The Value of Medicaid

Providing Access to Care and Preventive Health Services

APRIL 2018

Key Takeaways

Adults and children enrolled in a Medicaid health plan had significantly better access to care and preventive services than people with no health coverage.

Overall, this analysis demonstrates a consistent pattern of strong, statistically significant relationships between insurance coverage—whether commercial or Medicaid—and access to care and preventive care services.

The findings from this study refute outdated, less rigorous studies that question the value of Medicaid, and add to the growing number of recent studies that demonstrate the value of having insurance coverage generally, and Medicaid more specifically.

Summary

Over 74 million Americans are currently insured under Medicaid and the Children's Health Insurance Program (CHIP), according to the Centers for Medicare and Medicaid Services.[1] More than 52 million low-income individuals—representing nearly 70 percent of total Medicaid enrollment—rely on private health plans for their Medicaid coverage.[2] Since its inception in the mid-1960s, the Medicaid program has provided needed financial security to millions of Americans. Medicaid has consistently proven to be a valuable and reliable source of access to health care to the millions of vulnerable enrollees who need it most.[3-5]

Recent studies of people with Medicaid coverage have found they have access to care[6-12] and use preventive care services[13-16] at rates comparable to those with commercial insurance; both groups have far better experiences than the uninsured. However, some critics of the Medicaid program have raised questions about patient access to care and quality based on several commonly cited studies that include outdated data and/or methodological weaknesses that challenge the validity and generalizability of their conclusions.[17-20]

To assess the nature of care Medicaid enrollees receive, AHIP researchers analyzed data from the Medical Expenditure Panel Survey (MEPS) of Medicaid beneficiaries, and people covered by commercial insurance, as well as the uninsured. Specifically, we compared measures of access to care and the provision of preventive services to people enrolled in a Medicaid health plan or those covered by a commercial health plan with those who were uninsured during the 2013-2015 timeframe.

As a secondary analysis, the same analyses were conducted for enrollees of Medicaid health plans vs. commercial health plans vs. uninsured during the 2007-2009 timeframe, in order to describe any changes in care access and preventive services before the passage of the Affordable Care Act.

We found that adults and children enrolled in a Medicaid health plan had significantly better access to care and preventive services than people with no health coverage. For example:

- Adult Medicaid enrollees were almost five times more likely, and children were four times more likely, to have a usual source of care than people with no health coverage.
- Adults were more than four times more likely, and children were two-to-three times more likely, to receive certain preventive care services than people with no health insurance.

Overall, this analysis shows a consistent pattern of strong, statistically significant relationships between insurance coverage—whether commercial or Medicaid—and access to care and preventive care services:

- Across multiple measures, people with Medicaid coverage reported better access than people with no health insurance.
- Adults and children enrolled in Medicaid health plans appeared to have access to care and preventive services at levels similar to people who have commercial health coverage.

The findings from this study refute outdated, less rigorous studies that question the value of Medicaid, and add to the growing number of recent studies that demonstrate the value of having insurance coverage generally, and Medicaid more specifically.

Study Methodology

This study used data from the MEPS survey. This ongoing national survey of households and individuals has been used by health services researchers for more than 20 years. It is administered by the Agency for Healthcare Quality and Research (AHQR). MEPS is the most complete source of public data on the cost and utilization of health care and health insurance coverage.

Across multiple measures of access to care and the provision of preventive services, AHIP researchers compared people having commercial or Medicaid health plans (ie. HMO, or health maintenance organization) versus no insurance coverage at all.

Results from this study are based on a sample of 38,678 individuals during the 2013-2015 timeframe. This final analytical sample was described using appropriate univariate statistics, and any associations between access to care and provision of preventive care services were initially assessed using Chi-Square Tests of Association.

Next, we constructed multivariate logistic regression models to further describe the relationship between insurance coverage status and the outcome variables of interest

(measures of access to care and provision of preventive care), while controlling for variations in patient baseline demographics. This multivariate analysis then ensures an "apples-to-apples" comparison across the three insurance subgroups.

The selection of covariates used in this study was guided by the previous literature and Anderson's Behavioral Model of Healthcare Utilization. To account for multiple comparisons, we used Bonferroni's Correction for Multiple Comparisons for all regression analyses, as such, the *a priori alpha* level of 0.05 was adjusted to 0.0125 for all tests of statistical significance.

Lastly, we repeated the above analyses on a cohort of 36,594 individuals during the 2007-2009 timeframe to describe any changes in care access and prevention services before the passage of the Affordable Care Act. See Appendix A for the detailed methodology.

Study Populations

Patients' demography, geographic location, and overall health status can influence their engagement with the health care system, in general, and potentially confound the relationship between care access and the receipt of preventive care services. Thus, it is important to describe the degree of variability among the three subgroups with respect to these potentially influential factors.

As shown in Tables 1 and 2, for the 2013-2015 cohort of patients, significant variations in baseline demographic variables were observed across the three insurance subgroups for both adults and children.

- People with Medicaid tended to show greater racial and ethnic diversity than their peers in the commercial and uninsured subgroups.
- Women comprised almost two-thirds of adults with Medicaid, far more than the commercial and uninsured groups.
- A greater proportion of children enrolled in Medicaid resided in the South. However, more adult Medicaid beneficiaries lived in the Northeast.
- Average ages for both children and adults were similar across all three subgroups, ranging from 8-9 years old for children and 37-42 years old for adults.
- For adult Medicaid enrollees, over one-third (36 percent) did not complete high-school or hold a GED.

Adult Medicaid enrollees reported the lowest overall physical and mental health status of the three subgroups:

1. 6 percent reported "Poor" overall physical health and 3 percent reported the same of their mental health.
2. Only about 1 percent of the commercially insured respondents reported "Poor" physical or mental health.
3. About 1 percent of commercially insured and the uninsured required assistance with the activities of daily living, while 8 percent of Medicaid enrollees required such assistance.

Taken together, these data show Medicaid recipients tend to face greater health challenges than their commercially insured peers and the uninsured.

Table 1: Demographics of Adults

Variable	Commercial Health Plan (N=9591)	Medicaid Health Plan (N=4172)	Uninsured (N=12,824)	*p*-Value
Race/Ethnicity, %				
Non-Hispanic White and Others	62.6	40.4	43.7	<.0001
Non-Hispanic Black	11.3	24.4	14.2	
Non-Hispanic Asians	9.2	7.3	4.9	
Hispanic	16.9	27.9	37.2	
Gender, %				
Male	49.2	36.4	57.1	<.0001
Female	50.8	63.6	42.9	
Census Region, %				
Northeast	19.7	32.9	12.0	<.0001
Midwest	19.4	15.2	16.7	
South	28.4	22.2	47.3	
West	32.5	29.7	24.0	
Education Level, %				
No GED or a high school diploma	7.8	36.3	26.6	<.0001
All other education levels	92.2	63.7	73.4	
Physical Health Status, %				
Excellent / Very Good	68.1	43.8	56.2	<.0001
Good / Fair	30.7	49.9	41.4	
Poor	1.2	6.3	2.4	
Mental Health Status, %				
Excellent / Very Good	74.6	51.0	63.7	<.0001
Good / Fair	24.9	45.6	34.9	
Poor	0.5	3.4	1.4	
Instrumental Activities of Daily Living, %				
Receive assistance	0.8	7.5	1.0	<.0001
Do not receive assistance	99.2	92.5	99.0	
Age, mean (SE)	42.0 (0.23)	37.1 (0.36)	38.5 (0.23)	<.0001

Table 2: Demographics of Children

Variable	Commercial health plan (N=2765)	Medicaid health plan (N=7863)	Uninsured (N=1463)	*p*-Value
Race/Ethnicity, %				
Non-Hispanic White and Others	65.7	34.2	46.6	<.0001
Non-Hispanic Black	9.1	21.0	10.0	
Non-Hispanic Asians	7.4	4.1	4.8	
Hispanic	17.8	40.7	38.6	
Gender, %				
Male	51.4	51.1	55.1	0.2254
Female	48.6	48.9	44.9	
Census Region, %				
Northeast	18.8	20.7	9.0	<.0001
Midwest	20.4	14.9	17.9	
South	27.5	37.4	49.6	
West	33.3	27.0	23.6	
Age, mean (SE)	9.5 (0.18)	8.6 (0.11)	8.1 (0.29)	<.0001

Results

Bivariate Analyses

Adults. Across multiple measures, the majority of adults with a commercial health plan or with a Medicaid health plan reported better access to care and preventive services. Both insured groups far exceeded the clinical experiences of their uninsured peers across multiple measures.

About twice as many insured adults (82 percent commercial and 80 percent Medicaid) reported having a usual source of care relative to the uninsured (43 percent). Significantly more commercial health plan and Medicaid health plan enrollees were **always** able to access all necessary and needed care or schedule appointments with their providers compared to uninsured individuals. In fact, in all cases, adults with coverage had better access to care than their uninsured peers.

Finally, with respect to the provision of routine preventive care, the majority of both commercially insured and Medicaid insured patients received such services. Significantly fewer uninsured had the same experience.

More specifically, over the course of one year, 84 percent and 85 percent of commercial health plan and Medicaid health plan enrollees respectively, had at least one blood pressure test. Only 54 percent of uninsured people had their blood pressure evaluated. The uninsured fared even worse with respect to annual cholesterol testing, with only 33 percent having had a cholesterol test performed. By contrast, 64 percent and 66 percent of commercial health plan and Medicaid health plan patients, respectively, had their cholesterol levels evaluated.

One area of preventive care that stands out for improvement across all three groups was influenza vaccinations. Although a little over twice as many of people with coverage (44 percent and 39 percent, commercial and Medicaid respectively) had been vaccinated against the flu, only 17 percent of uninsured people received an annual flu shot. See Appendix B for bivariate analysis results.

Children. As summarized in Appendix B, significantly greater proportions of children having either a commercial or a Medicaid health plan coverage had:

- a usual source of care.
- a general check-up or well-child visit (including vaccinations).
- a blood pressure check.
- received advice on healthy eating from a health care provider.
- received advice from a health care provider on recommended exercise and physical activity levels within the past year.

More specifically, more than 90 percent of commercially and Medicaid insured children had access to a usual health care provider. Only 72 percent of children lacking insurance coverage had access to a usual health care provider. Furthermore, almost 60 percent of insured children had a general check-up, a well-child visit, or visit to a health care provider where vaccinations were administered. By contrast, half of that number of uninsured children (31 percent) had such doctor's visits in the preceding 12-months.

With respect to other preventive care measures, 80-90 percent of insured children, either through commercial health plan or Medicaid health plan programs, had received basic preventive care services and guidance over the preceding year. Comparatively, 30-40 percent of uninsured children never received such attention from a health care provider during the same period. See Appendix B for tabulated bivariate analysis results.

Multivariate Regression Analyses

Significant variations in baseline patient demographic, geographic location, and general health status were observed in the adult and child populations across the three insurance status subgroups (Tables 1 and 2). In order to control for these potentially confounding factors and thus, isolate the effect of insurance coverage, multivariate logistic regression models were constructed that further tested the relationships between insurance status and measures of access to care and provision of preventive services, while controlling for these underlying variations in the sample of patients. Controlling for these potentially influential patient factors, then, allows for a more accurate comparison among commercially insured, Medicaid insured, and uninsured patients.

Adults. This analysis shows strong, statistically significant evidence of a relationship between insurance coverage and access to care (Figure 1).

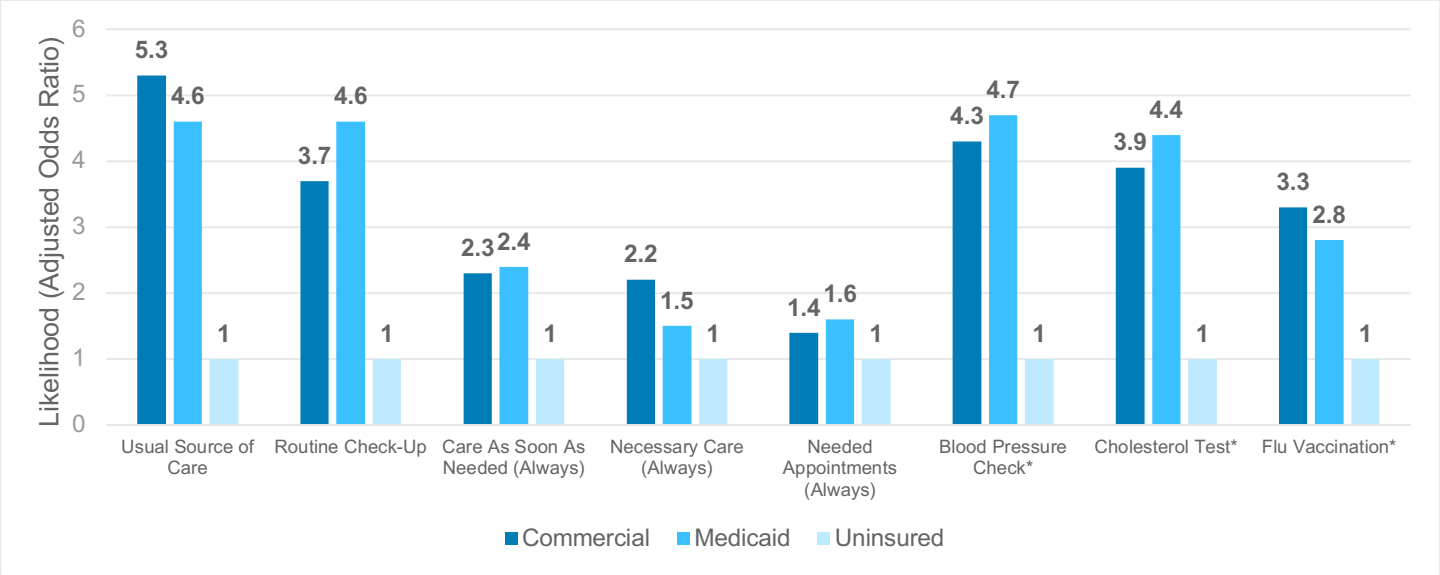
Adults with Medicaid health plan coverage were over four-times more likely than uninsured adults to have:

- a usual source of care.
- routine check-ups.
- regular blood-pressure and cholesterol monitoring.

Statistically significant relationships were also detected between insurance coverage and the ability to:

- access necessary care.
- receive care when needed.
- arrange for needed appointments with health care providers.

Figure 1: Adults with Commercial or Medicaid Health Plan Coverage Have Better Access to Care and Are More Likely to Receive Preventive Care Services Than Uninsured Adults



* Preventive care services performed at any time in the preceding 12 months

These findings cannot be explained by underlying variations in demographics, overall health status, or geographic distributions of the sample of patients studied. See Appendix C for tabulated multivariate analysis results.

Children. As summarized in Figure 2, children having either commercial health plan or Medicaid health plan coverage, when compared to their uninsured peers, were significantly more likely to:

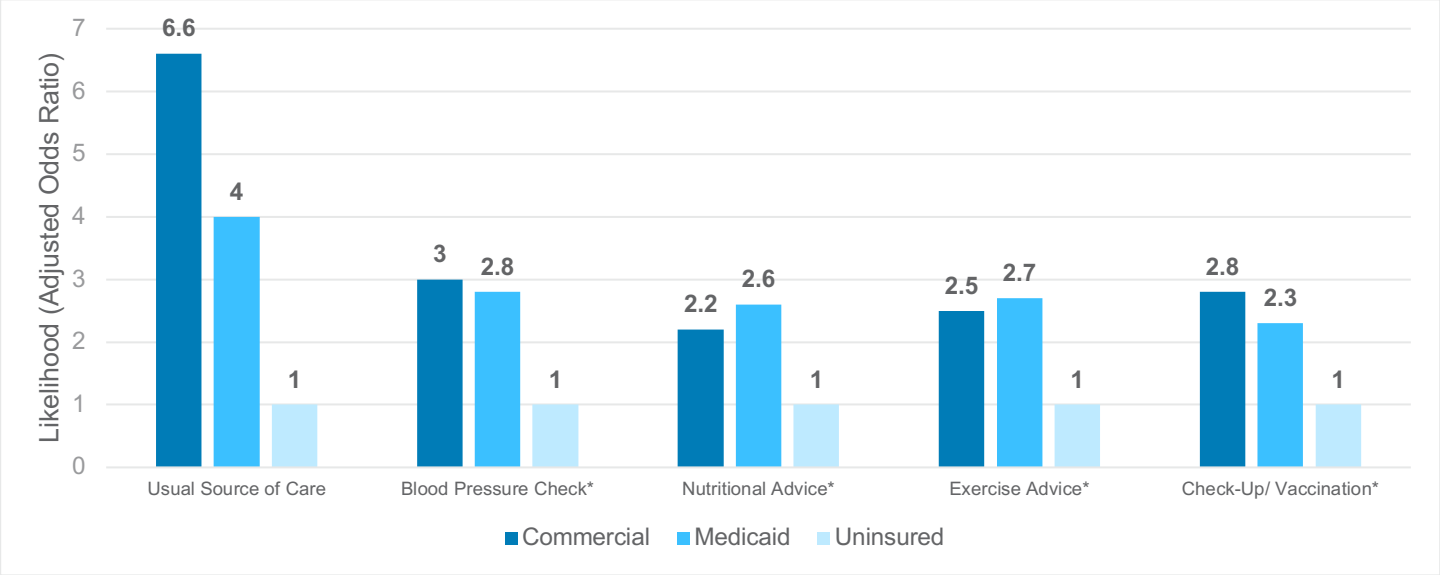
- Have a usual source of care.
- Have their blood pressure checked.
- Receive guidance from their health care provider with respect to healthy eating habits and regular exercise.
- Have a well-child/vaccination visit.

Children covered by Medicaid health plans were four-times more likely than uninsured children to have a usual source of care.

Simultaneously, the observation that children covered by a Medicaid health plan are more likely to have a usual source of care cannot be explained by variations in other influential covariates like race, ethnicity, age, gender, or census region of the country.

With respect to the provision of preventive care services, across four measures, Medicaid health plan children were two-to-three times more likely than uninsured children to receive these services, while controlling for variations in the same covariates noted above. Again, this offers strong evidence of a significant relationship between insurance coverage and access to care and preventive services, while controlling for variations in patient characteristics across the three insurance groups. See Appendix C for tabulated multivariate analysis results.

Figure 2: Children with Commercial or Medicaid Health Plan Coverage Have Better Access to Care and Are More Likely to Receive Preventive Care Services Than Uninsured Children



* Preventive care services performed at any time in the preceding 12 months

Table 3: No Statistically Significant Differences Detected Between the Commercial Health Plan, Medicaid Health Plan, and Uninsured Children and Adults for Some Measures

Comparison	Measure
Children Commercial health plan Medicaid health plan Uninsured	How often was a person able to receive necessary medical care (always)
	How often a person got an appointment for health care as soon as was needed (always)
	How often a person got care as soon as was needed (always)
	How often it was easy to see a specialist (always)
Adults Commercial health plan Medicaid health plan Uninsured	Unable to receive necessary medical care (no)
	Unable to receive necessary prescription medications (no)

For some measures, there were no significant differences detected between the three insurance subgroups. As summarized in Table 3, bivariate analyses failed to detect any statistically significant differences among the three insurance coverage subgroups for these specific measures. As such, they were not evaluated in multivariate regression analyses.

Secondary Analysis

The same measures of care access and provision of preventive services were studied for a cohort of patients having commercial health plan coverage, Medicaid health plan coverage, or who were uninsured during the 2007-2009 timeframe (Appendix D). Overall, the sample of patients in the 2007-2009 cohort appeared to be very similar to the 2013-2015 cohort across the baseline demographic, geographic, and health status variables. This may reflect the consistent sampling strategy of the research team at AHRQ, who administer the MEPS survey.

With respect to access to care and the provision of preventive care services for adults, overall, steady increases in the proportions of insured and uninsured adults were noted from the earlier to the later cohort. The basic pattern of greater proportions of commercial health plan and Medicaid health plan adults having access to care and preventive services relative to uninsured adults was seen in the 2007-2009 cohort. Increases in these proportions were fairly uniform across all measures and all insurance subgroups. Multivariate regression analysis results showed the same patterns in the 2007-2009 cohort as seen in the 2013-2015 patient sample. Thus, with respect to adults, improvements in care access and the provision of preventive care services appeared to be similar across all three insurance subgroups over time.

With respect to access to care and the provision of preventive services for children, as with the adults, improvements across all of these measures and across all three insurance subgroups were observed. Bivariate and multivariate results for insured children in 2013-2015 were superior to their uninsured peers. All three insurance groups appeared to have improved from the earlier patient cohort.

Previous Studies

Across a wide range of measures of access to care and the provision of preventive services, having insurance coverage was shown to be significantly associated with people's ability to access care and receive important preventive care services when compared to people without health coverage. Furthermore, across multiple measures, those individuals having Medicaid health plan coverage had similar experiences as their peers belonging to commercial health plans. Both insured groups had far superior experiences than the uninsured.

These findings were observed for both children and adults and similar results were observed for the 2007-2009 and 2013-2015 groups. Variations in other, potentially influential patient demographic factors, geographic location, and overall health status did not sufficiently explain the observed differences in access to care and provision of preventive care services across the insurance coverage subgroups.

The findings from this study are in line with a steadily growing body of literature in recent years:

- Sommers, Gawande, and Baicker, in an extensive review of the recent literature concluded that having insurance coverage,

including Medicaid, "…increases access to care and improves a wide range of health outcomes. Arguing that health insurance coverage doesn't improve health is simply inconsistent with the evidence."[6]

- In a pair of 2017 reports,[7,8] researchers at The Kaiser Family Foundation found that Medicaid enrollees tended to have access to care and preventive services comparable to commercially insured individuals, and both groups had superior clinical experiences than those who lacked insurance.

- M.Z. Gunja, et al., in an April 2017 report published[9] by The Commonwealth Fund found that people with Medicaid coverage had clinical experiences and access to care comparable to those having private insurance. Both of the insured groups had far better experiences than the uninsured.

- Christopher and colleagues compared 4,460 low-income adults who were either uninsured or covered by Medicaid from 1999-2012.[16] They found that only 8 percent of Medicaid enrollees failed to have an annual check-up; however, nearly five-times as many uninsured (38 percent) did **not** have a regular check-up with a physician. Medicaid enrollees also demonstrated statistically significantly greater awareness and control of their hypertension, when compared to their uninsured peers, as well as demonstrating greater awareness of maintaining a healthy weight when compared to the uninsured.

- Several other studies have shown improving access to care and preventive services for Medicaid enrollees.[10-15]

Results from the current study, in concert with reports from other research teams analyzing different data sets, continue to demonstrate that having Medicaid coverage is strongly related to a person's ability to routinely interact with the health care system, remain vigilant over their health, and prevent poor health outcomes in the future.

Despite this growing body of literature demonstrating the value of Medicaid, critics have attempted to challenge the value of the Medicaid system by examining studies of outcomes of Medicaid patients compared to commercially insured or non-insured patients. These studies rely on older data, and commonly suffer from a number of methodological shortcomings.

- A study comparing surgical patients' hospital outcomes by payer type[17] did adjust for comorbidity; however, it did not control for the severity of comorbid disease. Given that only 32 percent of privately insured patients in the study underwent emergency procedures, as opposed to the Medicaid group, in which 52 percent underwent emergency procedures, this suggests that differences in underlying patient health status may have played an important role in post-surgical outcomes.

- A study of postoperative outcomes among adult colon cancer patients admitted during the 1997-1998 timeframe[18] identified a potential relationship between outcomes and insurance type; however, the study also found that high burden of comorbidity, emergency admission, and presences of certain comorbid conditions were also significantly associated with postoperative outcomes.

- A study of cardiovascular disease[19] patients revealed Medicaid patients more often presented in urgent need of surgery, however once treated, Medicaid patients had similar outcomes as uninsured and privately insured patient groups.

- Another study concluded that uninsured patients and Medicaid covered patients were more likely to be diagnosed with advanced stages of colorectal, melanoma, breast, or prostate cancer than those covered by other types of insurance.[20] However, because of the rarity of some cancers, the study suffered from small sample sizes in many of the conditions, making the findings suspect.

Although the studies summarized above are cited by the critics of the Medicaid system as evidence of poorer outcomes among Medicaid patients, a conclusion that is questionable given the problems in study design, they do, in fact, point out the importance of access to care and the provision of preventive services.

Moreover, these studies are based upon data that is now 10-20 years old and may not be representative of today's Medicaid programs. As the current study demonstrates, today's Medicaid system has made steady progress with regards to the very access to care and provision of preventive services that can help reduce the frequency of advanced and urgent cases that appear to comprise significant proportions of the Medicaid patients observed in these older studies.

The notion that having Medicaid coverage predisposes people to worse clinical outcomes, as some suggest, is contradicted by several investigations of the contemporary Medicaid system.

Our findings demonstrate that Medicaid enrollees, both children and adults, had significantly better access to care than the uninsured. In fact, their access was on par with patients who had commercial coverage. Moreover, on all seven measures of preventive services examined, patients covered by a Medicaid health plan were more frequent recipients of preventive care, and their preventive care was on par with the commercially insured. Despite the unique challenges associated with caring for the Medicaid population, there is steadily growing evidence in the literature that Medicaid patients have better clinical experiences and outcomes than the uninsured and gaps between Medicaid patients and the commercially insured continue to narrow. The recent literature paints an encouraging portrait of a Medicaid system that is central to providing access to high-quality care and preventive services for the country's most vulnerable people.

Appendix A

Detailed Methodology

Data Source: The data used in this research project came from the Household Component of the Medical Expenditure Panel Survey (MEPS), 2007-2009 and 2013-2015. The MEPS program is operated by The Agency for Healthcare Research and Quality (AHRQ), a part of the United States Department of Health and Human Services. Multiple times per year, AHRQ researchers collect data from a sample of families and individuals, drawn from a nationally representative subsample of households that participated in the prior year's National Health Interview Survey. During several rounds of household interviews covering two full calendar years, AHRQ researchers collect detailed information for each person in the household on demographic characteristics, health conditions, use of medical services, health care payments, and satisfaction with care. Publicly available data sets and the corresponding data dictionaries were downloaded from the website, https://meps.ahrq.gov/mepsweb/data_stats/download_data_files.jsp and then imported into SAS Enterprise Guide, 6.1 for further analysis.

Final Analytical Sample: To increase the number of valid cases for analysis, MEPS data for 2007, 2008, and 2009 were downloaded and merged into a single 2007-09 file; in a similar manner, MEPS data for 2013, 2014, and 2015 were merged into a single 2013-15 file. Only those individuals who were in-scope for the entire study period were included. Individuals whose insurance coverage status changed during the study year were excluded from the analysis. With respect to the geographic region, records of individuals with unknown or missing values were excluded, as were individuals with race and ethnicity category of RACETHX=5 (multiple race, NHOPI, AMIND, Other) due to the small cell sizes for this category and the internal heterogeneity of the group. After applying all inclusion and exclusion criteria, for the 2007-2009 cohort, a total of 36,594 subjects were entered into the study and for the 2013-2015 cohort, 38,678 subjects were included.

Independent Variable: Individuals were classified as having commercial health plan coverage if they reported having this type of coverage during both interviews when this question had been asked during the same calendar year (variables PRVHMO31 and PRVHMO42).

Individuals were classified as having Medicaid health plan coverage if they reported having Medicaid HMO (health maintenance organization) coverage during both of the interviews when this question had been asked during the same calendar year (variables MCDHMO14 and MCDHMO1).

Individuals were classified as Uninsured if they responded “Yes” to the questions “Uninsured for the entire year?” (UNINS07, UNINS08, UNINS09, UNINS13, UNINS14, UNINS15).

Analytical Approach: To analyze our final dataset, summary statistics were generated for all continuous and categorical variables (separately for children under 18 years of age and for adults 18 years and older) by coverage: mean and standard deviation for continuous variables and proportions for categorical variables. Significance testing for the summary statistics was done by conducting a t-test for the continuous variables and Chi-square test for the categorical variables.

Next, the bivariate analysis for the variables describing access to care and the receipt of basic preventive services (routine checkup, blood pressure test, cholesterol test screenings, exercise and healthy nutrition advice) by insurance coverage was conducted. The corresponding significance testing was done by conducting a chi-square test.

Finally, to control for any potential confounding impact of enrollees' baseline demographic characteristics, multiple logistic regression models were constructed. The uninsured served as the reference group.

A list of potential covariates was guided by previous studies of Medicaid using MEPS[21] and the Andersen-Aday conceptual framework.[22] The selection of covariates into the final multivariable logistic regression models followed the purposeful selection model-building method by Bursac *et al.,*[23] resulting in the inclusion of the following covariates:

- race
- ethnicity
- age
- gender
- marital status
- education
- self-reported physical health status
- self-reported mental health status
- instrumental activities of daily living
- Census region

Family income was excluded as a covariate since it is an explicit criterion for a Medicaid eligibility.

Since the study involved performing regression analysis on multiple outcome variables, the significance level for their corresponding significance testing has been recalculated by applying the Bonferroni correction. As a result, we considered the differences with the p-values of 0.0125 (instead of the commonly used alpha<0.05) as being statistically significant for the purposes of the study.

Appendix B

Bivariate Analysis: Adults

Dependent Variable	Commercial Health Plan	Medicaid Health Plan	Uninsured	*p*-Value
The person always got care as soon as was needed (N=4992)				
Yes	66.8	59.7	41.8	<.0001
No	33.2	40.3	58.2	
The person always got an appointment for health care as soon as was needed (N=9936)				
Yes	55.8	53.1	43.4	<.0001
No	44.2	46.9	56.6	
Always easy to get care, tests or treatment you or a doctor believed to be necessary (N=7293)				
Yes	67.0	52.1	44.7	<.0001
No	33.0	47.9	55.3	
The person had a usual source of care provider (N=26082)				
Yes	82.0	79.9	42.8	<.0001
No	18.0	20.1	57.2	
The person had a routine check-up visit within the last year (N=25416)				
Yes	67.7	74.5	36.8	<.0001
No	32.3	25.5	63.2	
The person had a cholesterol test within the last year (N=24755)				
Yes	64.4	66.0	32.9	<.0001
No	35.6	34.0	67.1	
The person had a blood pressure test within the last year (N=25510)				
Yes	83.5	85.0	53.6	<.0001
No	16.5	15.0	46.4	
The person had a flu vaccination within the last year (N=25475)				
Yes	43.5	39.0	17.2	<.0001
No	56.5	61.0	82.8	

Bivariate Analysis: Children

Dependent Variable	Commercial Health Plan	Medicaid Health Plan	Uninsured	*p*-Value
Does a person have a usual source of care provider (N=11789)				
Yes	95.6	92.3	72.3	<.0001
No	4.4	7.7	27.7	
Doctor or other health provider checked child's blood pressure within last year (N=8129)				
Yes	88.0	88.3	70.9	<.0001
No	12.0	11.7	29.1	
Doctor or other health provider gave advice about child's eating healthy within last year (N=7120)				
Yes	81.9	86.4	68.4	<.0001
No	18.1	13.6	31.6	
Doctor or other health provider gave advice about the amount and kind of exercise, sports or physically active hobbies the child should have within last year (N=5239)				
Yes	83.8	87.4	69.9	<.0001
No	16.2	12.6	30.1	
Child had a general checkup, well-child or vaccination visit within a calendar year (N=12091)				
Yes	58.8	55.6	31.0	<.0001
No	41.2	44.4	69.0	

Appendix C

Multivariate Analysis: Adults

Variables	Years	Group	Adj. Odds Ratio*	95% Conf. Interval	
				Low	High
The person always got care as soon as was needed	2013-15 (N=4950)	Commercial	2.3	1.8	3.1
		Medicaid health plan	2.4	1.7	3.3
		Uninsured (ref)	Ref	-----	-----
The person always got an appointment for health care as soon as was needed	2013-15 (N=9859)	Commercial	1.4	1.1	1.8
		Medicaid health plan	1.6	1.2	2.0
		Uninsured (ref)	Ref	-----	-----
Always easy to get care, tests or treatment you or a doctor believed to be necessary	2013-15 (N=7244)	Commercial	2.2	1.7	2.8
		Medicaid health plan	1.5	1.2	2.0
		Uninsured (ref)	Ref	-----	-----
The person had a usual source of care provider	2013-15 (N=25787)	Commercial	5.3	4.3	6.5
		Medicaid health plan	4.6	3.6	5.9
		Uninsured (ref)	Ref	-----	-----
The person had a routine check-up visit within the last year	2013-15 (N=25188)	Commercial	3.7	3.2	4.3
		Medicaid health plan	4.6	3.7	5.6
		Uninsured (ref)	Ref	-----	-----
The person had a cholesterol test within the last year	2013-15 (N=24533)	Commercial	3.9	3.3	4.5
		Medicaid health plan	4.4	3.6	5.4
		Uninsured (ref)	Ref	-----	-----
The person had a blood pressure test within the last year	2013-15 (N=25510)	Commercial	4.3	3.7	5.0
		Medicaid health plan	4.7	3.7	6.1
		Uninsured (ref)	Ref	-----	-----
The person had a flu vaccination within the last year	2013-15 (N=25475)	Commercial	3.3	2.8	3.9
		Medicaid health plan	2.8	2.3	3.4
		Uninsured (ref)	Ref	-----	-----

* Adjusted for the following covariates: race, ethnicity, age, gender, marital status, education, self-described health status, self-described mental health status, having an instrumental activities of daily living screener, and Census Region

Multivariate Analysis: Children

Variables	Years	Group	Adj. Odds Ratio*	95% Conf. Interval	
				Low	High
Does the child have a usual source of care provider	2013-15 (N=11752)	Commercial	6.6	3.9	11.1
		Medicaid health plan	4.0	2.8	5.6
		Uninsured (ref)	Ref	-----	-----
Doctor or other health provider checked child's blood pressure within last year	2013-15 (N=8126)	Commercial	3.0	1.8	5.1
		Medicaid health plan	2.8	1.7	4.4
		Uninsured (ref)	Ref	-----	-----
Doctor or other health provider gave advice about child's eating healthy within last year	2013-15 (N=7118)	Commercial	2.2	1.2	3.8
		Medicaid health plan	2.6	1.7	4.0
		Uninsured (ref)	Ref	-----	-----
Doctor or other health provider gave advice about the amount and kind of exercise, sports or physically active hobbies the child should have	2013-15 (N=5237)	Commercial	2.5	1.4	4.5
		Medicaid health plan	2.7	1.6	4.6
		Uninsured (ref)	Ref	-----	-----
Child had a general checkup, well-child or vaccination visit within a calendar year	2013-15 (N=11958)	Commercial	2.8	2.0	4.0
		Medicaid health plan	2.3	1.7	3.1
		Uninsured (ref)	Ref	-----	-----

* Adjusted for the following covariates: race, ethnicity, age, gender, and Census Region

Appendix D

ALL RESULTS FOR THE 2007-2009 COHORT

Description of Final Analytical Sample: Adults

Covariate	Commercial Health Plan (N=9,733)	Medicaid Health Plan (N=2,425)	Uninsured (N=13,159)	*p*-Value
Race/Ethnicity, %				
Non-Hispanic White/Other	68.0	44.6	50.4	<.0001
Non-Hispanic Black	12.0	27.0	13.6	
Non-Hispanic Asians	6.8	4.1	4.0	
Hispanic	13.2	24.3	32.0	
Gender, %				
Male	48.5	32.9	57.3	<.0001
Female	51.5	67.1	42.7	
Census Region, %				
Northeast	25.5	31.4	12.3	<.0001
Midwest	18.5	19.4	17.4	
South	25.4	20.4	44.8	
West	30.6	28.8	25.5	
Education Level, %				
No high school diploma/GED	8.5	41.7	29.8	<.0001
All other education levels	91.5	58.3	70.2	
Physical Health Status, %				
Excellent / Very Good	66.8	41.9	56.7	<.0001
Good / Fair	31.8	49.4	40.6	
Poor	1.3	8.7	2.7	
Mental Health Status, %				
Excellent / Very Good	74.0	50.7	65.4	<.0001
Good / Fair	25.4	43.9	33.0	
Poor	0.6	5.4	1.6	
Instrumental Activities of Daily Living, %				
Receive assistance	0.6	9.2	1.0	<.0001
Do not receive assistance	99.4	90.8	99.0	
Age, mean (SE)	42.3 (0.22)	35.6 (0.43)	37.4 (0.21)	<.0001

Description of Final Analytical Sample: Children

Covariate	Commercial Health Plan (N=3,210)	Medicaid Health Plan (N=5,827)	Uninsured (N=2,240)	*p*-Value
Race/Ethnicity, %				
Non-Hispanic White/Other	62.5	37.4	52.5	<.0001
Non-Hispanic Black	13.6	25.6	10.1	
Non-Hispanic Asians	6.6	2.1	4	
Hispanic	17.2	34.9	33.5	
Gender, %				
Male	49.5	51.5	53.7	<.1015
Female	50.5	48.5	46.3	
Census Region, %				
Northeast	23.1	18.4	10.6	<.0001
Midwest	19.4	20.7	17.3	
South	25.6	35.3	45.3	
West	31.8	25.6	26.8	
Age, mean (SE)	9.4 (0.15)	8.2 (0.12)	8.8 (0.23)	<.0001

Bivariate Analysis: Adults

Dependent Variable	Commercial Health Plan	Medicaid Health Plan	Uninsured	*p*-Value
The person always got care as soon as was needed (N=5432)				
Yes	62.8	49	36.9	<.0001
No	37.2	51	63.1	
The person always got an appointment for health care as soon as was needed (N=10819)				
Yes	50.3	47.6	39.2	<.0001
No	49.7	52.4	60.8	
Always easy to get care, tests or treatment you or a doctor believed to be necessary (N=5749)				
Yes	67.1	51.9	40.1	<.0001
No	32.9	48.1	59.9	
The person had a usual source of care provider (N=24913)				
Yes	85.6	82.2	42.7	<.0001
No	14.4	17.8	57.3	
The person had a routine check-up visit within the last year (N=24124)				
Yes	65.9	67.7	33.5	<.0001
No	34.1	32.3	66.5	
The person had a cholesterol test within the last year (N=23397)				
Yes	60.1	54.3	28.6	<.0001
No	39.9	45.7	71.4	
The person had a blood pressure test within the last year (N=24221)				
Yes	83.5	83.2	54.1	<.0001
No	16.5	16.8	45.9	
The person had a flu vaccination within the last year (N=24458)				
Yes	34.6	26.4	13.4	<.0001
No	65.4	73.6	86.6	

Bivariate Analysis: Children

Dependent Variable	Commercial Health Plan	Medicaid Health Plan	Uninsured	*p*-Value
Does a person have a usual source of care provider (N=11030)				
Yes	94.9	92.8	66.6	<.0001
No	5.1	7.2	33.4	
Doctor or other health provider checked child's blood pressure within last year (N=6426)				
Yes	83.7	84.7	69.8	<.0001
No	16.3	15.3	30.2	
Doctor or other health provider gave advice about child's eating healthy within last year (N=5534)				
Yes	79.2	79.2	62	<.0001
No	20.8	20.8	38	
Doctor or other health provider gave advice about the amount and kind of exercise, sports or physically active hobbies the child should have within last year (N=3815)				
Yes	81.4	80.9	64.9	<.0001
No	18.6	19.1	35.1	
Child had a general checkup, well-child or vaccination visit within a calendar year (N=11277)				
Yes	53.1	49.4	26.9	<.0001
No	46.9	50.6	73.1	

Multivariate Analysis: Adults

Variables	Years	Group	Adj. Odds Ratio*	95% Conf. Interval	
				Low	High
The person always got care as soon as was needed	2007-09 (N=5370)	Commercial	2.3	1.8	2.9
		Medicaid health plan	1.8	1.3	2.6
		Uninsured (ref)	Ref	-----	-----
The person always got an appointment for health care as soon as was needed	2007-09 (N=10715)	Commercial	1.4	1.2	1.7
		Medicaid health plan	1.6	1.2	2.1
		Uninsured (ref)	Ref	-----	-----
Always easy to get care, tests or treatment you or a doctor believed to be necessary	2007-09 (N=5696)	Commercial	2.5	1.9	3.1
		Medicaid health plan	2.0	1.4	2.8
		Uninsured (ref)	Ref	-----	-----
The person had a usual source of care provider	2007-09 (N=24671)	Commercial	6.3	5.3	7.5
		Medicaid health plan	5.3	3.9	7.1
		Uninsured (ref)	Ref	-----	-----
The person had a routine check-up visit within the last year	2007-09 (N=23932)	Commercial	3.3	2.9	3.7
		Medicaid health plan	3.4	2.8	4.2
		Uninsured (ref)	Ref	-----	-----
The person had a cholesterol test within the last year	2007-09 (N=23224)	Commercial	3.4	2.9	3.9
		Medicaid health plan	3.0	2.4	3.8
		Uninsured (ref)	Ref	-----	-----
The person had a blood pressure test within the last year	2007-09 (N=24026)	Commercial	3.6	3.1	4.1
		Medicaid health plan	3.4	2.6	4.4
		Uninsured (ref)	Ref	-----	-----
The person had a flu vaccination within the last year	2007-09 (N=24258)	Commercial	2.7	2.7	3.2
		Medicaid health plan	2.2	1.7	2.8
		Uninsured (ref)	Ref	-----	-----

* Adjusted for the following: race, ethnicity, age, gender, marital status, education, self-described health status, self-described mental health status, having an instrumental activities of daily living screener, and Census Region

Multivariate Analysis: Children

Variables	Years	Group	Adj. Odds Ratio*	95% Conf. Interval	
				Low	High
Does a person have a usual source of care provider	2007-09 (N=10979)	Commercial	7.8	4.8	12.7
		Medicaid health plan	5.7	3.9.0	8.3
		Uninsured (ref)	Ref	-----	-----
Doctor or other health provider checked child's blood pressure within last year	2007-09 (N=6425)	Commercial	2.1	1.5	3.0
		Medicaid health plan	2.1	1.5	2.9
		Uninsured (ref)	Ref	-----	-----
Doctor or other health provider gave advice about child's eating healthy within last year	2007-09 (N=5531)	Commercial	2.1	1.4	3.2
		Medicaid health plan	1.9	1.2	2.9
		Uninsured (ref)	Ref	-----	-----
Doctor or other health provider gave advice about the amount and kind of exercise, sports or physically active hobbies the child should have within last year	2007-09 (N=3814)	Commercial	2.3	1.5	3.5
		Medicaid health plan	1.9	1.2	3.0
		Uninsured (ref)	Ref	-----	-----
Child had a general checkup, well-child or vaccination visit within a calendar year	2007-09 (N=11124)	Commercial	2.7	2.0	3.7
		Medicaid health plan	2.3	1.7	3.0
		Uninsured (ref)	Ref	-----	-----

* Adjusted for the following: race, ethnicity, age, gender, and Census Region

Endnotes

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