2017 OMAS iterations, this is whether the child has a need for atypical care or services, has activity limitations, has a need for long term special therapies, has a Medicaid ABD/Waiver or Medicare, or has a developmental disability.
- For children in the 2019 OMAS, this is whether the child has a need for long term special therapies, has any kind of emotional, developmental or behavioral problem for which they need or get treatment or counseling, has a Medicaid ABD/Waiver or Medicare, or has a developmental disability.

Analyses

- Descriptive statistics are reported in the figures and tables in the chartbook. No statistical testing was conducted.
- We present estimates for survey questions available in 2019 and earlier years, or then for 2019 only, but always where the data are sufficient for calculating and presenting reliable estimates. We define a reliable estimate as one where the size of the unweighted subpopulation of interest is greater than 30 individuals and the coefficient of variation for the estimate is less than 0.3. If this suppression rule leads to the exclusion of any one group in any year, we suppress all the years to ensure consistency of comparisons. Application of these rules results in the exclusion of several OMAS survey questions from this chartbook.
- The chartbook spans three broad sections: Adults' and children's
 - (i) health status and chronic health conditions,
 - (ii) health behaviors, and
 - (iii) sources of care, utilization of care, and unmet needs.

Continued on next page →

METHODS

Regions & County Types

OMAS' four county types were used to construct the Rural/non-Rural groupings. Rural *Appalachian* and *Rural non-Appalachian* counties are classified as **Rural** while *metropolitan* and *suburban* counties are classified as **Non-Rural**. Mahoning county is in Rural Appalachia (highlighted in the map below) but OMAS classifies it as *metropolitan*, and hence is classified as Non-Rural in all analyses reported in this chartbook.

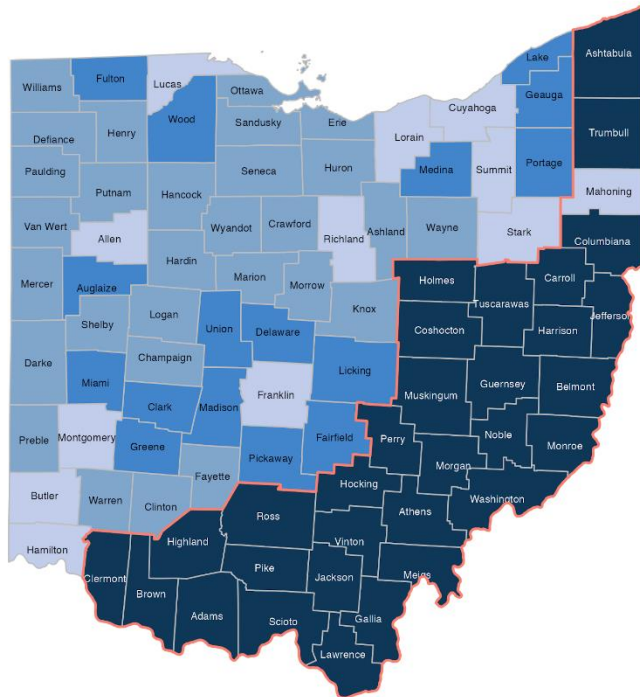


Table 1. Population Distribution by Medicaid Status and Area, 2019 (Data Source: OMAS 2019)

Area	Medicaid Status	Adults % (SE)	Children % (SE)
Ohio	Medicaid	19.8% (0.37)	42.6% (0.81)
	Potentially Medicaid-Eligible	13.6% (0.35)	14.7% (0.58)
	Other	66.6% (0.47)	42.7% (0.81)
Rural	Medicaid	19.3% (0.65)	45.8% (1.58)
	Potentially Medicaid-Eligible	13.1% (0.65)	15.7% (1.21)
	Other	67.6% (0.88)	38.5% (1.45)
Non-Rural	Medicaid	20.0% (0.42)	41.3% (0.96)
	Potentially Medicaid-Eligible	13.8% (0.44)	14.3% (0.65)
	Other	66.2% (0.55)	44.4% (0.98)

■ Appalachian ■ Metropolitan ■ Rural Non-Appalachian ■ Suburban



RESULTS: HEALTH STATUS & CHRONIC CONDITIONS

The following section provides an overview of the prevalence and trends of the self-reported health statuses and chronic health conditions among adults and children in Ohio by geographic characteristics and Medicaid enrollment status.

Key Findings: Health Status & Chronic Conditions

- Rural adults were *more* likely to self-report fair/poor health than Non-Rural Ohioans.
 - Rural Medicaid 43.5% vs. Non-Rural Medicaid 40.1%
 - Rural Potentially Medicaid-Eligible 29.9% vs. Non-Rural Potentially Medicaid-Eligible 26.1%
- Rural adults were *more* likely to have an obese Body mass Index (BMI) than Non-Rural Ohioans.
 - Rural Medicaid 44.9% vs. Non-Rural Medicaid 42.5%
 - Rural Potentially Medicaid-Eligible 39.1% vs. Non-Rural Potentially Medicaid-Eligible 35.6%

Key Findings: Health Status & Chronic Conditions

- Rural children on Medicaid were *less* likely to have an obese BMI than Non-Rural children on Medicaid.
 - Rural Medicaid 30.9% vs. Non-Rural Medicaid 32.8%
- Potentially Medicaid-eligible Rural children were *more* likely to have an obese BMI than potentially Medicaid-eligible Non-Rural children.
 - Rural Potentially Medicaid-Eligible 26.0% vs. Non-Rural Potentially Medicaid-Eligible 22.9%
- There were *very small* differences in the percentages of Rural and Non-Rural adults reporting, on at least 14 of the last 30 days preceding their interview, that mental health conditions or emotional problems prevented them from doing work or other usual activities.
 - Rural Medicaid 20.8% vs. Non-Rural Medicaid 20.2%
 - Rural Potentially Medicaid-Eligible 11.3% vs. Non-Rural Potentially Medicaid-Eligible 11.7%

Key Findings: Health Status & Chronic Conditions

- Regardless of Medicaid status, there was *very little* difference in the percent of Rural versus Non-Rural adults reporting they were told they had a heart attack.
 - Rural Medicaid 5.4%, Rural Potentially Medicaid-Eligible 3.8%
 - Non-Rural Medicaid 6.3%, Non-Rural Potentially Medicaid-Eligible 3.9%
- Rural and Non-Rural adults with Medicaid were almost *equally likely* to report being told they had hypertension/high blood pressure.
 - Rural Medicaid 36.7% vs. Non-Rural Medicaid 37.3%
- For the potentially Medicaid-eligible population, Rural adults were *more likely* to report being told they had hypertension/high blood pressure than were Non-Rural adults.
 - Rural Potentially Medicaid-Eligible 30.2% vs. Non-Rural Potentially Medicaid-Eligible 26.9%

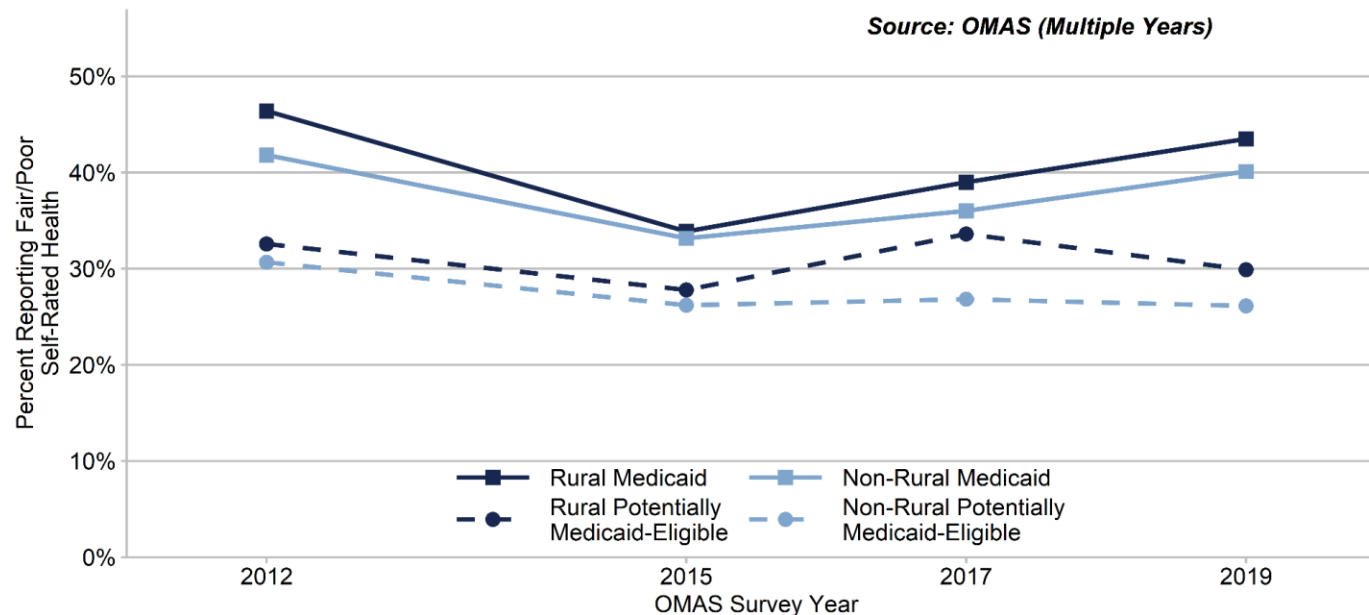
Key Findings: Health Status & Chronic Conditions

- Within the Medicaid and the potentially Medicaid-eligible adult populations, the percentages of Rural versus Non-Rural adults reporting they were told they had diabetes *hardly differed*.
 - Rural Medicaid 17.2% vs. Non-Rural Medicaid 16.6%
 - Rural Potentially Medicaid-Eligible 11.1% vs. Non-Rural Potentially Medicaid-Eligible 9.6%
- Rural and Non-Rural children covered by Medicaid were more likely to have one or more adverse childhood experiences than were Rural and Non-Rural potentially Medicaid-eligible children.
 - Rural Medicaid 69.0% vs. Rural Potentially Medicaid-Eligible 36.6%
 - Non-Rural Medicaid 64.1% vs. Non-Rural Potentially Medicaid-Eligible 48.3%

Key Findings: Health Status & Chronic Conditions

- Both Rural and Non-Rural adults insured by Medicaid were more likely to report being told they had:
 - Arthritis
 - Rural Medicaid 65.9% vs. Rural Potentially Medicaid-Eligible 50.7%
 - Non-Rural Medicaid 58.8% vs. Non-Rural Potentially Medicaid-Eligible 43.7%
 - Asthma
 - Rural Medicaid 28.5% vs. Rural Potentially Medicaid-Eligible 20.2%
 - Non-Rural Medicaid 29.8% vs. Non-Rural Potentially Medicaid-Eligible 22.3%
 - High cholesterol
 - Rural Medicaid 25.1% vs. Rural Potentially Medicaid-Eligible 20.0%
 - Non-Rural Medicaid 24.9% vs. Non-Rural Potentially Medicaid-Eligible 16.6%
 - Experienced a stroke
 - Rural Medicaid 6.7% vs. Rural Potentially Medicaid-Eligible 4.5%
 - Non-Rural Medicaid 5.4% vs. Non-Rural Potentially Medicaid-Eligible 3.2%

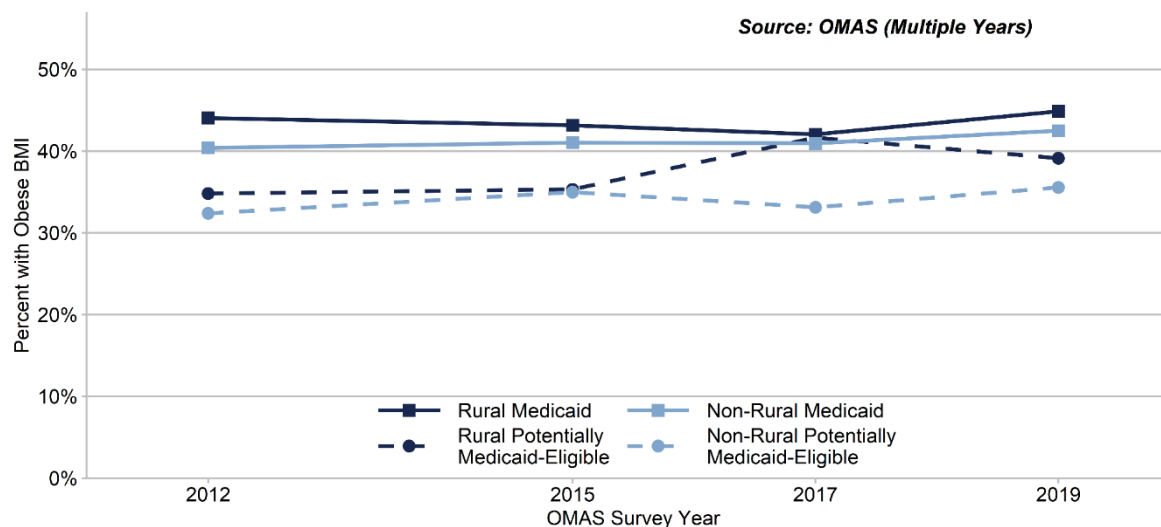
Figure 1. Percent of Ohio Adults Reporting Fair/Poor Self-Rated Health Status, by Rurality & Medicaid Status, 2012-2019



	2012	2015	2017	2019
—■— Rural Medicaid	46.4%	33.9%	39.0%	43.5%
-●- Rural Potentially Medicaid-Eligible	32.6%	27.8%	33.6%	29.9%
—■— Non-Rural Medicaid	41.8%	33.2%	36.0%	40.1%
-●- Non-Rural Potentially Medicaid-Eligible	30.7%	26.2%	26.8%	26.1%

Within both the Medicaid and the potentially Medicaid-eligible populations, Rural adults were *more likely* to report fair/poor health than Non-Rural Ohioans.

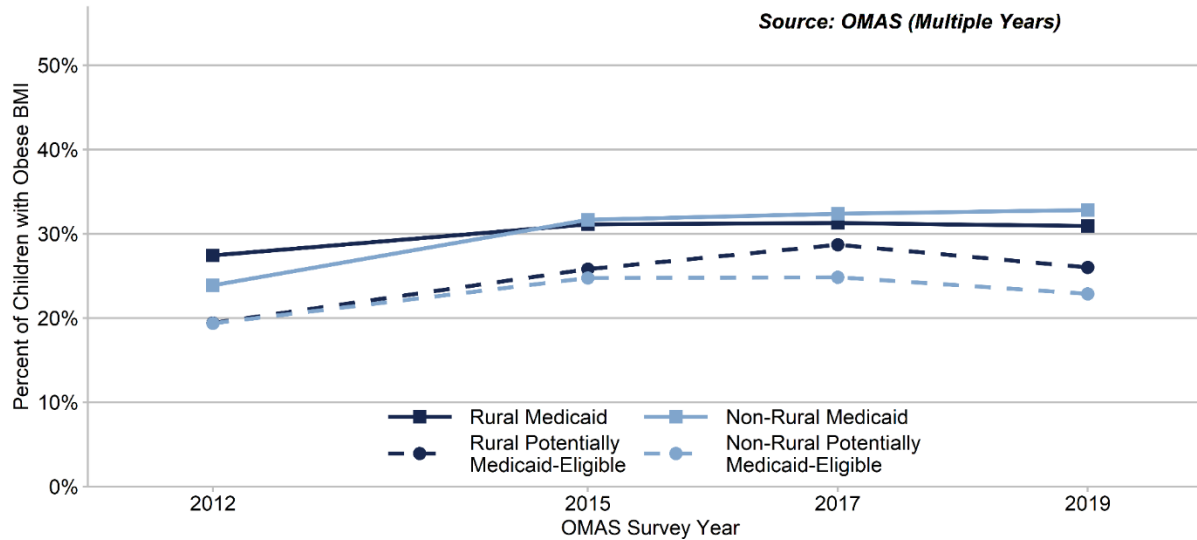
Figure 2. Adults with Obese BMI, by Rurality & Medicaid Status, 2012-2019



	2012	2015	2017	2019
—■— Rural Medicaid	44.0%	43.2%	42.1%	44.9%
-●- Rural Potentially Medicaid-Eligible	34.8%	35.3%	41.7%	39.1%
—■— Non-Rural Medicaid	40.4%	41.0%	41.0%	42.5%
-●- Non-Rural Potentially Medicaid-Eligible	32.4%	35.0%	33.1%	35.6%

Within both the Medicaid and the potentially Medicaid-eligible populations, Rural adults were *more likely* to have an obese BMI than Non-Rural adults.

Figure 3. Children with Obese BMI, by Rurality & Medicaid Status, 2012-2019

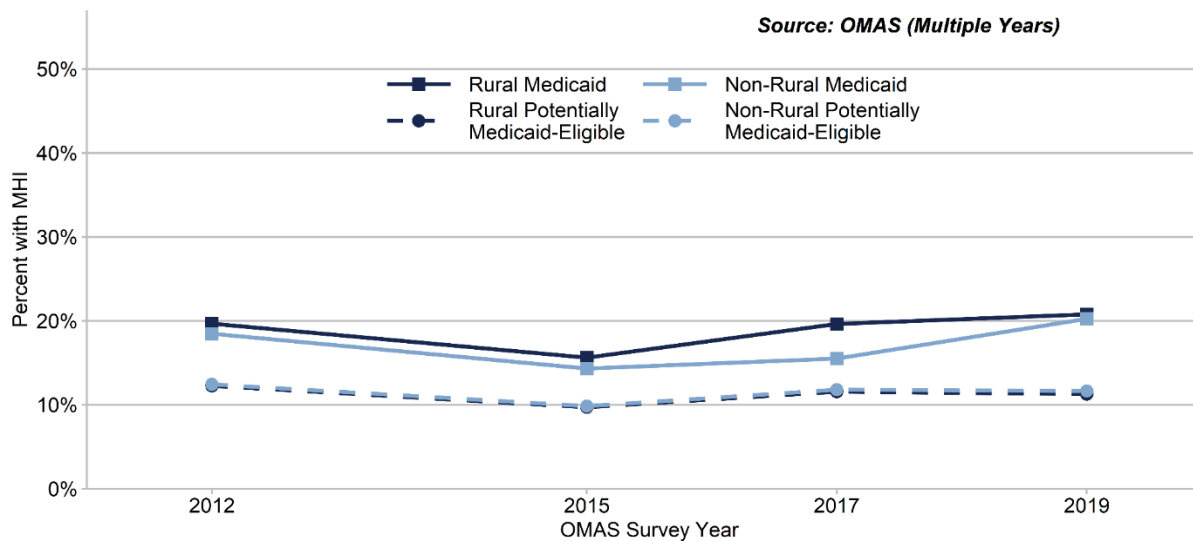


	2012	2015	2017	2019
—■— Rural Medicaid	27.4%	31.1%	31.3%	30.9%
-●- Rural Potentially Medicaid-Eligible	19.4%	25.8%	28.7%	26.0%
—■— Non-Rural Medicaid	23.9%	31.7%	32.4%	32.8%
-●- Non-Rural Potentially Medicaid-Eligible	19.4%	24.8%	24.8%	22.9%

Rural children on Medicaid were *less likely* to have an obese BMI than Non-Rural children on Medicaid.

Among the potentially Medicaid-eligible, however, Rural children were *more likely* to have an obese BMI than Non-Rural children.

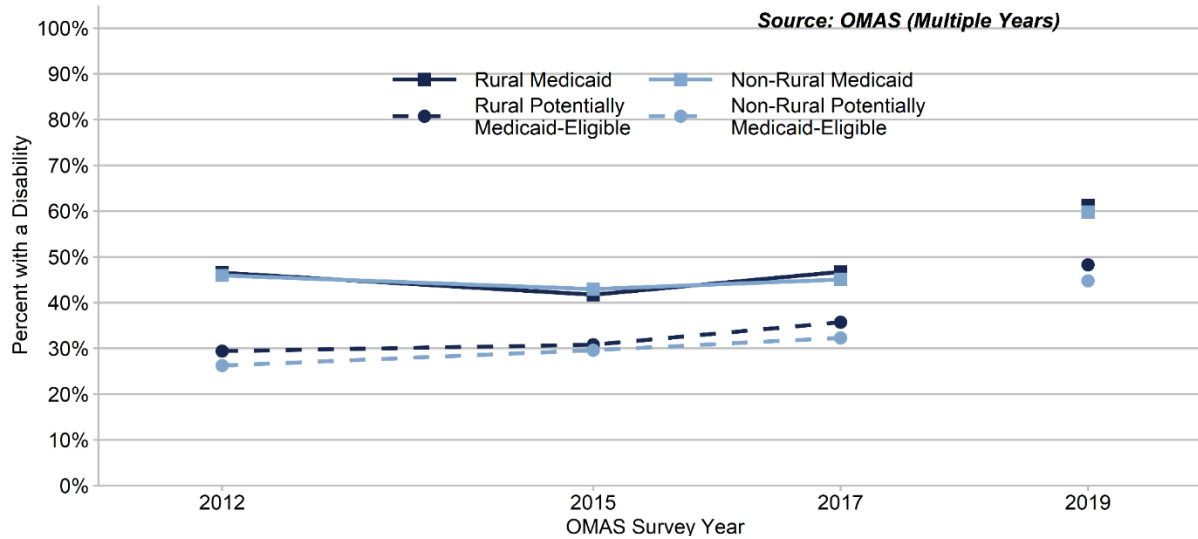
Figure 4. Adults Reporting Mental Health Impairment (MHI), by Rurality & Medicaid Status, 2012-2019



	2012	2015	2017	2019
—■— Rural Medicaid	19.7%	15.6%	19.6%	20.8%
-●- Rural Potentially Medicaid-Eligible	12.3%	9.7%	11.6%	11.3%
—■— Non-Rural Medicaid	18.5%	14.3%	15.5%	20.2%
-●- Non-Rural Potentially Medicaid-Eligible	12.4%	9.9%	11.8%	11.7%

Within both the Medicaid and the potentially Medicaid-eligible population there was little difference in the percent of Rural and Non-Rural adults reporting that on at least 14 of the last 30 days mental health conditions or emotional problems prevented them from doing work or other usual activities.

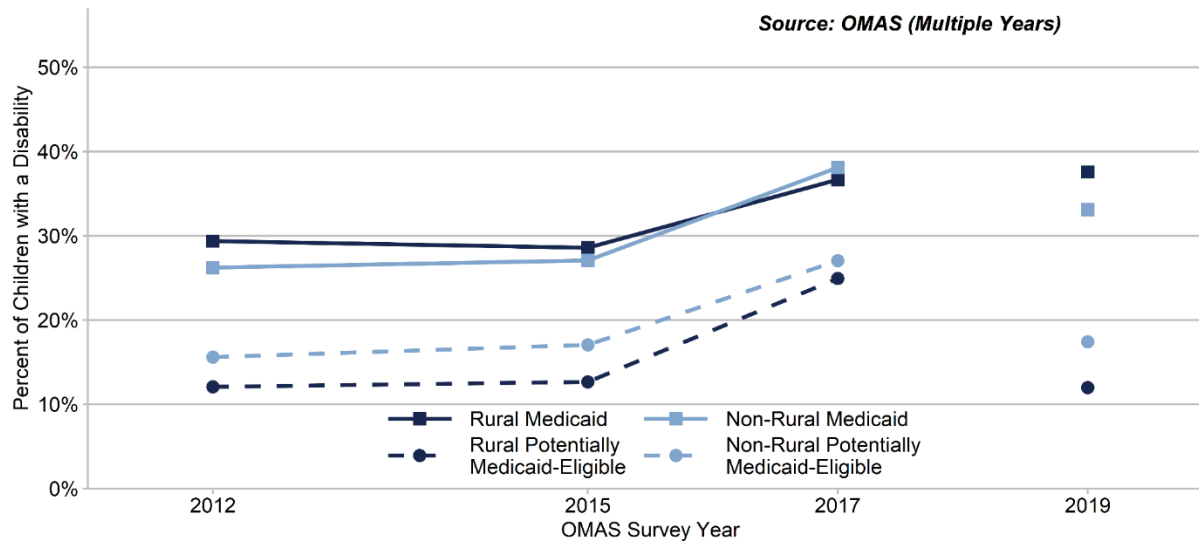
Figure 5. Adults with a Disability, by Rurality & Medicaid Status, 2012-2019



	2012	2015	2017	2019
—■— Rural Medicaid	46.5%	41.7%	46.7%	61.3%
-●- Rural Potentially Medicaid-Eligible	29.4%	30.8%	35.7%	48.3%
—■— Non-Rural Medicaid	45.9%	43.0%	45.1%	59.8%
-●- Non-Rural Potentially Medicaid-Eligible	26.2%	29.6%	32.3%	44.8%

Rural and Non-Rural adults covered by Medicaid were *far more likely* to have a disability than potentially Medicaid-eligible adults in Rural and Non-Rural counties. Criteria for measuring having a disability was different for 2012-2017 versus 2019 OMAS estimates.

Figure 6. Children with a Disability, by Rurality & Medicaid Status, 2012-2019

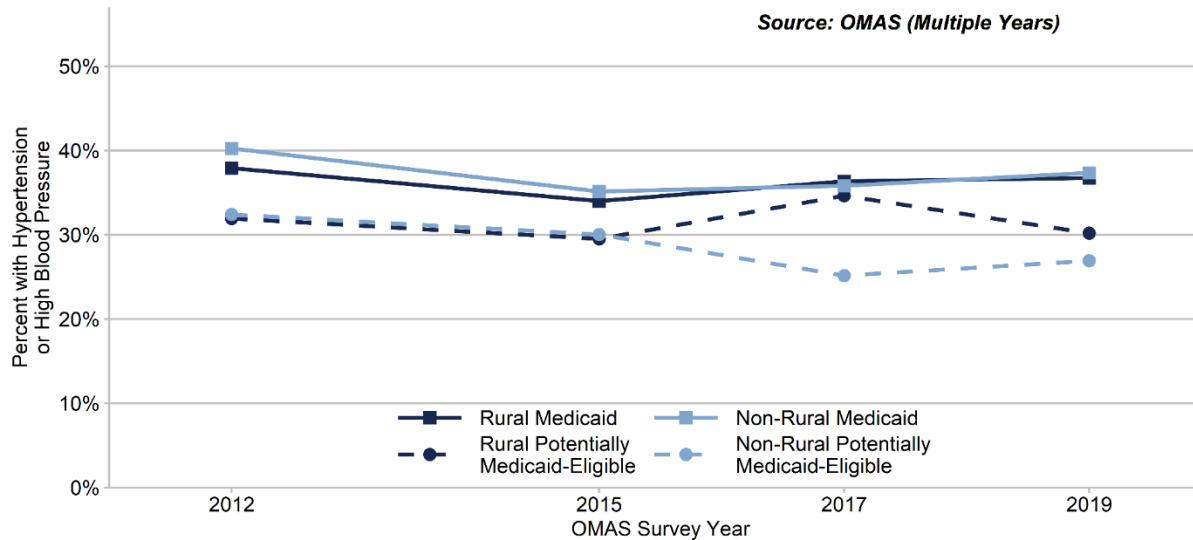


	2012	2015	2017	2019
—■— Rural Medicaid	29.4%	28.6%	36.7%	37.6%
-●- Rural Potentially Medicaid-Eligible	12.1%	12.7%	24.9%	12.0%
—■— Non-Rural Medicaid	26.2%	27.1%	38.1%	33.1%
-●- Non-Rural Potentially Medicaid-Eligible	15.6%	17.1%	27.0%	17.4%

Rural and Non-Rural children covered by Medicaid were *far more likely* to have a disability than potentially Medicaid-eligible children in Rural and Non-Rural counties.

Criteria for measuring having a disability was different for 2012-2017 versus 2019 OMAS estimates.

Figure 7. Adults with Hypertension/High Blood Pressure, by Rurality & Medicaid Status, 2012-2019

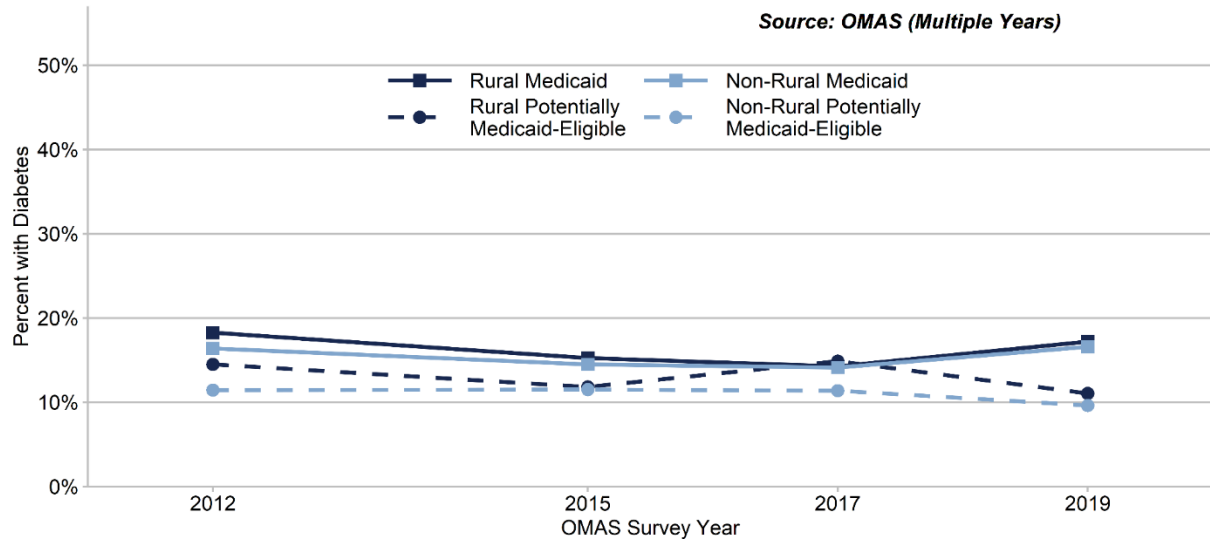


	2012	2015	2017	2019
—■— Rural Medicaid	37.9%	34.0%	36.4%	36.7%
-●- Rural Potentially Medicaid-Eligible	31.9%	29.5%	34.6%	30.2%
—■— Non-Rural Medicaid	40.3%	35.1%	35.8%	37.3%
-●- Non-Rural Potentially Medicaid-Eligible	32.4%	30.0%	25.2%	26.9%

Within the Medicaid population there was very little difference in the percent of Rural and Non-Rural adults reporting they were told they had hypertension/high blood pressure.

The difference was *greater* within the potentially Medicaid-eligible population with Rural adults more likely to report they were told they had hypertension/high blood pressure than Non-Rural adults.

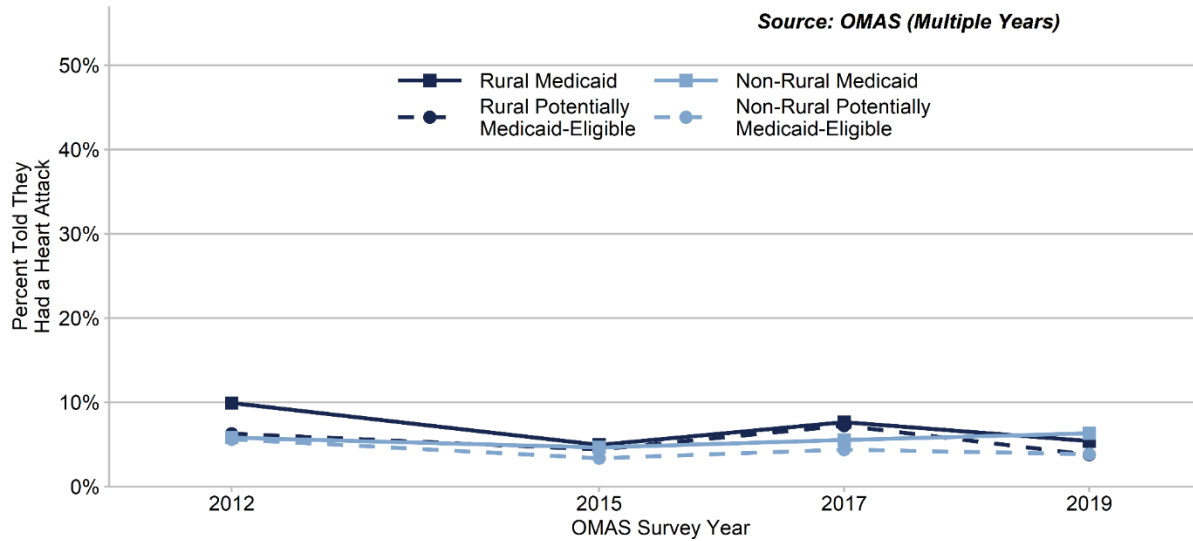
Figure 8. Adults with Diabetes, by Rurality & Medicaid Status, 2012-2019



	2012	2015	2017	2019
—■— Rural Medicaid	18.3%	15.3%	14.3%	17.2%
-●- Rural Potentially Medicaid-Eligible	14.5%	11.8%	14.9%	11.1%
—■— Non-Rural Medicaid	16.4%	14.5%	14.1%	16.6%
-●- Non-Rural Potentially Medicaid-Eligible	11.5%	11.5%	11.4%	9.6%

Within each of the two populations – those with Medicaid versus those potentially Medicaid-eligible -- there was very little difference in the percent of Rural versus Non-Rural adults reporting they were told they had diabetes.

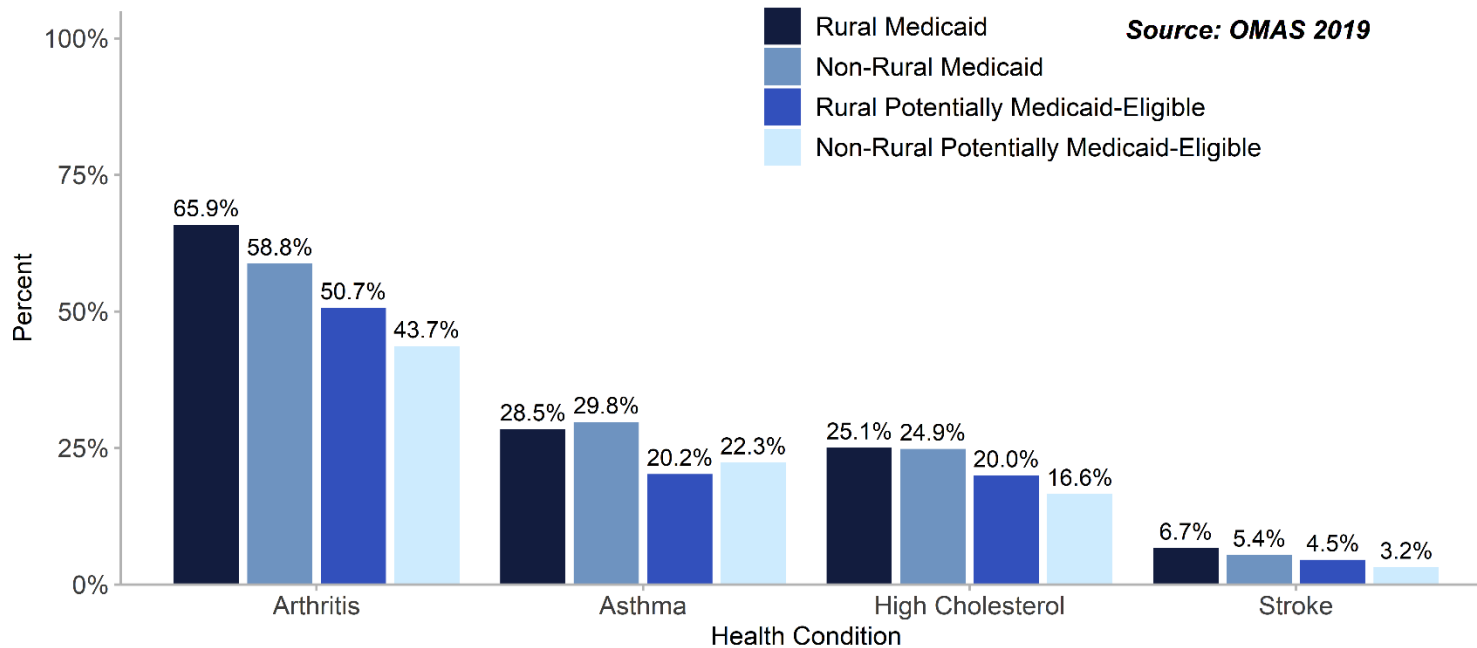
Figure 9. Adults Informed of Heart Attack, by Rurality & Medicaid Status, 2012-2019



	2012	2015	2017	2019
—■— Rural Medicaid	9.9%	5.0%	7.6%	5.4%
-●- Rural Potentially Medicaid-Eligible	6.3%	4.4%	7.2%	3.8%
—■— Non-Rural Medicaid	5.8%	4.6%	5.5%	6.3%
-●- Non-Rural Potentially Medicaid-Eligible	5.6%	3.4%	4.4%	3.9%

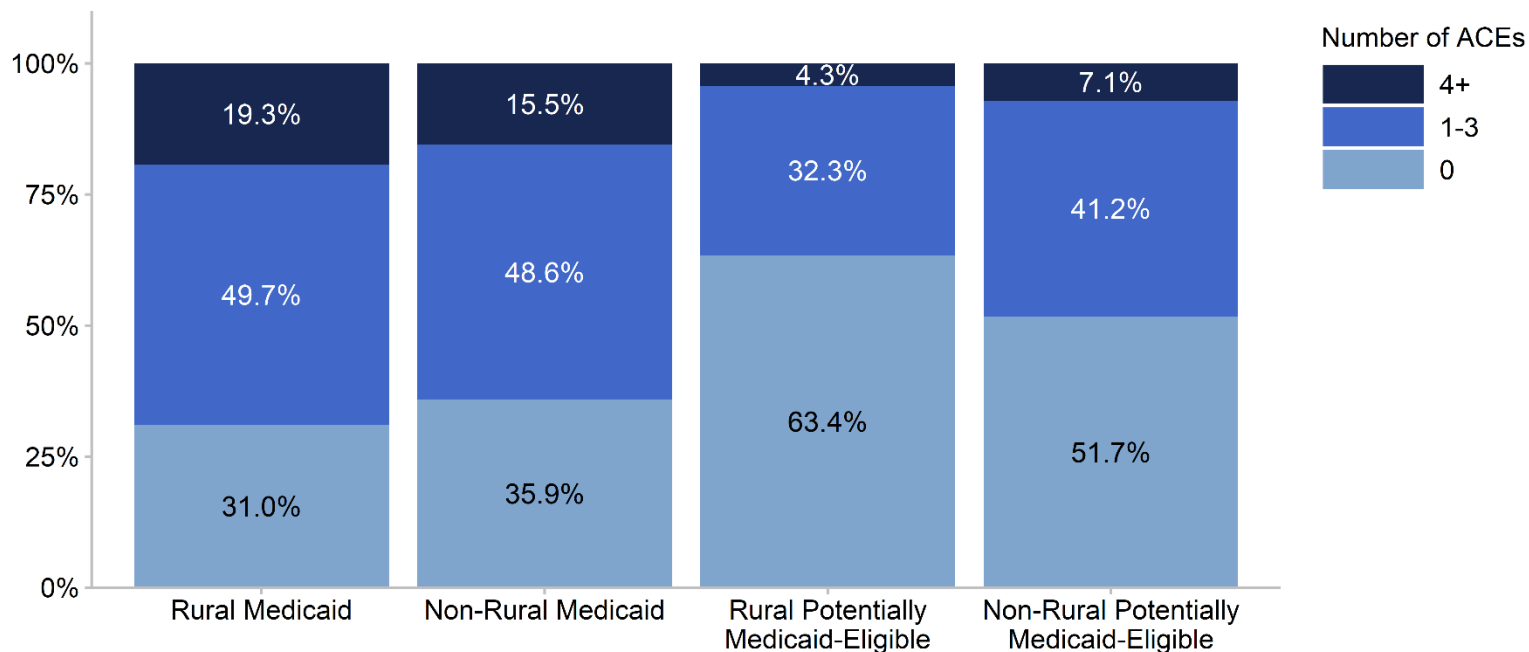
Regardless of Medicaid status, there was very little difference in the percent of Rural or Non-Rural adults reporting they were told they had a heart attack.

Figure 10. Other Chronic Health Conditions Reported by Adults, by Rurality & Medicaid Status, 2019



Rural and Non-Rural adults covered by Medicaid were *more likely* to report having been told they had arthritis, asthma, high cholesterol, or had a stroke, than were potentially Medicaid-eligible Rural and Non-Rural adults.

Figure 11. Children with Adverse Childhood Experiences (ACEs), by Rurality & Medicaid Status, 2019



Rural (69.0%) and Non-Rural (64.1%) children covered by Medicaid were *more likely* to have experienced one or more adverse childhood experiences than were potentially Medicaid-eligible children in Rural (36.6%) and Non-Rural (48.3%) counties.



RESULTS: HEALTH BEHAVIORS

The following section describes the prevalence of health related behaviors of adults and children in Ohio by geographic characteristics and Medicaid insurance status.

Key Findings: Health Behaviors

- *Almost half* of Medicaid adults in Rural and Non-Rural Ohio were likely to be current smokers, versus about *one-third* of potentially Medicaid-eligible adults in Rural and Non-Rural Ohio.
 - Rural Medicaid 50.3% and Non-Rural Medicaid 43.6% vs. Rural Potentially Medicaid-Eligible 32.5% and Non-Rural Potentially Medicaid-Eligible 29.7%
- *Few differences* were evident in the percentages of Rural versus Non-Rural adults who binge drink, both within the Medicaid population and within the potentially Medicaid-eligible population.
 - Rural Medicaid 20.7% vs. Non-Rural Medicaid 20.2%
 - Rural Potentially Medicaid-Eligible 25.9% vs. Non-Rural Potentially Medicaid-Eligible 27.9%
- Binge drinking was *substantially less common* among Medicaid recipients than in the potentially Medicaid-eligible population.
 - Rural Medicaid 20.7% and Non-Rural Medicaid 20.2% vs. Rural Potentially Medicaid-Eligible 25.9% and Non-Rural Potentially Medicaid-Eligible 27.9%

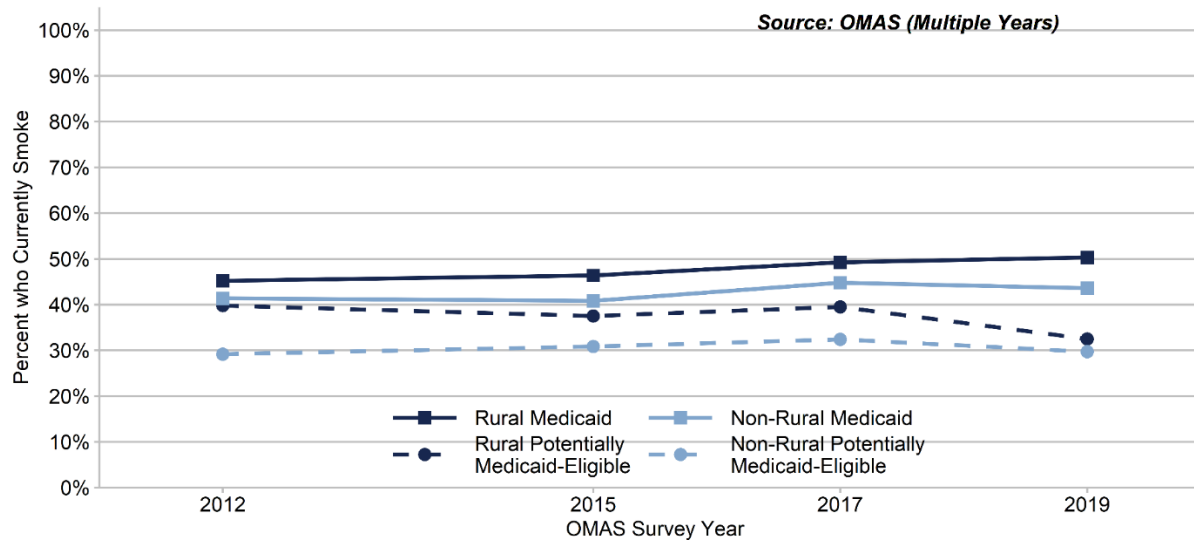
Key Findings: Health Behaviors

- Rural adults were *more* likely to report current e-cigarette use than Non-Rural adults, regardless of Medicaid status.
 - Rural Medicaid 9.0% and Rural Potentially Medicaid-Eligible 11.4% vs. Non-Rural Medicaid 7.5% and Non-Rural Potentially Medicaid-Eligible 6.9%
- Rural adults were *more* likely to report current smokeless tobacco use than Non-Rural adults, regardless of Medicaid status.
 - Rural Medicaid 7.6% and Rural Potentially Medicaid-Eligible 7.9% vs. Non-Rural Medicaid 3.8% and Non-Rural Potentially Medicaid-Eligible 4.0%
- Rural adults were *less* likely to report using marijuana/cannabis in the past 30 days than were Non-Rural adults, irrespective of Medicaid status.
 - Rural Medicaid 21.0% and Rural Potentially Medicaid-Eligible 19.7% vs. Non-Rural Medicaid 26.2% and Non-Rural Potentially Medicaid-Eligible 21.1%

Key Findings: Health Behaviors

- Prescription pain pill misuse was *highest* within the Rural Medicaid population but was *only slightly higher* than misuse rates of the other groups.
 - Rural Medicaid 15.1% vs. Non-Rural Potentially Medicaid-Eligible 13.5%, Non-Rural Medicaid 12.9%, Rural Potentially Medicaid-Eligible 12.9%
- Non-Rural children were *more* likely to have longer screen times (3 hours or more) than Rural children.
 - Non-Rural Medicaid 49.6% and Non-Rural Potentially Medicaid-Eligible 48.9% vs. Rural Medicaid 38.8% and Rural Potentially Medicaid-Eligible 41.7%

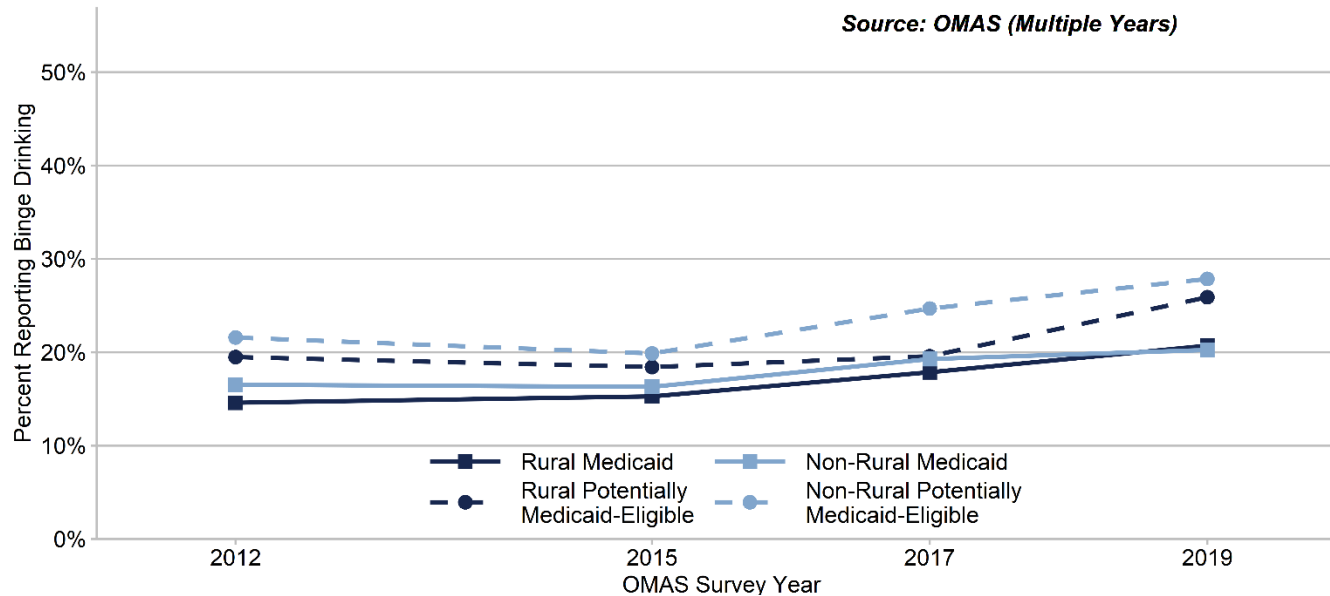
Figure 12. Adults Who are Current Smokers, by Rurality & Medicaid Status, 2012-2019



	2012	2015	2017	2019
—■— Rural Medicaid	45.2%	46.4%	49.2%	50.3%
-●- Rural Potentially Medicaid-Eligible	39.8%	37.5%	39.5%	32.5%
—■— Non-Rural Medicaid	41.4%	40.8%	44.8%	43.6%
-●- Non-Rural Potentially Medicaid-Eligible	29.2%	30.9%	32.4%	29.7%

In 2019, 50.3% of Rural and 43.6% of Non-Rural adults with Medicaid coverage were likely to be current smokers versus 32.5% of Rural and 29.7% of Non-Rural potentially Medicaid-eligible adults.

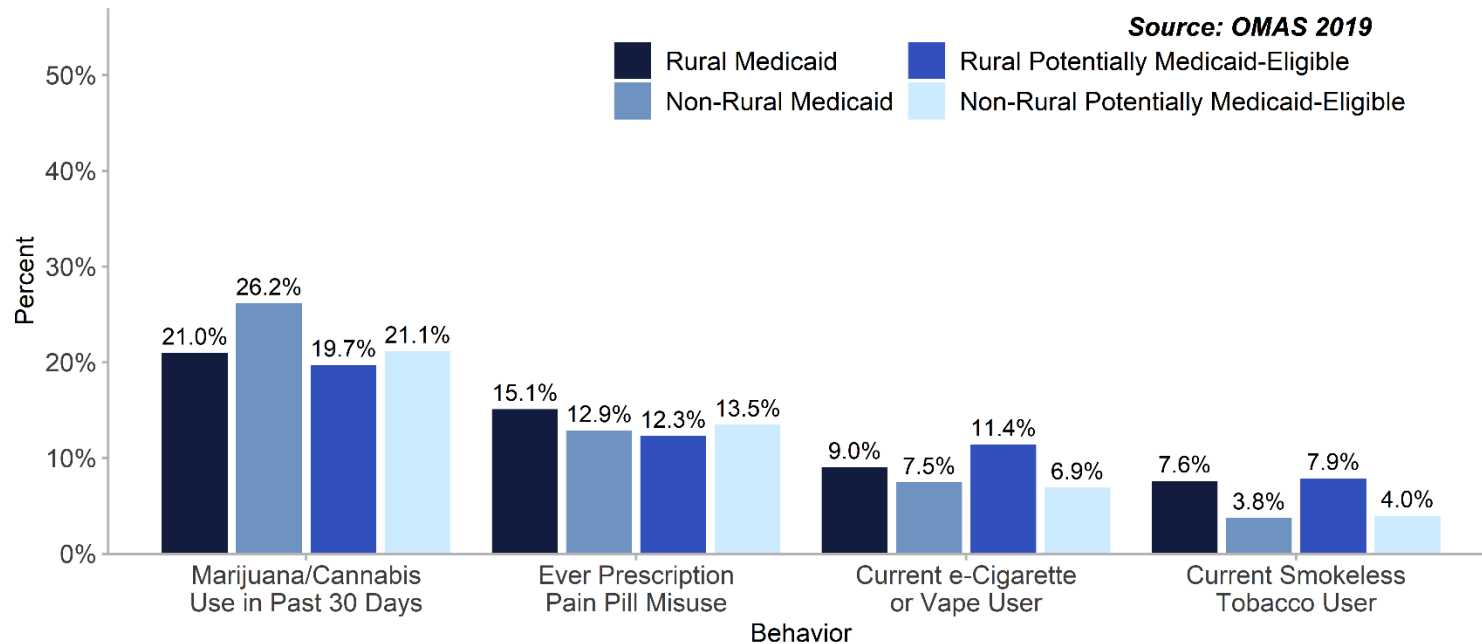
Figure 13. Adults Reporting Binge Drinking, by Rurality & Medicaid Status, 2012-2019



	2012	2015	2017	2019
—■— Rural Medicaid	14.6%	15.3%	17.9%	20.7%
-●- Rural Potentially Medicaid-Eligible	19.5%	18.4%	19.6%	25.9%
—■— Non-Rural Medicaid	16.5%	16.3%	19.3%	20.2%
-●- Non-Rural Potentially Medicaid-Eligible	21.6%	19.9%	24.7%	27.9%

Binge drinking was *less commonly reported* by adults on Medicaid than by potentially Medicaid-eligible adults. Within the Medicaid population there was almost no difference between Rural and Non-Rural adults reporting binge drinking. Within the potentially Medicaid-eligible population Non-Rural adults were *slightly more likely* to binge drink than Rural adults.

Figure 14. Adult Substance Use Behavior, by Rurality & Medicaid Status, 2019

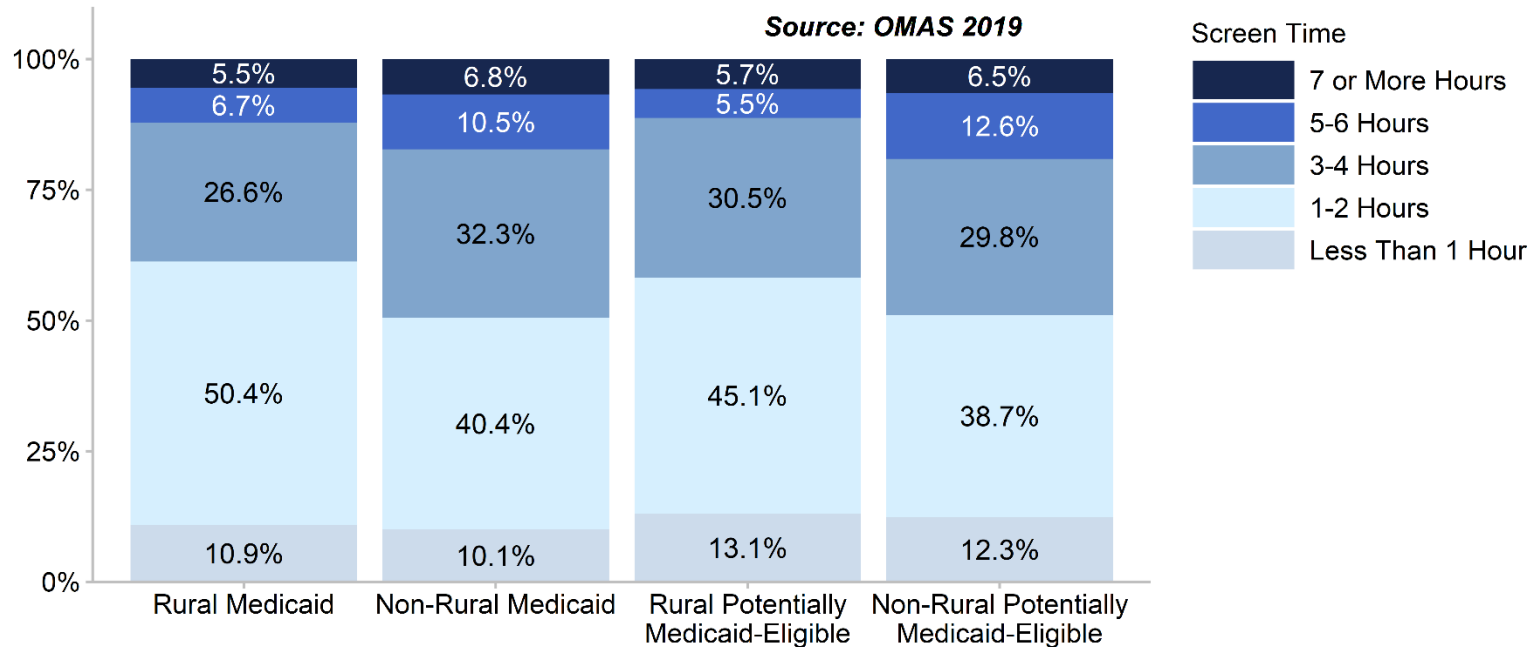


Within each Medicaid population, Non-Rural adults were *more likely* to report marijuana/cannabis use in the past 30 days, respectively, than were Rural adults.

Prescription pain pill misuse was the *highest* within the Rural Medicaid population, but it was *only slightly higher* than the rates of the other groups.

Rural adults, both with Medicaid coverage and the potentially Medicaid-eligible were *more likely* to report current e-cigarette and current smokeless tobacco use, respectively, than Non-Rural adults— regardless of Medicaid status.

Figure 15. Child Screen Time (who spent one or more minutes), by Rurality & Medicaid Status, 2019



Non-Rural children were slightly more likely to have *greater screen time* than Rural children.

Among children who spent one or more minutes of screen time 89.1% of Rural and 89.9% of Non-Rural children with Medicaid spent one or more hours with a screen., versus 86.9% of Rural and 87.7% of Non-Rural potentially Medicaid-Eligible children.



RESULTS: SOURCES & UTILIZATION OF CARE, UNMET HEALTH CARE NEEDS

The following section provides an overview of how, when and where Ohioans access health care, as well as unmet health care needs, by geographic characteristics and Medicaid insurance status.

Key Findings: Care Use & Sources, Unmet Needs

- The percent of Rural versus Non-Rural adults reporting a usual source of health care was *very similar*.
 - Rural Medicaid 91.5% vs. Non-Rural Medicaid 92.7%
 - Rural Potentially Medicaid-Eligible 87.0% vs. Non-Rural Potentially Medicaid-Eligible 87.1%
- This was *also true for children* within each Medicaid group in Rural and Non-Rural counties.
 - Rural Medicaid 99.1% vs. Non-Rural Medicaid 98.4%
 - Rural Potentially Medicaid-Eligible 96.0% vs. Non-Rural Potentially Medicaid-Eligible 96.3%

Key Findings: Care Use & Sources, Unmet Needs

- Rural and Non-Rural children insured by Medicaid were almost *equally likely* to have visited a doctor in the 12 months leading up to their parent/guardian's survey interview.
 - Rural Medicaid 72.7% vs. Non-Rural Medicaid 74.9%
- In the potentially Medicaid-eligible population Non-Rural children were *more likely* to have visited a doctor in the preceding 12 months than Rural children.
 - Non-Rural Potentially Medicaid-Eligible 71.8% vs. Rural Potentially Medicaid-Eligible 69.9%

Key Findings: Care Use & Sources, Unmet Needs

- There tended to be *few differences* in the percent of Rural and Non-Rural adults reporting a routine doctor visit in the 12 months leading up to their survey interview, regardless of Medicaid status. In general, we saw *more* adults insured by Medicaid who reported routine doctor visits than did potentially Medicaid-eligible adults.
 - Rural Medicaid 77.9% and Non-Rural Medicaid 81.2% vs. Rural Potentially Medicaid-Eligible 68.1% and Non-Rural Potentially Medicaid-Eligible 71.4%
- While the gap between Rural and Non-Rural adults' unmet dental care needs has *narrowed over the years*, unmet dental care needs *remain highest* within the potentially Medicaid-eligible Non-Rural adult population.
 - Non-Rural Potentially Medicaid-Eligible 27.9%, Rural Potentially Medicaid-Eligible 23.2%, Rural Medicaid 22.7%, Non-Rural Medicaid 22.0%

Key Findings: Care Use & Sources, Unmet Needs

- The percent of adults reporting experiencing difficulties paying medical bills in the preceding 12 months was *very similar* for Rural and Non-Rural Ohioans.
 - Rural Medicaid 26.6% vs. Non-Rural Medicaid 29.3% and Rural Potentially Medicaid-Eligible 42.5% vs. Non-Rural Potentially Medicaid-Eligible 40.9%
- However, the potentially Medicaid-eligible population are *more likely* to report experiencing this difficulty than the Medicaid population.
 - Rural Potentially Medicaid-Eligible 42.5% vs. Rural Medicaid 26.6% and Non-Rural Potentially Medicaid-Eligible 40.9% vs. Non-Rural Medicaid 29.3%

Key Findings: Care Use & Sources, Unmet Needs

- Rural adults were less likely to:
 - Worry about running out of food.
 - Rural Medicaid 45.8% vs. Non-Rural Medicaid 46.9% and Rural Potentially Medicaid-Eligible 29.8% vs. Non-Rural Potentially Medicaid-Eligible 35.0%
 - Run out of food.
 - Rural Medicaid 34.9% vs. Non-Rural Medicaid 39.0% and Rural Potentially Medicaid-Eligible 24.1% vs. Non-Rural Potentially Medicaid-Eligible 28.2%
 - Worry about paying their debt.
 - Rural Medicaid 35.6% vs. Non-Rural Medicaid 37.2% and Rural Potentially Medicaid-Eligible 34.9% vs. Non-Rural Potentially Medicaid-Eligible 38.1%
 - Worry about paying for rent/mortgage.
 - Rural Medicaid 25.5% vs. Non-Rural Medicaid 30.1% and Rural Potentially Medicaid-Eligible 18.8% vs. Non-Rural Potentially Medicaid-Eligible 23.1%

Key Findings: Care Use & Sources, Unmet Needs

- Non-Rural adults were *more likely* to:
 - Have trouble finding a care provider.
 - Non-Rural Medicaid 28.4% vs. Rural Medicaid 23.8% and Non-Rural Potentially Medicaid-Eligible 22.0% vs. Rural Potentially Medicaid-Eligible 14.3%
 - Experience provider unavailability.
 - Non-Rural Medicaid 33.1% vs. Rural Medicaid 27.4% and Non-Rural Potentially Medicaid-Eligible 24.7% vs. Rural Potentially Medicaid-Eligible 22.9%

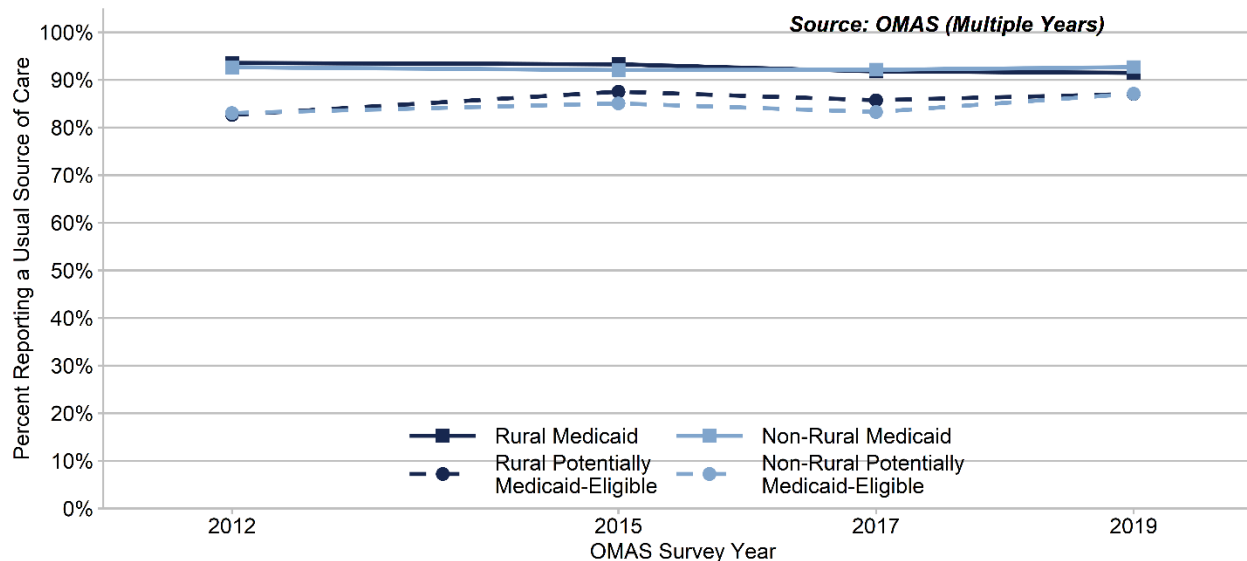
Key Findings: Care Use & Sources, Unmet Needs

- Rural adults insured by Medicaid were much *less likely* to report cost as the reason for delaying/avoiding getting the care they needed.
 - Rural Medicaid 25.8% vs. Non-Rural Medicaid 32.4%
- In the potentially Medicaid-eligible population the opposite was true, as Rural adults were *more likely* to report cost as the reason for delaying/avoiding getting the care they needed.
 - Rural Potentially Medicaid-Eligible 77.1% vs. Non-Rural Potentially Medicaid-Eligible 70.7%
- There were *few differences* in the percent of Rural versus Non-Rural children covered by Medicaid reported to receive/need special therapy.
 - Rural Medicaid 15.1% vs. Non-Rural Medicaid 15.2%

Key Findings: Care Use & Sources, Unmet Needs

- People insured by Medicaid were, on average, *three times as likely* to report receiving/needing special therapy than those potentially eligible for Medicaid.
 - Rural Medicaid 15.1% and Non-Rural Medicaid 15.2% vs. Rural Potentially Medicaid-Eligible 5.5% and Non-Rural Potentially Medicaid-Eligible 7.5%
- Within each Medicaid group, Non-Rural children were reported to need/use mental health treatment/counseling services more than Rural children.
 - Non-Rural Medicaid 23.1% vs. Rural Medicaid 20.5%
- The Medicaid group was more likely to report needing/using mental health treatment/counseling services than the potentially Medicaid-eligible group.
 - Rural Medicaid 20.5% and Non-Rural Medicaid 23.1% vs. Rural Potentially Medicaid Eligible 7.0% and Non-Rural Potentially Medicaid-Eligible 9.9%

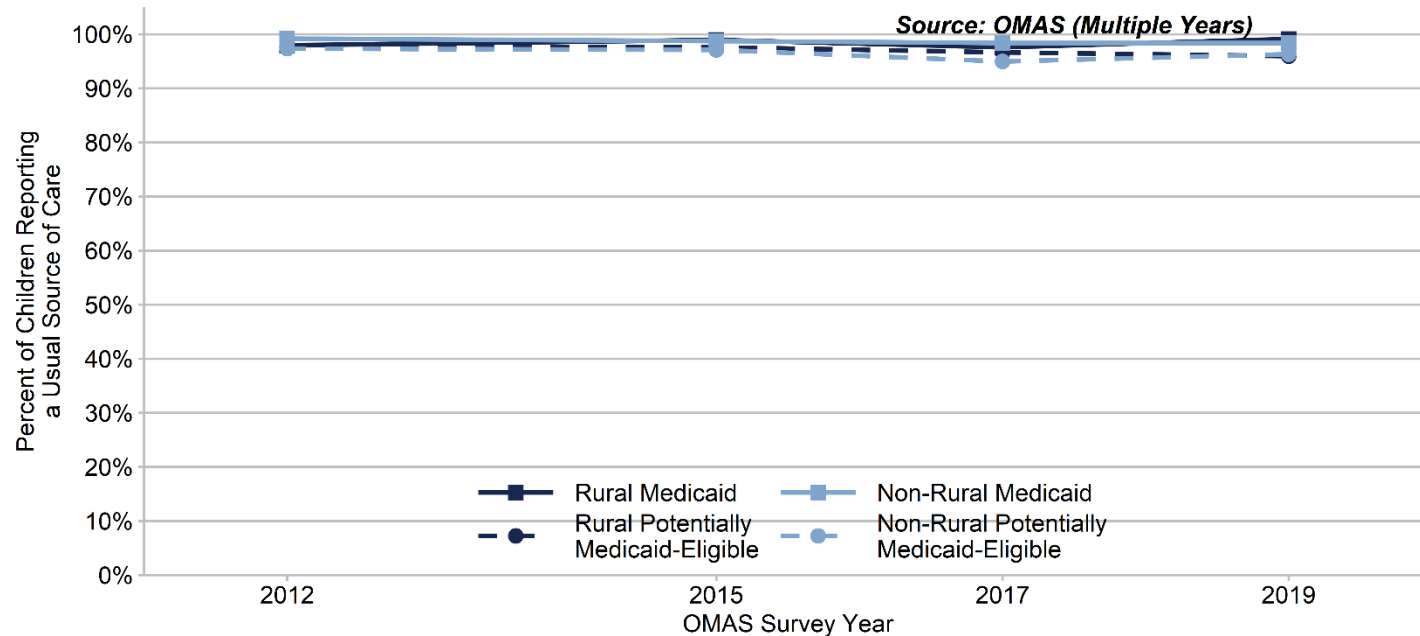
Figure 16. Adults with a Usual Source of Health Care, by Rurality & Medicaid Status, 2012-2019



	2012	2015	2017	2019
—■— Rural Medicaid	93.6%	93.3%	91.8%	91.5%
-●- Rural Potentially Medicaid-Eligible	82.7%	87.5%	85.7%	87.0%
—■— Non-Rural Medicaid	92.7%	92.1%	92.1%	92.7%
-●- Non-Rural Potentially Medicaid-Eligible	83.0%	85.1%	83.3%	87.1%

Few differences were evident in the percent of Rural and Non-Rural adults reporting a usual source of care, regardless of Medicaid status. 91.5% of Rural and 92.7% of Non-Rural Medicaid adults reported having a usual source of health care versus 87.0% of Rural and 87.1% of Non-Rural potentially Medicaid-eligible adults, respectively.

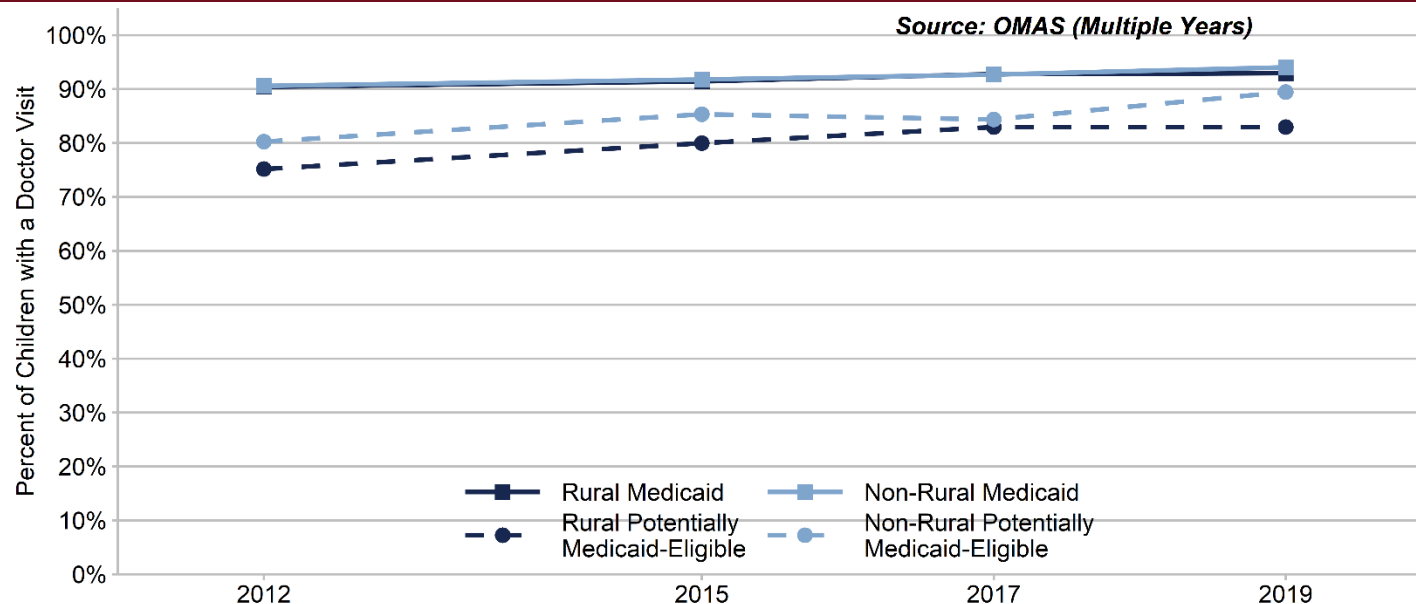
Figure 17. Children with a Usual Source of Health Care, by Rurality & Medicaid Status, 2012-2019



	2012	2015	2017	2019
—■— Rural Medicaid	98.0%	99.0%	97.6%	99.1%
-●- Rural Potentially Medicaid-Eligible	97.8%	97.6%	96.7%	96.0%
—■— Non-Rural Medicaid	99.2%	98.7%	98.4%	98.4%
-●- Non-Rural Potentially Medicaid-Eligible	97.3%	97.1%	95.0%	96.3%

Few differences were evident in the percent of Rural and Non-Rural children with a usual source of care, regardless of Medicaid status.

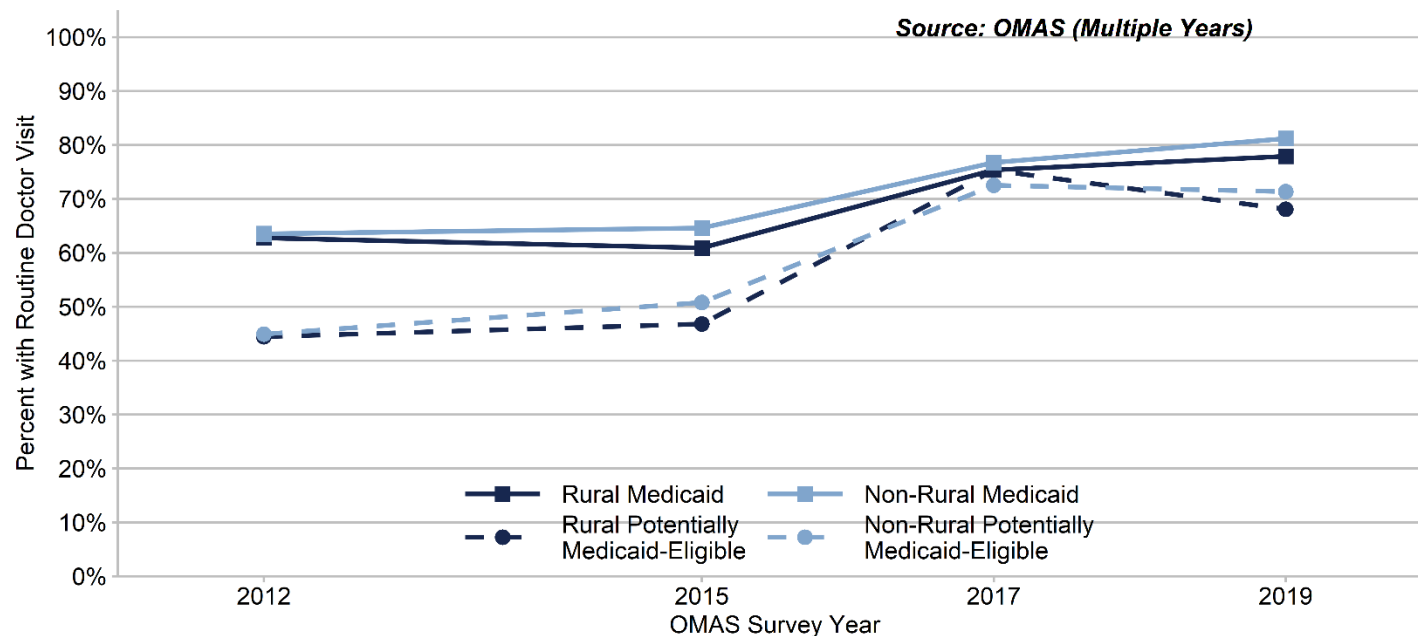
Figure 18. Children with a Doctor Visit in Last 12 Months, by Rurality & Medicaid Status, 2012-2019



	2012	2015	2017	2019
—■— Rural Medicaid	74.8%	66.6%	70.5%	72.7%
-●- Rural Potentially Medicaid-Eligible	66.6%	69.1%	70.2%	69.9%
—■— Non-Rural Medicaid	78.3%	71.7%	73.1%	74.9%
-●- Non-Rural Potentially Medicaid-Eligible	72.3%	68.6%	74.8%	71.8%

Within the Medicaid population hardly any Rural versus Non-Rural differences were noticed for children with a doctor visit in the last 12 months. Within the potentially Medicaid-eligible population, however, Non-Rural children (89.5%) were *more likely* to have had a doctor visit in the last 12 months than Rural children (83.0%).

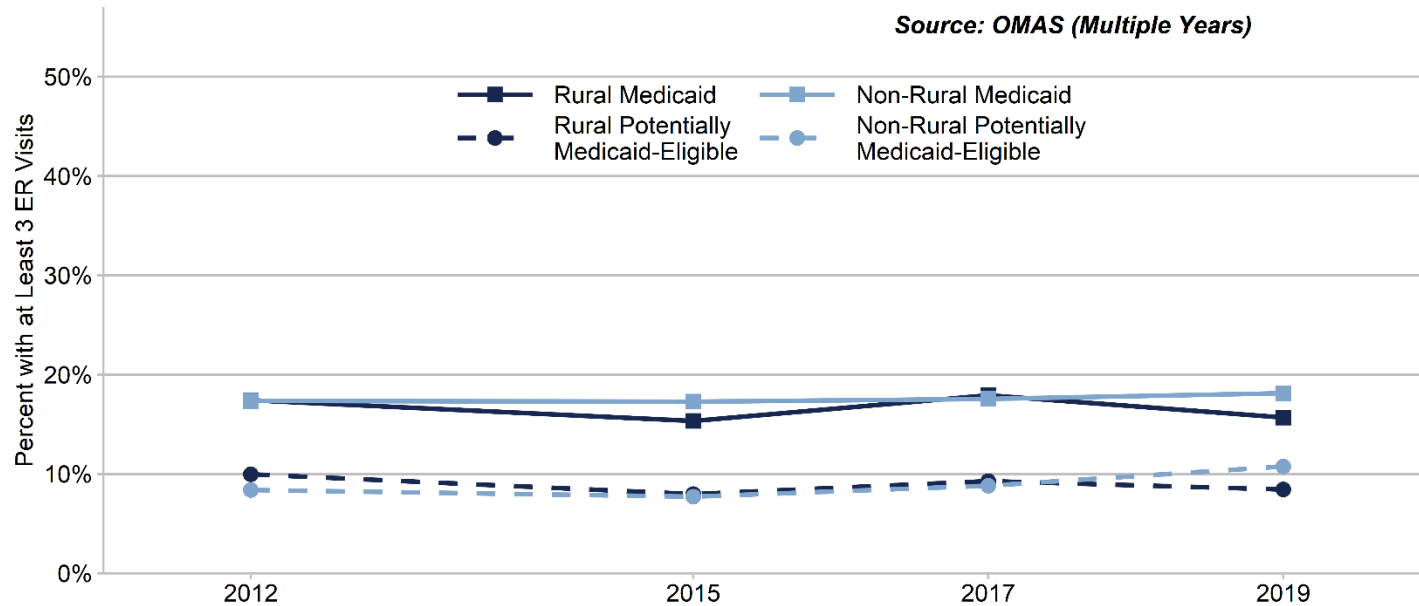
Figure 19. Adults with a Routine Doctor Visit in Last 12 Months, by Rurality & Medicaid Status, 2012-2019



	2012	2015	2017	2019
—■— Rural Medicaid	62.8%	60.9%	75.4%	77.9%
-●- Rural Potentially Medicaid-Eligible	44.4%	46.8%	75.3%	68.1%
—■— Non-Rural Medicaid	63.5%	64.6%	76.8%	81.2%
-●- Non-Rural Potentially Medicaid-Eligible	44.9%	50.8%	72.5%	71.4%

In 2019, within both the Medicaid and the potentially Medicaid-eligible populations, respectively, Non-Rural adults were *more likely* to report a routine doctor visit in the last 12 months than Rural adults.

Figure 20. Adult Emergency Room Visits (at least 3 times in the last 12 months), by Rurality & Medicaid Status, 2012-2019



	2012	2015	2017	2019
—■— Rural Medicaid	17.4%	15.3%	17.9%	15.7%
-●- Rural Potentially Medicaid-Eligible	10.0%	8.0%	9.3%	8.4%
—■— Non-Rural Medicaid	17.4%	17.3%	17.6%	18.1%
-●- Non-Rural Potentially Medicaid-Eligible	8.4%	7.7%	8.8%	10.8%

In 2019, within both the Medicaid and the potentially Medicaid-eligible populations, respectively, Non-Rural adults were *more likely* to report having have visited an Emergency Room at least thrice in the last 12 months than were Rural adults.

Table 2. Percent of Adults with Medicaid Coverage Accessing Care for Specific Conditions & Emergency Room Visits by Rurality, 2019

Health Conditions (Adults)	Rural (n = 457,564)	non-Rural (n = 1,197,228)
Arthritis	15.9%	13.8%
Asthma	15.2%	15.0%
Diabetes	11.7%	10.7%
Injured due to a fall	5.8%	5.3%
Heart Disease*	7.0%	7.9%
Heart Failure	3.3%	3.5%
Stroke	1.9%	1.9%
Obesity	17.4%	17.0%
Hypertension	25.3%	24.0%
Any Substance Use Disorder Treatment	13.7%	11.4%
Emergency Room Visits	42.6%	45.0%

Source: Medicaid Administrative data

Little separated Rural versus Non-Rural adults' access to care and emergency room visit rates in 2019.

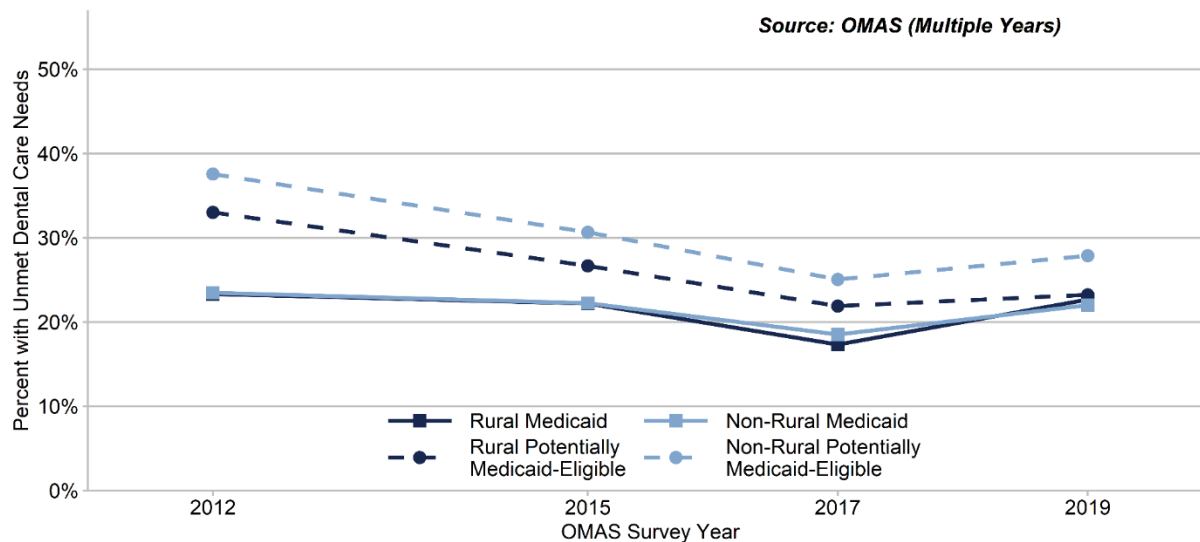
Table 3. Emergency Room, Well-Child Checkups, & Primary Care Visits by Children on Medicaid, by Rurality, 2019

Children	Rural (n = 364,592)	Non-Rural (n = 985,009)
Emergency Room	34.0%	32.0%
Well-child Checkups	45.7%	52.6%
Primary Care Visits	64.3%	61.1%
Median Number of Primary Care Visits	3	3

Source: Medicaid Administrative data

The 2019 Medicaid Claims data indicate a gap in the percent of Rural children who received a well-child checkup (45.7%) versus the considerably higher rate (52.6%) for Non-Rural children. Very little separated Rural and Non-Rural children in terms of both emergency room visits and the median number of primary care visits.

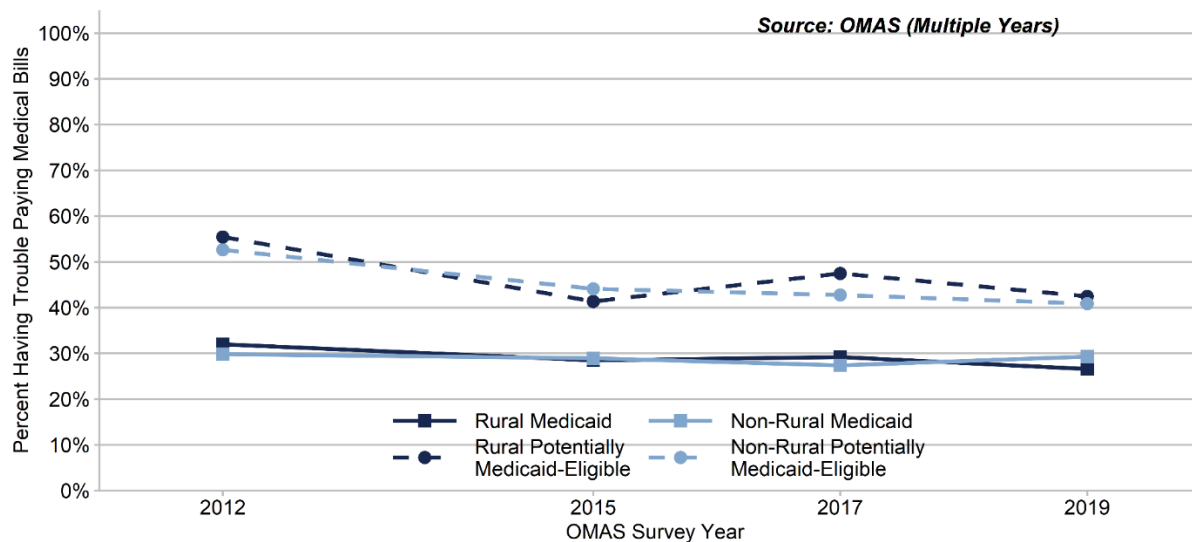
Figure 21. Adults with Unmet Dental Care Needs, by Rurality & Medicaid Status, 2012-2019



	2012	2015	2017	2019
—■— Rural Medicaid	23.3%	22.2%	17.3%	22.7%
-●- Rural Potentially Medicaid-Eligible	33.0%	26.7%	21.9%	23.2%
—■— Non-Rural Medicaid	23.5%	22.2%	18.5%	22.0%
-●- Non-Rural Potentially Medicaid-Eligible	37.6%	30.7%	25.1%	27.9%

Though the gap between Rural and Non-Rural adults' unmet dental care needs has *narrowed* over the years, unmet dental care needs *remain highest* within the potentially Medicaid-eligible Non-Rural adult population.

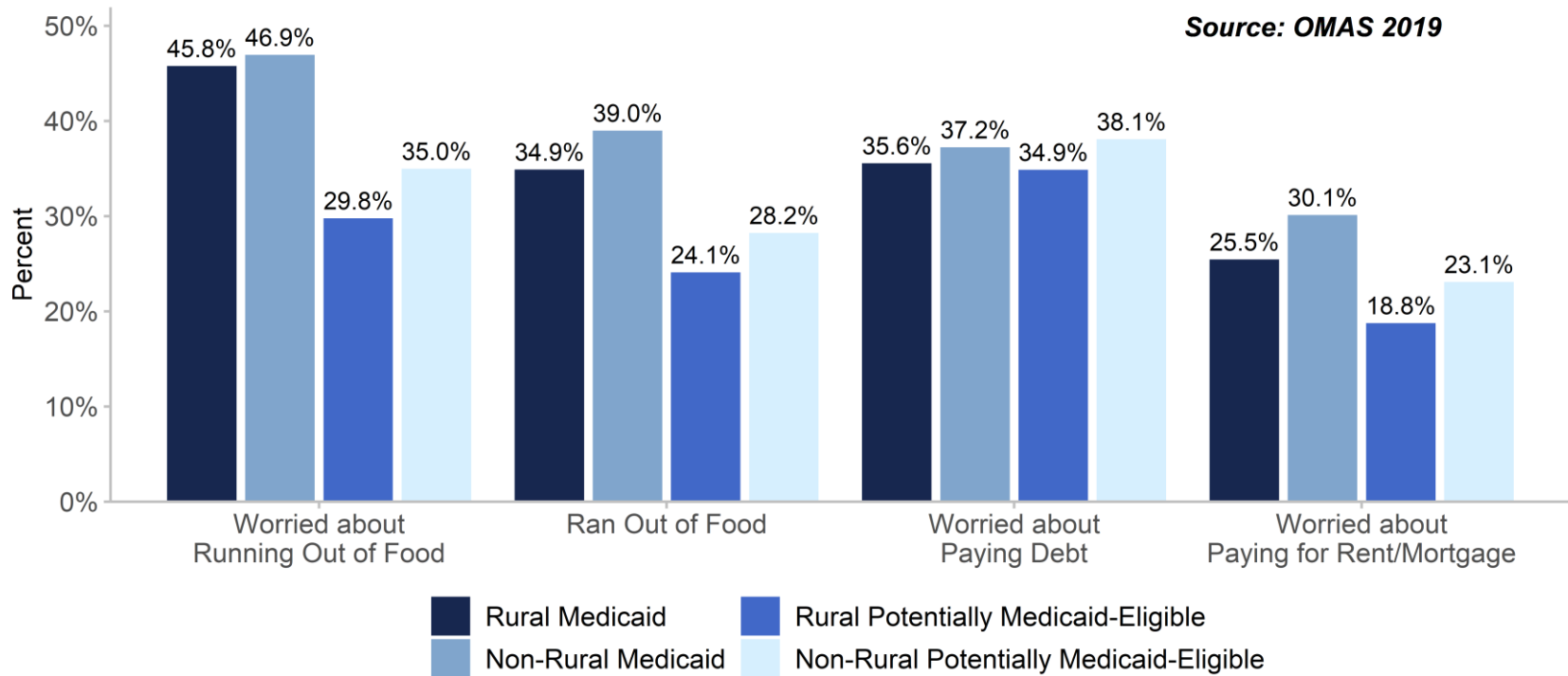
Figure 22. Adults facing Difficulties Paying Medical Bills, by Rurality & Medicaid Status, 2012-2019



	2012	2015	2017	2019
—■— Rural Medicaid	32.0%	28.5%	29.2%	26.6%
-●- Rural Potentially Medicaid-Eligible	55.5%	41.4%	47.5%	42.5%
—■— Non-Rural Medicaid	29.8%	28.9%	27.4%	29.3%
-●- Non-Rural Potentially Medicaid-Eligible	52.6%	44.1%	42.8%	40.9%

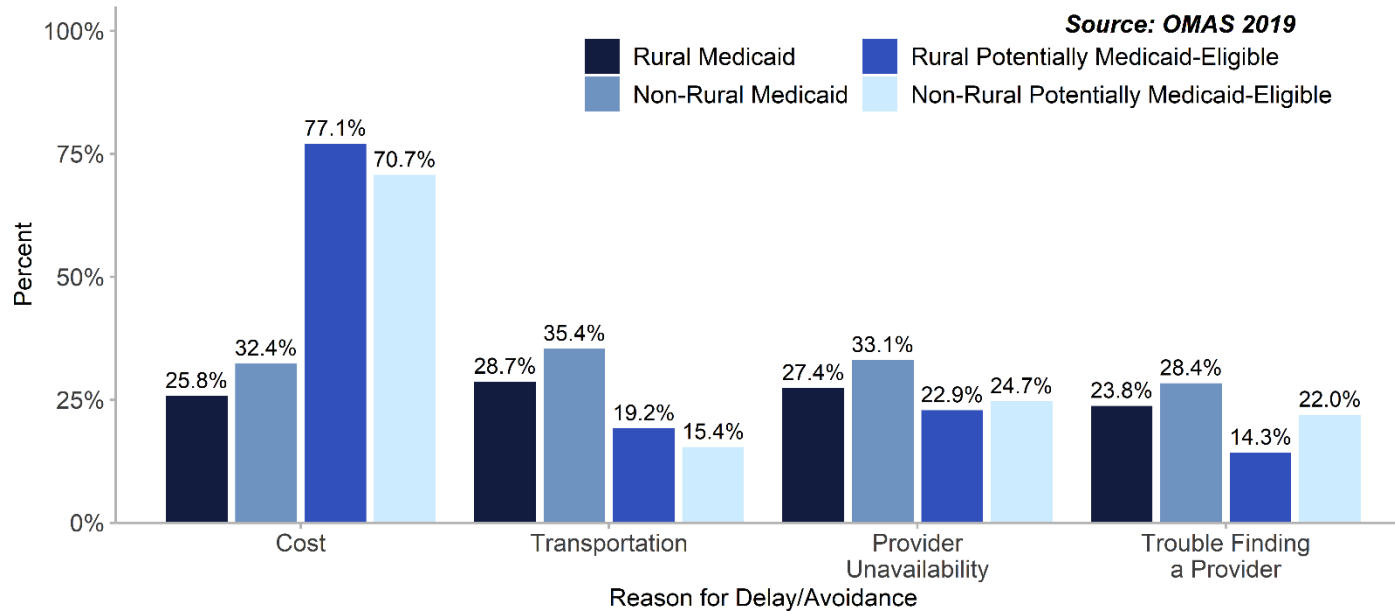
Adults covered by Medicaid were *less likely* to report finding it difficult to pay for medical bills in the 12 months leading up to the time of their interview than potentially Medicaid-eligible adults.

Figure 23. Economic Distress as Reported by Adults, by Rurality & Medicaid Status, 2019



Within each Medicaid population, Rural adults were *less likely* to report being worried about running out of food, report they ran out of food, worried about paying their debt, or worried about paying for rent/mortgage than were Non-Rural adults.

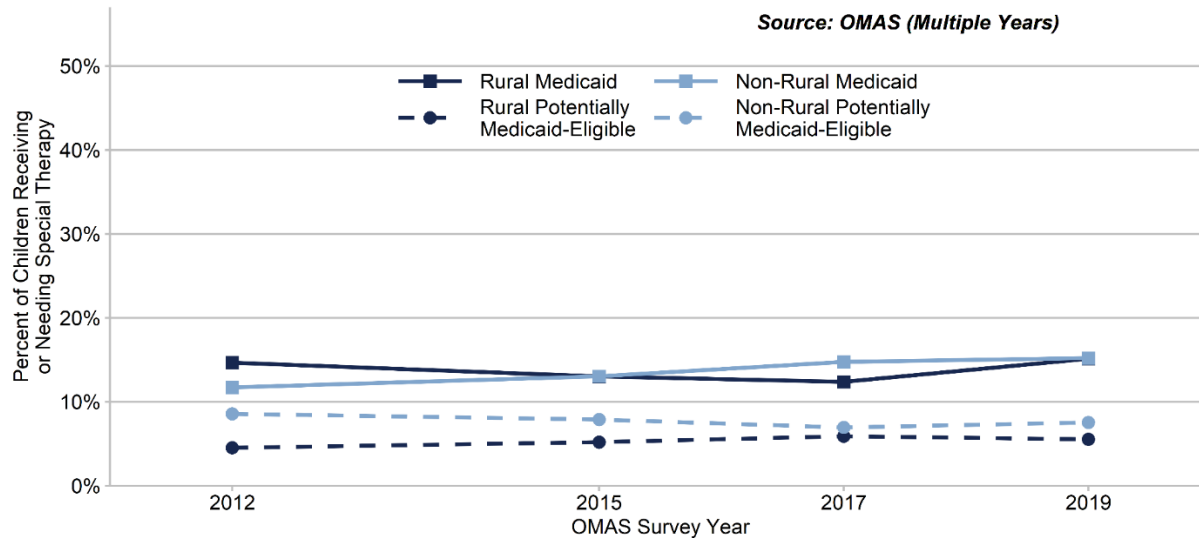
Figure 24. Adult Reasons for Delaying/Avoiding Needed Care, by Rurality & Medicaid Status, 2019



Irrespective of Medicaid status, Non-Rural adults were *more likely* to report having trouble finding a provider or provider unavailability, respectively than were Rural adults. For the Medicaid group, Non-Rural adults were *more likely* to cite cost as the reason for delaying/avoiding needed care than were Rural adults.

Within the potentially Medicaid-eligible group, however, Rural adults were *more likely* to cite cost as a reason for delaying or avoiding needed care than were Non-Rural adults.

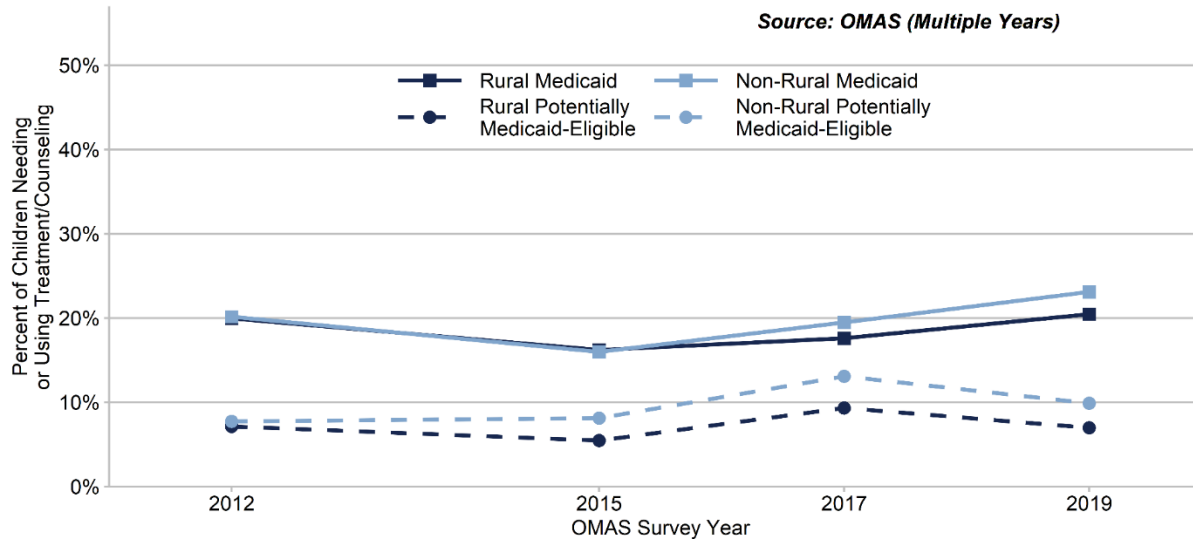
Figure 25. Children Receiving or Needing Special Therapy, by Rurality & Medicaid Status, 2012-2019



	2012	2015	2017	2019
—■— Rural Medicaid	14.7%	13.0%	12.4%	15.1%
-●- Rural Potentially Medicaid-Eligible	4.5%	5.2%	5.9%	5.5%
—■— Non-Rural Medicaid	11.7%	13.0%	14.8%	15.2%
-●- Non-Rural Potentially Medicaid-Eligible	8.6%	7.9%	6.9%	7.5%

In 2019, Rural children covered by Medicaid (15.1%) were *almost thrice as likely* to receive/need special therapy as were Rural potentially Medicaid-eligible children (5.5%).

Figure 26. Children Needing or Using Mental Health Treatment/Counseling, by Rurality & Medicaid Status, 2012-2019



	2012	2015	2017	2019
—■— Rural Medicaid	20.0%	16.2%	17.6%	20.5%
-●- Rural Potentially Medicaid-Eligible	7.1%	5.5%	9.3%	7.0%
—■— Non-Rural Medicaid	20.2%	16.0%	19.5%	23.1%
-●- Non-Rural Potentially Medicaid-Eligible	7.7%	8.1%	13.1%	9.9%

Children covered by Medicaid reported needing/using mental health treatment or counseling services *far more* than did potentially Medicaid-eligible children.

SUMMARY OF KEY FINDINGS

Social Determinants of Health (SDOH). Generally thought of as an amalgam of the physical, social, economic, and political environments in which we live, work, raise families, earn an education, work, and age, social determinants of health (SDOH) have long been recognized as important drivers of our general health status and health outcomes throughout our life-span. With more than 20% of Ohio’s population living in Rural areas, this population group experiences significant health disparities characterized by geographic isolation, lower socioeconomic status, higher rates of health risk behaviors, limited access to health care specialists, and limited job opportunities. In short, the social determinants of health are generally worse for Rural Ohioans.

Medicaid. Medicaid is the second largest source of insurance for Rural Ohioans and as such plays a significant role in the overall health and well-being of Rural adults and children. The OMAS-19 survey found that Medicaid covered individuals reported higher rates of chronic health conditions such as obesity, diabetes and stroke. Medicaid was the primary source of insurance for Ohioans with mental health conditions and the Rural Medicaid population was twice as likely to experience mental health challenges than the potentially Medicaid-eligible in Rural Ohio.

Substance Use. Cigarettes, e-cigarettes and smokeless tobacco continue to be the most commonly-used substances among adults in Rural Ohio.

Health Outcomes and Behaviors. The table below provides a prevalence overview of key indicators of health outcomes and behaviors where there are significant differences between Rural Ohioans and non-Rural Ohioans.

Table 4. Prevalence Overview of Key Health Outcomes & Behaviors Indicators where Significant, 2019 (Data Source: OMAS 2019)

Indicator	Rural	Non-Rural
Adults likely to self-report poor/fair health	More	Less
Adults likely to have obese body mass index (BMI)	More	Less
Adults likely to use tobacco/nicotine	More	Less
Adults likely to use cannabis	Less	More
Children likely to have longer screen time	Less	More

POLICY CONSIDERATIONS

Social Determinants of Health (SDOH). Social determinants of health need to be addressed in rural Ohio. Though the social determinants of health are generally worse for Rural Ohioans, addressing possible solutions to these systemic barriers to better overall health in a more holistic way are accounted for in the following policy recommendations.

Medicaid. Because Medicaid plays a significant role in maintaining the health of Rural Ohio, opportunities for Medicaid insurance coverage should be supported, sustained, and —to the extent possible— expanded, especially as it relates to mental health care and services.

Tobacco and nicotine use. Health in rural Ohio could be improved by addressing the use of tobacco and related products, which underscores the importance of efforts such as the Ohio Department of Health's Tobacco Use Prevention and Cessation Program (TUPCP), and the partnership with local and state stakeholders, to fund the 5As (ask, advise, assess, assist, and arrange) -- brief counseling intervention for smoking cessation for implementation in clinical and public health practice.

Similarly, the Campaign for Tobacco Free Kids recommends tobacco-control approaches to curb youth tobacco initiation,

including strong enforcement of ID checks at retailers and ending the sale of all flavored tobacco products. Other public health approaches (e.g., raising costs, smoke-free policies) could also continue to be promoted, especially given the evidence that onset of regular smoking both before age 18 and at age 18 to 20 years is associated with higher odds of nicotine dependence and lower odds of attempting and intending to quit.¹²

However, raising taxes on cigarettes is less popular in politically conservative jurisdictions and hence perhaps culturally sensitive health communications promoting nicotine-free lifestyles may be more effective.

Telehealth. Telehealth has promise for improving access to health care, especially in Rural Ohio. The utilization of telehealth/telemedicine technologies provides the opportunity to improve access to needed health care services, particularly for those who lack transportation and for Rural populations where availability of providers and high-speed internet is a challenge; some 300,00 households (1 million Ohioans) lack high-speed internet. For Rural Ohioans to fully benefit from telehealth/telemedicine technologies, Governor DeWine's Ohio Broadband Strategy could pay huge dividends and could be leveraged to expand telehealth in rural areas.

Continued on next page →

POLICY CONSIDERATIONS

Adverse Childhood Experiences (ACEs). ACEs could be reduced to improve downstream health outcomes. Given the association between ACEs and key children's health outcomes, policy interventions designed to minimize the prevalence of ACEs could become a preferred strategy for Ohio's children. Policymakers could consider new efforts not only to screen for ACEs but also to ensure that all Medicaid service providers are utilizing a trauma-informed care framework to support the health needs of patients with ACEs. Trauma-focused Cognitive Behavioral Therapy (TF-CBT), for example, has been known to benefit children, youth, and families struggling with ACEs. Because the health impact of ACEs persist through adulthood, much like smoking cessation programs that target adolescents, policies designed to benefit children could have downstream spillover benefits that carry into adulthood. To better monitor the prevalence of ACEs and the impacts of ACEs-focused interventions it may be useful to gather periodic surveillance data on ACEs prevalence in Ohio.

Coronavirus (COVID-19) Response. At various times, the COVID-19 pandemic was growing throughout Ohio's Rural communities, making the potential for disparities in health status across regions more evident. According to the CDC¹¹, Rural Americans may be at higher risk of severe illness from COVID-19 due to factors such as an older population, living with a disability and having higher rates of chronic conditions.

Additionally, limited health care infrastructure and financially vulnerable care facilities have impacted the Rural response to COVID-19. This pandemic has heightened the financial challenges faced by the Medicaid and Potentially-eligible Medicaid populations in Ohio, with consequences for health care access and utilization.

Currently, the depth and breadth of COVID-19's economic impacts in Rural versus Non-Rural parts of Ohio remains unknown. At various times, the pandemic was growing throughout rural communities and is now growing again because vaccination rates are lower. What is not in doubt is that any worsening of key social determinants of health such as increased poverty, reduced access to health care, greater financial instability that reduces the ability to pay for food, mortgage/rent, or other basic amenities could have severe and long-lasting health consequences for all Ohioans.

On a positive note, COVID-19 has led to increased utilization of telehealth/telemedicine which has potential in the longer term as a more permanent viable option to improve access to care. However, this potential may be unequally distributed in Ohio given the lack of broadband internet services in Rural areas.

REFERENCES

1. Yaemsiri, S.; Alfier, J. M.; Moy, E.; Rossen, L. M.; Bastian, B.; Bolin, J.; Ferdinand, A. O.; Callaghan, T. & Heron, M. Healthy People 2020: Rural Areas Lag In Achieving Targets For Major Causes Of Death. 2019. *Health Affairs*, 38(12), 2027-2031. <https://doi.org/10.1377/hlthaff.2019.00915>
2. Gong, G.; Phillips, S. G.; Hudson, C.; Curti, D. & Philips, B. U. Higher US Rural Mortality Rates Linked To Socioeconomic Status, Physician Shortages, And Lack Of Health Insurance. 2019. *Health Affairs*, 38(12), 2003-2010. <https://doi.org/10.1377/hlthaff.2019.00722>
3. Kozhimannil, K. B.; Interrante, J. D.; Henning-Smith, C. & Admon, L. K. Rural-Urban Differences In Severe Maternal Morbidity And Mortality In The US, 2007–15. 2019. *Health Affairs*, 38(12), 2077-2085. <https://doi.org/10.1377/hlthaff.2019.00805>
4. Cosby, A. G.; McDoom-Echebiri, M. M.; James, W.; Khandekar, H.; Brown, W. & Hanna, H. L. Growth and Persistence of Place-Based Mortality in the United States: The Rural Mortality Penalty,. 2019. *American Journal of Public Health*, 109, 155-162. <https://doi.org/10.2105/ajph.2018.304787>
5. Probst, J.; Eberth, J. M. & Crouch, E. Structural Urbanism Contributes To Poorer Health Outcomes For Rural America. 2019. *Health Affairs*, 38(12), 1976–1984. <https://doi.org/10.1377/hlthaff.2019.00914>
6. Samanic, CM; Barbour KE; Liu Y; et al. Prevalence of Self-Reported Hypertension and Antihypertensive Medication Use by County and Rural-Urban Classification — United States, 2017. *MMWR Morb Mortal Wkly Rep* 2020, 69, 533–539. <http://dx.doi.org/10.15585/mmwr.mm6918a1>
7. Lundeen, EA; Park, S; Pan, L' O'Toole, T; Matthews, K & Blanck, HM. Obesity Prevalence Among Adults Living in Metropolitan and Nonmetropolitan Counties - United States, 2016. *MMWR Morb Mortal Wkly Rep*. 2018;67(23):653-658. Published 2018 Jun 15. <https://doi.org/10.15585/mmwr.mm6723a>
8. James, CV; Moonesinghe, R.; Wilson-Frederick, SM; Hall, JE; Penman-Aguilar, A & Bouye, K. Racial/Ethnic Health Disparities Among Rural Adults — United States, 2012–2015. *MMWR Surveill Summ* 2017;66(No. SS-23):1–9. DOI: <http://dx.doi.org/10.15585/mmwr.ss6623a>
9. Ruhil, A. V. S.; Sahr, T. & Johnson, L. K. *Medicaid and Appalachian Ohio Health, Socioeconomic Status, and Ecological OMAS Assessment Study*. 2018. <https://www.medicaid.ohio.gov/Portals/0/Resources/Research/OMAS-Study.pdf>
10. U.S. Census Bureau: Household Pulse Survey <https://www.census.gov/data-tools/demo/hhp/#/>
11. Centers for Disease Control and Prevention <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/other-at-risk-populations/rural-communities.html#:~:text=Rural%20Americans%20may%20be%20at,even%20after%20adjusting%20for%20age>.
12. Ali, FRM; Agaku, IT; Sharapova, SR; Reimels, EA & Homa, DM. Onset of Regular Smoking Before Age 21 and Subsequent Nicotine Dependence and Cessation Behavior Among US Adult Smokers. *Prev Chronic Dis* 2020;17:190176. DOI: <http://dx.doi.org/10.5888/pcd17.190176>

APPENDIX

Table A1: Demographic and Socioeconomic Profile of Low-Income Rural and Non-Rural OMAS 2019 Adults, by Medicaid Status

Attribute		Rural		non-Rural	
		Medicaid	Potentially Eligible	Medicaid	Potentially Eligible
Sex	Male	141,506 (38.4%)	117,367 (46.8%)	421,516 (41.9%)	335,555 (48.4%)
	Female	227,340 (61.6%)	133,385 (53.2%)	584,968 (58.1%)	358,268 (51.6%)
Employment of Respondent or spouse		198,979 (53.9%)	175,263 (69.9%)	547,028 (54.4%)	520,249 (75.0%)
Age-Groups	19-24	42,055 (11.4%)	45,682 (18.2%)	129,727 (12.9%)	159,287 (23.0%)
	25-34	93,909 (25.5%)	47,835 (19.1%)	268,403 (26.7%)	160,308 (23.1%)
	35-44	99,697 (27.0%)	44,418 (17.7%)	231,585 (23.0%)	119,973 (17.3%)
	45-54	60,222 (16.3%)	41,319 (16.5%)	185,221 (18.4%)	113,578 (16.4%)
	55-64	72,963 (19.8%)	71,499 (28.5%)	191,547 (19.0%)	140,677 (20.3%)
Any Military Service		15,318 (4.3%)	12,139 (4.9%)	41,966 (4.3%)	45,050 (6.7%)
Median household size		3	2	3	3

Source: OMAS 2019

APPENDIX

Table A1: Demographic and Socioeconomic Profile of Low-Income Rural and non-Rural OMAS 2019 Adults, by Medicaid Status (continued)

Attribute		Rural		non-Rural	
		Medicaid	Potentially Eligible	Medicaid	Potentially Eligible
Educational Attainment	Up to high school but no diploma	60,581 (16.4%)	37,790 (15.1%)	180,231 (17.9%)	98,773 (14.2%)
	High school graduate or equivalent	170,085 (46.1%)	119,720 (47.7%)	409,449 (40.7%)	242,379 (34.9%)
	Some college	68,079 (18.5%)	39,233 (15.6%)	197,851 (19.7%)	155,883 (22.5%)
	Associate Degree	46,174 (12.5%)	28,069 (11.2%)	127,193 (12.6%)	80,851 (11.7%)
	4-year college graduate	18,276 (5.0%)	16,785 (6.7%)	64,307 (6.4%)	80,210 (11.6%)
	Advanced Degree	3,239 (1.5%)	9,155 (3.7%)	27,453 (2.7%)	35,728 (5.1%)

Source: OMAS 2019

APPENDIX

Table A1: Demographic and Socioeconomic Profile of Low-Income Rural and non-Rural OMAS 2019 Adults, by Medicaid Status (continued)

Attribute		Rural		non-Rural	
		Medicaid	Potentially Eligible	Medicaid	Potentially Eligible
Race/Ethnicity	White	320,665 (86.9%)	214,278 (85.5%)	562,523 (59.6%)	441,435 (63.6%)
	Black	22,303 (6.0%)	15,128 (6.0%)	297,783 (29.6%)	154,467 (22.3%)
	Hispanic	10,383 (2.8%)	12,087 (4.8%)	43,171 (4.3%)	52,303 (7.5%)
	Other	15,495 (4.2%)	9,259 (3.7%)	65,493 (6.5%)	45,618 (6.6%)

Source: OMAS 2019

APPENDIX

Table A2: Demographic and Socioeconomic Profile of Low-Income Rural and non-Rural OMAS 2019 Children, by Medicaid Status

Attribute		Rural		non-Rural	
		Medicaid	Potentially Eligible	Medicaid	Potentially Eligible
Sex	Male	183,527 (51.1%)	68,660 (55.6%)	415,122 (51.2%)	141,029 (50.1%)
	Female	175,874 (48.9%)	54,879 (44.4%)	395,885 (48.8%)	140,334 (49.9%)
Age-Groups	0-5	110,758 (30.8%)	46,359 (37.5%)	286,883 (35.4%)	78,913 (28.0%)
	6-11	134,776 (37.4%)	37,259 (30.2%)	262,189 (32.3%)	84,084 (29.9%)
	12-17	114,426 (31.8%)	39,922 (32.3%)	261,938 (32.3%)	118,614 (42.1%)
Race/Ethnicity	White	284,952 (79.2%)	99,623 (80.6%)	426,480 (52.6%)	170,042 (60.4%)
	Black	18,980 (5.3%)	3,601 (2.9%)	241,431 (29.8%)	55,794 (19.8%)
	Hispanic	16,864 (4.7%)	6,918 (5.6%)	63,497 (7.8%)	26,104 (9.3%)
	Other	39,162 (10.9%)	13,397 (10.8%)	79,602 (9.8%)	29,670 (10.5%)

Source: OMAS 2019

APPENDIX

Table A3: Selected Health Care Access Measures, by
Rurality and Year, 2010-2018

Year	Primary Care Physicians (per 3,000 persons)		Dentists (per 4,000)		Nurse Practitioners (per 3,000)	
	Rural	non-Rural	Rural	non-Rural	Rural	non-Rural
2010	1.6	2.5	1.3	2.3	0.5	1.2
2011	1.6	2.5	--	--	0.6	1.3
2012	1.6	2.5	--	--	0.7	1.5
2013	1.6	2.6	1.4	2.4	0.8	1.7
2014	1.6	2.6	1.4	2.4	1.0	2.0
2015	1.5	2.6	1.4	2.4	1.1	2.3
2016	1.5	2.6	1.3	2.4	1.3	2.6
2017	1.5	2.6	1.4	2.4	1.5	2.9
2018	--	--	--	--	1.8	3.3

Source: Area Health Resources File (various years)

APPENDIX

Table A4: Estimates by Figure

Figure 1: Percent of Ohio Adults Reporting Fair/Poor Self-Rated Health Status, by Rurality and Medicaid Status, 2012-2019









	2012	2015	2017	2019
 Rural Medicaid	46.4%	33.9%	39.0%	43.5%
 Rural Potentially Medicaid-Eligible	32.6%	27.8%	33.6%	29.9%
 Non-Rural Medicaid	41.8%	33.2%	36.0%	40.1%
 Non-Rural Potentially Medicaid-Eligible	30.7%	26.2%	26.8%	26.1%

Figure 2: Adults with Obese BMI, by Rurality and Medicaid Status, 2012-2019

	2012	2015	2017	2019
 Rural Medicaid	44.0%	43.2%	42.1%	44.9%
 Rural Potentially Medicaid-Eligible	34.8%	35.3%	41.7%	39.1%
 Non-Rural Medicaid	40.4%	41.0%	41.0%	42.5%
 Non-Rural Potentially Medicaid-Eligible	32.4%	35.0%	33.1%	35.6%

Source: OMAS (Multiple Years)

APPENDIX

Table A4: Estimates by Figure (continued)

Figure 3: Children with Obese BMI, by Rurality and Medicaid Status, 2012-2019

	2012	2015	2017	2019
—■— Rural Medicaid	27.4%	31.1%	31.3%	30.9%
-●- Rural Potentially Medicaid-Eligible	19.4%	25.8%	28.7%	26.0%
—■— Non-Rural Medicaid	23.9%	31.7%	32.4%	32.8%
-●- Non-Rural Potentially Medicaid-Eligible	19.4%	24.8%	24.8%	22.9%

Figure 4: Adults Reporting Mental Health Impairment (MHI), by Rurality and Medicaid Status, 2012-2019

	2012	2015	2017	2019
—■— Rural Medicaid	19.7%	15.6%	19.6%	20.8%
-●- Rural Potentially Medicaid-Eligible	12.3%	9.7%	11.6%	11.3%
—■— Non-Rural Medicaid	18.5%	14.3%	15.5%	20.2%
-●- Non-Rural Potentially Medicaid-Eligible	12.4%	9.9%	11.8%	11.7%

Source: OMAS (Multiple Years)

APPENDIX

Table A4: Estimates by Figure (continued)

Figure 5: Adults with a Disability, by Rurality and Medicaid Status, 2012-2019









	2012	2015	2017	2019
 Rural Medicaid	46.5%	41.7%	46.7%	61.3%
 Rural Potentially Medicaid-Eligible	29.4%	30.8%	35.7%	48.3%
 Non-Rural Medicaid	45.9%	43.0%	45.1%	59.8%
 Non-Rural Potentially Medicaid-Eligible	26.2%	29.6%	32.3%	44.8%

Figure 6: Children with a Disability, by Rurality and Medicaid Status, 2012-2019

	2012	2015	2017	2019
 Rural Medicaid	29.4%	28.6%	36.7%	37.6%
 Rural Potentially Medicaid-Eligible	12.1%	12.7%	24.9%	12.0%
 Non-Rural Medicaid	26.2%	27.1%	38.1%	33.1%
 Non-Rural Potentially Medicaid-Eligible	15.6%	17.1%	27.0%	17.4%

Source: OMAS (Multiple Years)

APPENDIX

Table A4: Estimates by Figure (continued)

Figure 7: Adults with Hypertension/High Blood Pressure, by Rurality and Medicaid Status, 2012-2019









	2012	2015	2017	2019
 Rural Medicaid	37.9%	34.0%	36.4%	36.7%
 Rural Potentially Medicaid-Eligible	31.9%	29.5%	34.6%	30.2%
 Non-Rural Medicaid	40.3%	35.1%	35.8%	37.3%
 Non-Rural Potentially Medicaid-Eligible	32.4%	30.0%	25.2%	26.9%

Figure 8: Adults with Diabetes, by Rurality and Medicaid Status, 2012-2019

	2012	2015	2017	2019
 Rural Medicaid	18.3%	15.3%	14.3%	17.2%
 Rural Potentially Medicaid-Eligible	14.5%	11.8%	14.9%	11.1%
 Non-Rural Medicaid	16.4%	14.5%	14.1%	16.6%
 Non-Rural Potentially Medicaid-Eligible	11.5%	11.5%	11.4%	9.6%

Source: OMAS (Multiple Years)

APPENDIX

Table A4: Estimates by Figure (continued)

Figure 9: Adults told they had a Heart Attack, by Rurality and Medicaid Status, 2012-2019









	2012	2015	2017	2019
 Rural Medicaid	9.9%	5.0%	7.6%	5.4%
 Rural Potentially Medicaid-Eligible	6.3%	4.4%	7.2%	3.8%
 Non-Rural Medicaid	5.8%	4.6%	5.5%	6.3%
 Non-Rural Potentially Medicaid-Eligible	5.6%	3.4%	4.4%	3.9%

Figure 12: Adults who are Current Smokers, by Rurality and Medicaid Status, 2012-2019

	2012	2015	2017	2019
 Rural Medicaid	45.2%	46.4%	49.2%	50.3%
 Rural Potentially Medicaid-Eligible	39.8%	37.5%	39.5%	32.5%
 Non-Rural Medicaid	41.4%	40.8%	44.8%	43.6%
 Non-Rural Potentially Medicaid-Eligible	29.2%	30.9%	32.4%	29.7%

Source: OMAS (Multiple Years)

APPENDIX

Table A4: Estimates by Figure (continued)

Figure 13: Adults Reporting Binge Drinking, by Rurality and Medicaid Status, 2012-2019









	2012	2015	2017	2019
 Rural Medicaid	14.6%	15.3%	17.9%	20.7%
 Rural Potentially Medicaid-Eligible	19.5%	18.4%	19.6%	25.9%
 Non-Rural Medicaid	16.5%	16.3%	19.3%	20.2%
 Non-Rural Potentially Medicaid-Eligible	21.6%	19.9%	24.7%	27.9%

Figure 16: Adults with a Usual Source of Health Care, by Rurality and Medicaid Status, 2012-2019

	2012	2015	2017	2019
 Rural Medicaid	93.6%	93.3%	91.8%	91.5%
 Rural Potentially Medicaid-Eligible	82.7%	87.5%	85.7%	87.0%
 Non-Rural Medicaid	92.7%	92.1%	92.1%	92.7%
 Non-Rural Potentially Medicaid-Eligible	83.0%	85.1%	83.3%	87.1%

Source: OMAS (Multiple Years)

APPENDIX

Table A4: Estimates by Figure (continued)

Figure 17: Children with a Usual Source of Health Care, by Rurality and Medicaid Status, 2012-2019









	2012	2015	2017	2019
 Rural Medicaid	98.0%	99.0%	97.6%	99.1%
 Rural Potentially Medicaid-Eligible	97.8%	97.6%	96.7%	96.0%
 Non-Rural Medicaid	99.2%	98.7%	98.4%	98.4%
 Non-Rural Potentially Medicaid-Eligible	97.3%	97.1%	95.0%	96.3%

Figure 18: Children with a Doctor Visit in Last 12 Months, by Rurality and Medicaid Status, 2012-2019

	2012	2015	2017	2019
 Rural Medicaid	90.4%	91.4%	92.8%	92.9%
 Rural Potentially Medicaid-Eligible	75.2%	80.0%	83.0%	83.0%
 Non-Rural Medicaid	90.6%	91.8%	92.7%	94.0%
 Non-Rural Potentially Medicaid-Eligible	80.2%	85.3%	84.4%	89.5%

Source: OMAS (Multiple Years)

APPENDIX

Table A4: Estimates by Figure (continued)

Figure 19: Adults with a Routine Doctor Visit in Last 12 Months, by Rurality and Medicaid Status, 2012-2019









	2012	2015	2017	2019
 Rural Medicaid	62.8%	60.9%	75.4%	77.9%
 Rural Potentially Medicaid-Eligible	44.4%	46.8%	75.3%	68.1%
 Non-Rural Medicaid	63.5%	64.6%	76.8%	81.2%
 Non-Rural Potentially Medicaid-Eligible	44.9%	50.8%	72.5%	71.4%

Figure 20: Adults visiting an Emergency Room at least 3 times in the last 12 Months, by Rurality and Medicaid Status, 2012-2019

	2012	2015	2017	2019
 Rural Medicaid	17.4%	15.3%	17.9%	15.7%
 Rural Potentially Medicaid-Eligible	10.0%	8.0%	9.3%	8.4%
 Non-Rural Medicaid	17.4%	17.3%	17.6%	18.1%
 Non-Rural Potentially Medicaid-Eligible	8.4%	7.7%	8.8%	10.8%

Source: OMAS (Multiple Years)

APPENDIX

Table A4: Estimates by Figure (continued)

Children's Dental Visits in the last 12 Months, by Rurality and Medicaid Status, 2012-2019









	2012	2015	2017	2019
 Rural Medicaid	74.8%	66.6%	70.5%	72.7%
 Rural Potentially Medicaid-Eligible	66.6%	69.1%	70.2%	69.9%
 Non-Rural Medicaid	78.3%	71.7%	73.1%	74.9%
 Non-Rural Potentially Medicaid-Eligible	72.3%	68.6%	74.8%	71.8%

Figure 21: Adults with Unmet Dental Care Needs, by Rurality and Medicaid Status, 2012-2019

	2012	2015	2017	2019
 Rural Medicaid	23.3%	22.2%	17.3%	22.7%
 Rural Potentially Medicaid-Eligible	33.0%	26.7%	21.9%	23.2%
 Non-Rural Medicaid	23.5%	22.2%	18.5%	22.0%
 Non-Rural Potentially Medicaid-Eligible	37.6%	30.7%	25.1%	27.9%

Source: OMAS (Multiple Years)

APPENDIX

Table A4: Estimates by Figure (continued)

Children with Unmet Dental Care Needs, by Rurality and Medicaid Status, 2012-2019









	2012	2015	2017	2019
 Rural Medicaid	8.9%	5.6%	8.5%	10.4%
 Rural Potentially Medicaid-Eligible	9.6%	6.2%	6.0%	6.3%
 Non-Rural Medicaid	6.4%	5.5%	7.0%	6.1%
 Non-Rural Potentially Medicaid-Eligible	9.1%	8.3%	5.9%	8.7%

Figure 22: Adults facing Difficulties Paying Medical Bills, by Rurality and Medicaid Status, 2012-2019

	2012	2015	2017	2019
 Rural Medicaid	32.0%	28.5%	29.2%	26.6%
 Rural Potentially Medicaid-Eligible	55.5%	41.4%	47.5%	42.5%
 Non-Rural Medicaid	29.8%	28.9%	27.4%	29.3%
 Non-Rural Potentially Medicaid-Eligible	52.6%	44.1%	42.8%	40.9%

Source: OMAS (Multiple Years)

APPENDIX

Table A4: Estimates by Figure (continued)

Figure 25: Children Receiving or Needing Special Therapy, by Rurality and Medicaid Status, 2012-2019









	2012	2015	2017	2019
 Rural Medicaid	14.7%	13.0%	12.4%	15.1%
 Rural Potentially Medicaid-Eligible	4.5%	5.2%	5.9%	5.5%
 Non-Rural Medicaid	11.7%	13.0%	14.8%	15.2%
 Non-Rural Potentially Medicaid-Eligible	8.6%	7.9%	6.9%	7.5%

Figure 26: Children Needing or Using Mental Health Treatment/Counseling, by Rurality and Medicaid Status, 2012-2019

	2012	2015	2017	2019
 Rural Medicaid	20.0%	16.2%	17.6%	20.5%
 Rural Potentially Medicaid-Eligible	7.1%	5.5%	9.3%	7.0%
 Non-Rural Medicaid	20.2%	16.0%	19.5%	23.1%
 Non-Rural Potentially Medicaid-Eligible	7.7%	8.1%	13.1%	9.9%

Source: OMAS (Multiple Years)

ACKNOWLEDGEMENTS



Mike DeWine, Governor
Jon Husted, Lt. Governor

Department of
Medicaid

Maureen Corcoran, Director



Department
of Health



Department of
Aging



Department of Mental Health and
Addiction Services