

Spillover Effects of Adult Medicaid Expansions on Children's Use of Preventive Services

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abstract

BACKGROUND: Since the passage of the Affordable Care Act, Medicaid enrollment has increased by ~17 million adults, including many low-income parents. One potentially important, but little studied, consequence of expanding health insurance for parents is its effect on children's receipt of preventive services.

METHODS: By using state Medicaid eligibility thresholds linked to the 2001–2013 Medical Expenditure Panel Surveys, we assessed the relationship between changes in adult Medicaid eligibility and children's likelihood of receiving annual well-child visits (WCVs). In instrumental variable analyses, we used these changes in Medicaid eligibility to estimate the relationship between parental enrollment in Medicaid and children's receipt of WCVs.

RESULTS: Our analytic sample consisted of 50 622 parent-child dyads in families with incomes <200% of the federal poverty level, surveyed from 2001 to 2013. On average, a 10-point increase in a state's parental Medicaid eligibility (measured relative to the federal poverty level) was associated with a 0.27 percentage point higher probability that a child received an annual WCV (95% confidence interval: 0.058 to 0.48 percentage points, $P = .012$). Instrumental variable analyses revealed that parental enrollment in Medicaid was associated with a 29 percentage point higher probability that their child received an annual WCV (95% confidence interval: 11 to 47 percentage points, $P = .002$).

CONCLUSIONS: In our study, we demonstrate that Medicaid expansions targeted at low-income adults are associated with increased receipt of recommended pediatric preventive care for their children. This finding reveals an important spillover effect of parental insurance coverage that should be considered in future policy decisions surrounding adult Medicaid eligibility.



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WHAT'S KNOWN ON THIS SUBJECT: Cross-sectional studies have revealed inconsistent relationships between parental insurance coverage and children's health care use. To our knowledge, no studies have investigated the link between parental insurance and pediatric care by using more robust quasi-experimental methods.

WHAT THIS STUDY ADDS: We found that parental Medicaid enrollment is associated with a 29 percentage point higher probability that low-income children received annual well-child visits, highlighting a link between parents' Medicaid coverage and their children's health care use.

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Since the passage of the Affordable Care Act (ACA), 31 states and the District of Columbia have expanded Medicaid to adults earning <138% of the federal poverty level (FPL).¹ Medicaid expansions have been shown to increase preventive care use, improve health outcomes, and reduce the financial burden of obtaining care.^{2–5} The authors of several studies have also identified potential spillover effects in which increases in adult Medicaid coverage indirectly affect health care use in other populations, for example, by increasing insurance enrollment among children and improving family financial standing.^{5–7}

One important but understudied effect of expanding access to health insurance for parents is its impact on well-child visit (WCV) use among children. Recommended annually for children 3 years of age and older, and more frequently for infants and toddlers,⁸ WCVs serve as the primary platform for growth and developmental screening, vaccination, and provision of anticipatory guidance. Children who receive WCVs are more likely to complete immunization schedules and are less likely to have avoidable hospitalizations.^{9,10} WCV use in the United States has been persistently suboptimal, particularly among racial and ethnic minorities and in low-income families.¹¹

Although the authors of previous studies have shown that parental health care use is correlated with children's receipt of care,^{12–15} evidence regarding the relationship between parental insurance coverage and pediatric care use is mixed. The authors of several cross-sectional studies found a positive correlation between parents' insurance status and children's health care use in primarily low-income families,^{16–18} whereas analyses in mixed income populations did not.^{14,15} A limitation of cross-sectional analyses is that insured and uninsured adults differ

in unobserved ways that may be related to their child's use of care, potentially biasing the estimated relationship between these variables.¹⁹

To address this bias, we used a quasi-experimental design that leveraged state-level variation in adult Medicaid eligibility over the period from 2001 to 2013 to assess the relationship between parents' Medicaid coverage and children's receipt of annual WCVs. Our findings reveal how changes in federal and state policies that affect Medicaid coverage for adults could indirectly affect low-income children's use of recommended primary care services.

METHODS

Data Sources

We analyzed data from the 2001–2013 Medical Expenditure Panel Surveys (MEPS) linked to state Medicaid eligibility criteria from the Kaiser Family Foundation and county-level characteristics from the Area Health Resources File. The MEPS is a nationally representative survey of the noninstitutionalized US population and includes detailed information about family structure and demographic characteristics, health insurance status, and health care use.²⁰

Our analytic sample consisted of children ages 2 through 17 linked to their biological, step, or adoptive parents living in the same household during the calendar year. We first selected children ages 2 through 17 living in the household the entire year. We then linked each child to a parent or guardian (age 20–64) living in the household for the full year. Consistent with previous research, preference was given to the selection of the mother if more than 1 parent in the household was surveyed.¹⁵

Because Medicaid eligibility rules differ for pregnant women, we excluded children whose mothers

met inclusion criteria but were pregnant at any point during the calendar year. Because pregnancy status was not uniformly reported in all years of the MEPS, we identified pregnant women as having either a child born in the same calendar year or by September of the next calendar year, or as having any pregnancy-related inpatient visits over the same period. This measure was highly correlated with pregnancy status for the years in which this variable was included in the MEPS (Supplemental Table 5).

Consistent with the methods in previous studies,^{16–18} our primary analyses were focused on low-income families, defined as those with incomes <200% of the FPL.

Measures

Outcome: WCV Use

We assessed whether a child received at least 1 WCV in the calendar year. WCVs were defined as outpatient visits for a “well-child examination,” for a “general checkup,” or for “immunization or shots” for children <17.²¹ We controlled for changes in the recommended WCV schedule over time (such as introduction of annual visit requirements for 7- and 9-year-olds in 2007) by including year fixed effects in regression analyses.⁸

State-Level Medicaid Eligibility for Parents

We obtained state Medicaid eligibility thresholds from 2000 through 2012 from the Kaiser Family Foundation's surveys of state Medicaid programs.^{22–32} Because states may change their Medicaid eligibility limits at different points in a year, we used income thresholds from the preceding year in all regression analyses. Thresholds were based on eligibility criteria for unemployed parents with dependent children, reflecting (if applicable) the higher income limits allowed under federal expansion waivers, and were

expressed in percentage points of the FPL.³³ We used linear interpolation to approximate thresholds in years in which data were not reported (2002, 2007, and 2010).

Parental Enrollment in Medicaid

We constructed a binary indicator for whether an adult had Medicaid coverage at any point in the study year.

Covariates

In our primary analyses, we controlled for parental, family, child, and county-level characteristics that are associated with children's health care use.^{11,16–18,21} Parental characteristics included age, sex, race, Hispanic ethnicity, comfort speaking English, education, and smoking status. Family level variables were total income, size, and parental structure (mother and father both present in household versus not). We additionally controlled for the child's age and sex, the density of physicians in the patient's county (total active MD physicians divided by the county population), the county-level poverty rate, and an indicator for whether the family lived in an urban area (defined as a Metropolitan Statistical Area).

Statistical Analyses

We first examined the association between the changes in a state's parental Medicaid eligibility thresholds and WCV receipt. Specifically, we estimated a multivariable logistic regression model in which our outcome was the probability that a child received at least 1 WCV during the year by using parental Medicaid eligibility thresholds (lagged by 1 year) as the main independent variable. In this intention-to-treat framework, we used within-state changes in the Medicaid eligibility threshold for parents as the exposure of interest. The models controlled for state and year fixed effects, in addition to the covariates described above. We ran

models for our full sample of parent-child dyads (the unit of analysis) and stratified by category of family income (<100% of the FPL and 100% of the FPL to <200% of the FPL). We used these regression analyses to estimate the change in probability of receiving a WCV because of state Medicaid expansions for adults, holding all other covariates at their sample means.

We then examined the relationship between a parent's enrollment in Medicaid and WCV usage by using an instrumental variable (IV) analysis. This approach addresses bias from unmeasured factors that could impact a parent's insurance status and their children's health care use by using within-state changes in Medicaid eligibility for parents as an instrument for parental Medicaid enrollment. We estimated a binary probit model for the probability that a child received a WCV as a function of his/her parent's Medicaid enrollment status, which we instrumented by using within-state changes in Medicaid eligibility thresholds for parents. Our IV models controlled for state fixed effects, year fixed effects, and the covariates described above (see Supplemental Information for details). By using these models, we calculated a predicted change in the probability that a child would receive a WCV if their parent enrolled in Medicaid, holding all covariates at the sample means. The IV models were run on our full sample of families and by stratum of family income.

We performed 4 sensitivity analyses. First, because a child's insurance status may change in response to changes in parental access to insurance³⁴ (eg, "welcome mat" effects), and because children's insurance status is known to be an independent determinant of health care use,^{11,16,18} we ran models additionally controlling for the child's Medicaid or Children's Health Insurance Program (CHIP)

status to determine if our findings could be explained by changes in children's health insurance status. Second, because states may also undergo concurrent expansions in children's Medicaid eligibility over time, which could in turn affect child insurance coverage status, we repeated our analyses for a subgroup of 29 large states (with observable state identifiers in the MEPS) whose income thresholds for child Medicaid or CHIP programs were consistently $\geq 200\%$ of the FPL during the study period. In these states, low-income children in our cohort would have remained consistently eligible for Medicaid, further isolating the impact of parental Medicaid expansions on WCVs.

Third, we limited the study period to 2001 to 2009 to ensure that our results were not driven by the ACA's introduction of regulations requiring insurer coverage of preventive health care services. Fourth, we reestimated our models for families with incomes $\geq 400\%$ of the FPL. Because we expected parents in these families to be relatively unaffected by Medicaid expansions, this serves as a falsification test (eg, we would not expect to see an impact of increasing parental Medicaid eligibility on children's WCV receipt for this higher income sample).

We used family survey weights provided in the MEPS and variance estimates that accounted for clustering of observations at the state level. This study was approved by the institutional review board of the Johns Hopkins School of Medicine.

RESULTS

Our analytic sample consisted of 50 622 parent-child dyads across the 13 study years, representing 266 557 804 weighted pairs through the study period (Table 1). Slightly less than half of the dyads (44.7%) had incomes <100% of the FPL. The mean age of children was 9.3 years,

and the mean age of linked parents was 35.8 years. The majority of parents were white (72.5%), non-Hispanic (67.4%), and had earned at least a high school diploma or general education diploma (67.0%). The majority of dyads consisted of children linked to mothers (95.4%).

At the beginning of the study period (2001), mean adult Medicaid eligibility (weighted for the population across states in our sample and lagged by 1 year) for unemployed parents was 73.5% of the FPL, and increased to 107.7% of the FPL by 2013 (Supplemental Table 6). The proportion of states with parental Medicaid eligibility limits $\geq 200\%$ of the FPL increased from 7.8% to 29.4% over the study period (Supplemental Table 6). The percentage of children in our sample receiving an annual WCV increased from 32.7% in 2001 to 47.9% in 2013 (Table 2).

In the intention-to-treat analysis, we found that a 10-point absolute increase in a state's adult Medicaid eligibility threshold (relative to the FPL) was associated with a 0.27 percentage-point increase in the probability that low income children received an annual WCV (95% confidence interval [CI]: 0.058 to 0.48 percentage points, $P = .012$; Table 3). In stratified analyses, changes in adult Medicaid eligibility thresholds were positively associated with WCV use for families with incomes 100% of the FPL to $<200\%$ of the FPL (0.38 percentage points, 95% CI: 0.10 to 0.66 percentage points, $P = .008$) and was positively but not significantly related to WCVs in the lowest ($<100\%$ of the FPL) income group (0.13 percentage points, 95% CI: -0.11% to 0.36% points, $P = .284$) (Table 3).

In IV analyses, we found that parental Medicaid enrollment was associated with a 29 percentage-point (95% CI: 11 to 47 percentage points; $P = .002$) increase in the probability that their child would have a WCV (Table

TABLE 1 Primary Sample Characteristics

	% of $N^{a,b}$
Child sex	
Male	51.5
Female	48.5
Child age in y (mean)	9.30
Child age in y, categories	
2–6	31.8
7–11	32.9
12–17	35.3
Parent sex	
Male	4.6
Female	95.4
Parent age in y (mean)	35.8
Parental education	
Less than HS	33.0
HS diploma or GED	35.6
Any college	30.5
Not specified	0.9
Parental race	
White	72.5
Black	19.9
Asian or Pacific Islander	4.7
Other	2.9
Parental ethnicity Hispanic	32.6
Parent comfortable with English language	85.3
Parental smoking status	
Nonsmoker	70.0
Current smoker	24.3
Not specified	5.7
Family income (in dollars; mean)	24 593.61
Family income, percentage of the FPL	
$<100\%$	44.7
100% to $<200\%$	55.3
Family size (no. of members)	
2	6.8
3	15.6
4	27.6
5	24.3
6	13.4
7 or more	12.3
Parental structure	
Single parent	42.5
Two parents	57.5

GED, general education diploma; HS, high school.

^a $N = 266\,557\,804$ weighted dyads (50 622 unweighted dyads).

^b Or mean as otherwise specified.

4). This relationship was strongest in families with incomes 100% to $<200\%$ of the FPL. For these families, there was a 45 percentage point higher probability that a child would have a WCV if a parent was enrolled in Medicaid compared with the parent not being enrolled (95% CI: 17 to 73 percentage points, $P = .002$). The relationship remained positive, but was not statistically significant, in the $<100\%$ of the FPL income group (11 percentage points, 95% CI: -7.4

to 30 percentage points, $P = .237$) (Table 4).

In sensitivity analyses (summarized in Supplemental Table 9), controlling for child Medicaid and/or CHIP enrollment did not significantly affect our results, revealing that parental Medicaid enrollment affects WCV use independently of children's insurance status. Limiting our analysis to large states in which child eligibility for Medicaid and CHIP remained $\geq 200\%$ through the

TABLE 2 Proportion of Children Who Received a WCV, Overall and by Year

Year	% Children With WCV ^a	<i>p</i> ^b
2001	32.7	<.001
2002	34.3	
2003	34.6	
2004	35.9	
2005	35.8	
2006	33.5	
2007	35.1	
2008	35.8	
2009	39.5	
2010	38.2	
2011	41.1	
2012	40.7	
2013	47.9	
All years	37.5	

^a Weighted percentage.^b Pearson's χ^2 test comparing outcome over years.**TABLE 3** The Adjusted Association Between Changes in a State's Medicaid Eligibility Threshold for Parents and Child's Receipt of a WCV

	Probability (95% CI) ^a	Stratified Analysis by FPL Income Categories	
		<100% Probability (95% CI) ^a	100% to <200% Probability (95% CI) ^a
Parental Medicaid eligibility threshold ^b	0.27 (0.058 to 0.48)	0.13 (−0.11 to 0.36)	0.38 (0.10 to 0.66)

Results represent the change in predicted probability of a WCV for every 10 percentage-point increase in the state parental eligibility threshold. Estimates are from a multivariable logistic regression of WCV receipt on Medicaid eligibility threshold. In addition to state and year fixed effects, covariates in the model included child sex, child age (y), parent sex, parent age (y), parent race, parent ethnicity, parent English-speaking status, parental smoking status, parental education level, parental structure of household, family income, family size, county poverty rate, county physician density, and county Metropolitan Statistical Area Status.

^a Marginal predicted probability expressed in percentage points, calculated at the means of all other variables in model.^b In 10 percentage-point increments of FPL.**TABLE 4** The Adjusted Association of Parental Medicaid Enrollment With Child's Receipt of WCV (IV Analysis): Results Represent the Increased Probability of a WCV for a Child Whose Parent is Enrolled in Medicaid

	Probability (95% CI) ^a	Stratified Analysis by FPL Income Category	
		<100% Probability (95% CI) ^a	100%–<200% Probability (95% CI) ^a
Parental Medicaid enrollment	29 (11 to 47)	11 (−7.4 to 30)	45 (17 to 73)

Results represent the increased probability of a WCV for a child whose parent is enrolled in Medicaid. Estimates are from multivariable probit regression of WCV receipt on instrumental parental Medicaid enrollment. In addition to state and year fixed effects, covariates in the model included child sex, child age (y), parent sex, parent age (y), parent race, parent ethnicity, parent English-speaking status, parental smoking status, parental education level, parental structure of household, family income, family size, county poverty rate, county physician density, and county Metropolitan Statistical Area Status.

^a Marginal predicted probability expressed in percentage points, calculated at the means of all other variables in model.

study period revealed a positive relationship between parental Medicaid eligibility thresholds and WCVs for our primary analytic sample and a significantly positive relationship for a subset of this sample (families with incomes

125%–200% of the FPL). Limiting our analysis to the pre-ACA period (2001–2008) also did not significantly affect our results. Finally, we did not find a significant association between parental Medicaid eligibility and WCVs in

higher-income families ($\geq 400\%$ of the FPL), demonstrating that the effects of changes in Medicaid coverage were concentrated, as expected, among lower-income families.

DISCUSSION

Leveraging 13 years of changes in state Medicaid eligibility for adults and performing an IV analysis, we found that increases in the income threshold for adult Medicaid eligibility were associated with a greater likelihood that children in low-income families received at least 1 annual WCV. With our results, we provide evidence of an independent relationship between parental Medicaid enrollment and children's primary care use in low-income families, and we illustrate the potential for adult Medicaid expansions to have positive spillover effects on children's health care use.

We found the strongest relationship between adult Medicaid eligibility and WCVs in near-poor families (100% to <200% of the FPL). This likely reflects the fact that increases in parental Medicaid eligibility during the 2000s primarily affected families with incomes slightly >100% of the FPL, whereas states with the least generous Medicaid coverage for nonpregnant adults generally did not expand parental eligibility over the study period. Our analyses were therefore less able to detect effects of eligibility changes in the lowest-income families.

Several mechanisms may underlie this spillover effect of parental Medicaid coverage on WCV receipt. One hypothesis, supported by the Behavioral Model of Health Services Use,³⁵ is that insurance enhances parents' ability to navigate the health care system for themselves and for family members. This may lead to an increase in parental health-seeking behaviors for their children (eg, scheduling WCVs). It may also

function through a welcome mat effect in which eligible but previously uninsured children enroll in Medicaid after their parents gain coverage.^{6,7,34} However, because our estimates were substantively unchanged after we controlled for children's Medicaid and/or /State CHIP status, our analyses indicate that such a woodwork effect was not primarily responsible for changes in WCV use.

Another potential mechanism is that parental Medicaid coverage may improve families' financial standing, freeing up resources to provide preventive services for children. Low-income families who enroll in public insurance have decreased out-of-pocket medical spending and a reduced likelihood of bankruptcy.^{5,36} Studies have revealed that children's health care use is sensitive to out-of-pocket costs, particularly in low-income families.^{37,38}

Our study has several limitations. First, our conclusions are not derived from a randomized controlled trial of Medicaid enrollment; however, we use a quasi-experimental design that leverages plausibly exogenous state-level policy changes to isolate the effect of parental Medicaid enrollment on WCVs from other family and person-level determinants of this relationship. Second, our analyses may not isolate the impact of changes in parental Medicaid eligibility and coverage on WCVs if states contemporaneously expanded Medicaid eligibility or increased coverage generosity for children. To address this concern, we conducted a sensitivity analysis in which we limited our analytic sample to states with CHIP or children's Medicaid eligibility thresholds consistently >200% of the FPL. In this sensitivity analysis, we continued to find a positive relationship between parental eligibility for Medicaid and WCVs, particularly in near-poor families. Third, our study period encompasses several changes in the recommended WCV schedule,

the introduction of the ACA's requirement that insurance plans cover preventive services for children, and other efforts to increase pediatric preventive care.¹¹ We incorporated year fixed effects into our models to control for temporal trends that may have resulted from these changes and verified that our results were unchanged when we limited the study period to years preceding these ACA mandates for pediatric care (2001–2009). Finally, many measures in the MEPS, including insurance status and health care use, are self-reported and subject to recall and social desirability bias. However, respondents are aware that health care providers may be contacted to verify self-reported use, which may mitigate reporting error.¹⁵

These findings are of great significance given the current uncertainty surrounding the future of the ACA and Medicaid expansions authorized by the law. Our work highlights the potential for Medicaid expansions targeting low-income adults to mitigate disparities in the receipt of WCVs between low- and high-income families. Currently, 19 states have not expanded adult Medicaid coverage to 138% of the FPL under the ACA. According to Current Population Survey data, ~5.5 million children in these 19 states live in families in which a parent would qualify for expanded Medicaid coverage. Our intention-to-treat estimates imply that the spillover effect of Medicaid expansion would result in ~135 000 additional annual WCVs for low-income children in these 19 states (see Supplemental Information for calculation).

Likewise, our results reveal the potential for reductions in adult Medicaid coverage to have unintended spillover effects on children's health care use. Recent proposals to reform the Medicaid program by using block grants or "per-capita caps" on federal financial

support have raised the concern that states could curtail Medicaid benefits or eligibility, thereby significantly reducing parental enrollment.^{39,40} Given the evidence that increased access to pediatric care early in life is associated with improved health and lower hospital use in adulthood,^{41–43} changes in parental coverage may have long-term impacts on children that will be important to consider when modifying the Medicaid program.

CONCLUSIONS

In our study, we demonstrate that parental Medicaid enrollment is associated with increases in pediatric primary care use in low-income families. Given the suboptimal rates of WCV use in low-income families, our findings suggest that efforts to expand Medicaid for parents may help to promote their children's receipt of recommended preventive care.

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ABBREVIATIONS

ACA: Affordable Care Act
CHIP: Children's Health Insurance Program
CI: confidence interval
FPL: federal poverty level
IV: instrumental variable
MEPS: Medical Expenditure Panel Survey
WCV: well-child visit

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Health Coverage for Parents and Caregivers Helps Children

Children's healthy development depends to a large extent on the health and well-being of their parents and caregivers. Covering parents and caregivers helps children get the care and family financial stability they need to thrive.

Children's positive development relies on healthy parents. Health coverage improves parents' health and access to care.

- Parent-child interactions are key to children's healthy growth, including their brain development. Poor adult health associated with adverse childhood experiences cost the U.S. nearly \$100 billion annually in expenses for cardiovascular care and more than \$85 billion in mental health disorders.
- Maternal depression, for example, has been shown to negatively impact young children's cognitive and social-emotional development, as well as their educational and employment opportunities later on. More than half of infants born into poverty have a mother who is experiencing some depressive symptoms, yet these mothers have high rates of untreated depression due to barriers to successful treatment—including cost of care and lack of insurance. When Oregon extended access to Medicaid to adults, including parents, rates of depression decreased by 30 percent as a result of new coverage.

Covering parents provides financial security for the whole family.

- For millions of families, Medicaid is a lifeline that keeps them living above the poverty threshold: In 2010, Medicaid lifted an estimated 2.6 million to 3.4 million individuals out of poverty.

- Medical bills have historically been a major cause of bankruptcy for families. Since more adults gained coverage under the Affordable Care Act, the share of low-income families having trouble paying medical bills decreased by almost 30 percent between 2011 and the first half of 2016.
- In the Oregon Experiment, which used a lottery to determine randomly who would receive Medicaid, gaining Medicaid coverage led to significant reductions in out-of-pocket spending, borrowing money to pay bills, and the probability of having medical debt. In addition, catastrophic expenditures were nearly eliminated.

As parents gain health coverage, children are more likely to be covered as well.

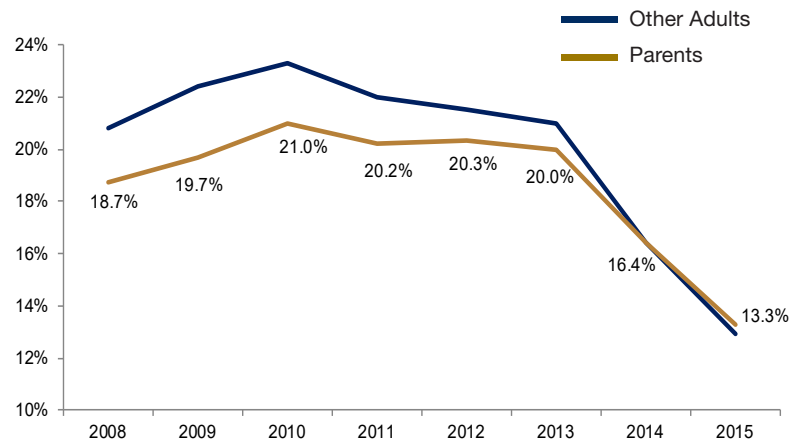
Years of research show that extending health coverage to adults results in increased health coverage for children. Most uninsured children (62 percent) are eligible but not enrolled in Medicaid or the Children's Health Insurance Program (CHIP). Their enrollment increases as their parents get covered.

- Between 2013 and 2014, the first year of full implementation of the Affordable Care Act (ACA), children's Medicaid and CHIP participation rates, the percentage of children eligible and enrolled, went up from 88.7 to 91 percent as more adults gained coverage through Medicaid or marketplaces.



- States that expanded Medicaid to adults had higher children's Medicaid/CHIP participation rates in 2014 (92 percent), compared to states that did not expand (89 percent) that year. The 10 states with the largest participation gains for children all expanded Medicaid.
- The reverse holds true as well: When parents lose coverage, children are at greater risk of becoming uninsured, even if they remain eligible for Medicaid and CHIP. For example, after Maine cut eligibility for parents in 2012, child enrollment dropped 13 percent among those in the same income bracket whose parents lost coverage. Children with uninsured parents have a greater risk of being uninsured, and are less likely to receive checkups, preventive care and other necessary health care services.

Fewer Uninsured Parents and Other Adults Thanks to ACA and Medicaid (Under Age 65)



Source: Urban Institute tabulations of 2008-2015 National Health Interview Survey data.

Notes: Parents are defined as adults ages 19 to 64 living with a biological child, adoptive child, or stepchild age 18 or under. Uninsured is at time of survey. All other adults age 19 to 64 are classified as childless.

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[“Ensuring Health Coverage for Maine Families with Children in 2014: A Health Policy Brief by the Maine Children’s Alliance”](#)

[“Problems Paying Medical Bills Among Persons Under Age 65: Early Release of Estimates From the National Health Interview Survey, 2011–June 2016.”](#) National Center for Health Statistics.

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By Julie L. Hudson and Asako S. Moriya

Medicaid Expansion For Adults Had Measurable ‘Welcome Mat’ Effects On Their Children

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ABSTRACT Before the implementation of the Affordable Care Act (ACA), most children in low-income families were already eligible for public insurance through Medicaid or the Children’s Health Insurance Program. Increased coverage observed for these children since the ACA’s implementation suggest that the legislation potentially had important spillover or “welcome mat” effects on the number of eligible children enrolled. This study used data from the 2013–15 American Community Survey to provide the first national-level (analytical) estimates of welcome-mat effects on children’s coverage post ACA. We estimated that 710,000 low-income children gained coverage through these effects. The study was also the first to show a link between parents’ eligibility for Medicaid and welcome-mat effects for their children under the ACA. Welcome-mat effects were largest among children whose parents gained Medicaid eligibility under the ACA expansion to adults. Public coverage for these children increased by 5.7 percentage points—more than double the 2.7-percentage-point increase observed among children whose parents were ineligible for Medicaid both pre and post ACA. Finally, we estimated that if all states had adopted the Medicaid expansion, an additional 200,000 low-income children would have gained coverage.

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Insurance coverage has increased dramatically for low-income Americans since the implementation of the Affordable Care Act (ACA) in 2014.¹ This includes gains among low-income children, most of whom were already eligible for public coverage through Medicaid or the Children’s Health Insurance Program (CHIP) before the ACA’s passage in 2010. Between 2013 and 2015, the percentage of children younger than age eighteen who were uninsured in families with incomes below 100 percent and between 100 percent and 199 percent of the federal poverty level fell by 3.4 and 3.9 percentage points, respectively, according to the National Health Interview Survey (NHIS).¹ While the decline in uninsurance for children was smaller in magnitude than the decline precipitated by the ACA for

adults, coverage effects among low-income children in this period were notable because such children experienced very few changes in eligibility when ACA provisions were implemented in 2014. This suggests that the ACA potentially had important “spillover” or “welcome mat” effects, whereby new ACA policies led to an increase in public insurance among children who were already eligible for but not enrolled in public coverage.

Welcome-mat effects could exist among publicly eligible children for several reasons. The ACA was associated with significant outreach at both the federal and state levels to advertise new insurance affordability programs, to inform people about insurance coverage mandates (and penalties for those who do not obtain coverage), and to promote the benefits of enrolling in and

maintaining insurance coverage over time. Large-scale marketing efforts could lead to increased enrollment among the already eligible population by decreasing the stigma of public coverage or by encouraging families to cover their children continuously, instead of waiting for a medical event. Outreach could also work to educate families who were previously unaware of their children's eligibility for public insurance.

In addition, several policies were implemented as part of the ACA to reduce hurdles and to simplify application and eligibility determination processes. The ACA required states to adopt the use of Modified Adjusted Gross Income (MAGI) when determining eligibility for Medicaid, CHIP, and subsidies for private coverage through insurance Marketplaces. This removed the wide variation in income-counting methods used before the implementation of the ACA to determine eligibility across states and across programs within states. States also adopted "no wrong door" policies, under which eligibility is determined for each applicant for all three programs, regardless of which program they apply for. When combined with outreach efforts, these factors can work to increase enrollment of already eligible children by first attracting families to seek insurance coverage through Medicaid, CHIP, or the Marketplace and then by funneling children and their parents into the correct program or programs. Similar factors were credited for large increases in enrollment among Medicaid-eligible children when states implemented CHIP between 1997 and 2000.^{2,3}

Finally, although the ACA did little to change eligibility for public programs for already eligible children, parents of such children were among the populations targeted for Medicaid expansions to adults and subsidized Marketplace coverage. In sixteen of the twenty-six states that expanded Medicaid coverage to adults, the Medicaid eligibility threshold of 138 percent of poverty implemented as part of the ACA was larger than the Medicaid threshold applicable to parents before the ACA, and in ten states it represented an increase of more than 50 percentage points.⁴ Among low-income parents who remained ineligible for Medicaid under the ACA, many became eligible for subsidized Marketplace coverage. In the first year of the ACA, parents with dependent children accounted for a quarter of all adults gaining insurance coverage, with increases occurring in both public and private coverage.⁵

Prior research has shown strong links between children's health insurance coverage and their parents' coverage and public insurance eligibility status. Some of these studies found that children were more likely to be insured when a

parent was insured and that take-up of Medicaid among already eligible children increased during prior Medicaid expansions to parents.⁶⁻⁹ Children were also more likely to maintain Medicaid coverage over time if their parents were either enrolled in or eligible for the same public program.^{10,11}

Considered together, these factors identify three potentially different sources for welcome-mat effects among already eligible children: general ACA effects associated with the vast rollout of new health policies (including the insurance mandate); expansion policy effects associated with the potential for additional investment in outreach and coordination that may have occurred in expansion states; and parental effects associated with joint parent-child eligibility for and coverage by Medicaid.

To date, much of the discussion on post-ACA coverage effects has focused on the first two sources above. We hypothesize, however, that when considering welcome-mat effects among children, it is equally important to consider the third. When the ACA was implemented, parents experienced a wide range of Medicaid eligibility pathways. Many parents gained eligibility for Medicaid in states that adopted the Medicaid expansion to adults, while many others living in nonexpansion states remained ineligible for Medicaid both before and after the ACA. Perhaps less well known, however, is that a sizable number of parents living in both expansion and non-expansion states had been eligible for Medicaid even before the ACA and remained eligible after its implementation. Prior research found that public coverage increased among Medicaid-eligible children as a result of Medicaid expansions to parents in the 1990s.^{7,8} Those findings suggest that coverage effects for children under the ACA could differ depending on whether their parents gained Medicaid, had always been eligible for Medicaid, or had never been eligible.

Several studies have addressed welcome-mat effects in Medicaid coverage under the ACA. Descriptive work observing data trends has shown strong evidence of these effects, with the percentage of children who are uninsured at historic lows¹² and greater improvements in coverage seen among low-income children and children living in expansion states.¹³⁻¹⁵ Two analytic studies provide evidence of welcome-mat effects under the ACA. The first studied the broader population of all nonelderly individuals and identified the relative impact that different ACA policies (such as the coverage mandate, Medicaid expansion, and subsidies for Marketplace coverage) had on coverage increases observed between 2012 and 2015.¹⁶ The second focused on a more narrow population of publicly eligible children

living in California counties selected for an early rollout of the ACA Medicaid expansion.¹⁷ But to our knowledge, no analytic studies have measured ACA welcome-mat effects for the population of Medicaid-eligible children at the national level, identified the effect that ACA Medicaid expansions to adults who are parents has had on their children's enrollment, or attempted to differentiate across the various sources of ACA welcome-mat effects.

This article fills that void in the literature, observing changes in public coverage before and after the implementation of the ACA for the population of children already eligible for Medicaid and identifying the sources of those changes in the first and second years of the program, while controlling for a wide set of factors relevant to enrollment decisions. As policy makers determine the future of US health policy, disentangling and quantifying these separate effects can help inform children's health policy and budget decisions at both the state and federal levels.

Study Data And Methods

DATA SAMPLE We used 2013–15 data from the American Community Survey (ACS), a nationally representative, cross-sectional survey of the US population containing rich information on individuals' demographic and socioeconomic characteristics. Conducted by the Census Bureau, the ACS is the largest household survey in the United States and releases timely estimates, providing a unique advantage as we studied small subgroups of children across all states through 2015, the second year of ACA implementation. The analyses used ACS weights and balanced repeated replication for standard errors. All results reported in the text were significant at the 5 percent level or higher.

Our sample comprised nondisabled, citizen children ages 0–18 who were eligible for Medicaid (including Medicaid-expansion CHIP) in both the pre- and post-ACA periods. These “already eligible” children faced no changes in their own eligibility over the time period studied. Because a primary focus of our analysis was to measure the impact of the ACA's adult Medicaid expansion on children's coverage, we limited the sample to children in families with incomes below 138 percent of poverty with a parent present. We also excluded married minors, children with Medicare coverage, and children eligible for separate (as opposed to Medicaid-expansion) CHIP. Separate CHIP-eligible children below 138 percent of poverty in 2013 became eligible for CHIP-funded Medicaid under the ACA and may have exhibited different patterns of enrollment as they transitioned between the two programs.

Our final sample contained 345,207 observations, representing 21.0 million children, or 84 percent of all children below 138 percent of poverty in the ACS. Additional details are available in the online Appendix.¹⁸

Medicaid-eligible children were categorized into three mutually exclusive groups based on the Medicaid eligibility of their parents: “parent always Medicaid eligible,” “parent newly Medicaid eligible,” and “parent never Medicaid eligible.” Children in the “parent always Medicaid eligible” category had parents who were Medicaid eligible in both the pre- and post-ACA periods. “Parent newly Medicaid eligible” contained children whose parents were Medicaid eligible only in the post-ACA period. Finally, children whose parents were ineligible for Medicaid in both periods were defined as “parent never Medicaid eligible.” Medicaid eligibility for parents included eligibility through programs that predated the ACA (traditional Medicaid and Medicaid family expansions) as well as adult eligibility gained through the ACA Medicaid expansion.

The never eligible category includes a small number of children whose parents were eligible for Medicaid in the pre-ACA period and lost eligibility in the post-ACA period. It also includes parents who may have become eligible for subsidized Marketplace coverage under the ACA. Our results were not sensitive to alternative treatments of these cases. Each child's expansion-state status was measured as of July 1, separately for 2014 and 2015. (More details on sensitivity tests and expansion-state status are in the Appendix.)¹⁸

ELIGIBILITY SIMULATION Eligibility for Medicaid was simulated by comparing family-level income in the American Community Survey interview year to the ACA and state-specific income eligibility thresholds applicable in 2013,¹⁹ 2014,⁴ and 2015.²⁰ Children's eligibility was calculated using age-specific MAGI-converted thresholds for Medicaid based on 2013 rules. To standardize eligibility determinations over the sample period, we used the 2013 state-reported MAGI-converted thresholds for both parents and children.

MODEL We used triple-difference linear probability models to identify welcome-mat effects, observing public coverage among Medicaid-eligible children before and after the implementation of the ACA while controlling for parental Medicaid eligibility, expansion-state status, state fixed effects, and a wide range of individual- and family-level characteristics (for the child: age, sex, race, and Hispanic origin; for the parent: employment, education, and citizenship). Insurance was measured using mutually exclu-

sive categories in the following hierarchical order: any public coverage, only private coverage, and uninsured. Results were derived using two separate models that both designated 2013 as the base year (pre-ACA) and then used 2014 and 2015, respectively, as the post-ACA year. Results were not sensitive to a specification that combined 2013–15 into a single model, as shown in the Appendix.¹⁸

LIMITATIONS Our study had the following limitations. First, eligibility for public programs is not available in survey data and thus was simulated. We were unable to simulate changes in Medicaid eligibility that would have resulted from the transition to MAGI income-counting rules under the ACA or to accurately identify parents who would have been eligible for Marketplace subsidies. More discussion of these issues is in the Appendix.¹⁸ Second, as is common with difference models, we could not be certain that year effects did not pick up additional factors beyond the implementation of the ACA. Finally, prior research has raised concerns that some ACS respondents may misreport public coverage as private.¹⁶ To address this point, we supplemented our analysis with results for the uninsured, thought to be a more reliable ACS measure, and we relied on consistent patterns in reporting of public/private coverage in the ACS during the sample period 2013–15.

Study Results

ALREADY ELIGIBLE CHILDREN BY PARENTAL ELIGIBILITY FOR MEDICAID At the time of ACA implementation in 2014, 21.0 million nondisabled, citizen children living in families with incomes below 138 percent of poverty were already eligible for Medicaid and faced no changes in eligibility for public coverage between the pre- and

post-ACA periods (Exhibit 1). Already eligible children were split relatively evenly across expansion and nonexpansion states, but greater variation was observed across parental eligibility categories. Among already eligible children, 57.5 percent had parents who were also eligible for Medicaid both before and after ACA implementation. These children lived in both expansion and nonexpansion states but were far more prevalent in expansion states (8.6 million compared to 3.5 million).

The remaining 42.5 percent (8.9 million) of already eligible children below 138 percent of poverty had parents who were not eligible for Medicaid before the ACA. Of these children, 2.1 million lived in expansion states and had parents who became newly eligible through the ACA's Medicaid expansion to adults. The other 6.8 million of these children lived in nonexpansion states and had parents who were never eligible for Medicaid.

TRENDS IN PUBLIC COVERAGE AMONG ALREADY ELIGIBLE CHILDREN Public coverage among our sample of already eligible children increased significantly between 2013 and 2015 (76.5 percent to 79.8 percent; see Exhibit 2, along with Appendix Exhibit A3 for standard errors).¹⁸ Children living in expansion states experienced higher rates of public coverage (both pre and post ACA) and displayed a greater boost in coverage after the ACA (see Appendix Exhibits A2 and A3).¹⁸ These national-level (and state/expansion-level) trends mask significant differences that occurred at the family level based on whether a child's parents were newly, always, or never eligible for Medicaid. Although public coverage increased between 2013 and 2015 for all children, regardless of their parents' eligibility, those with always eligible parents had significantly higher coverage rates both before and af-

EXHIBIT 1

Characteristics of the sample population of low-income, nondisabled, citizen children already eligible for Medicaid, by parental eligibility category, 2013–15

	Population of children				Parent eligibility	
	All ^a		By state expansion status		Pre ACA	Post ACA
	No.	%	Expansion ^a	Nonexpansion ^a		
Children already eligible for Medicaid	21.0	100.0	10.7	10.3		
By parental eligibility category (pre/post ACA)						
Parent always Medicaid eligible	12.1	57.5	8.6	3.5	Medicaid	Medicaid
Parent newly Medicaid eligible	2.1	10.1	2.1	0.0	Ineligible	Medicaid
Parent never Medicaid eligible	6.8	32.5	0.0	6.8	Ineligible	Ineligible

SOURCE American Community Survey, 2013–15. **NOTES** Low-income (less than 138 percent of the federal poverty level), nondisabled, citizen children (ages 0–18) simulated to be eligible for Medicaid using 2013 Modified Adjusted Gross Income (MAGI)-converted thresholds. State expansion status was defined as of 2014. Estimates using 2015 expansion status are in the online Appendix Exhibit A1; see Note 18 in text. ^aMillions.

ter ACA implementation. And in a comparison of differences over time, children with the largest changes in public coverage between 2013 and 2015 (parent newly eligible: 5.6 percentage points) experienced increases almost two times as large as those with the smallest changes (parent never eligible: 3.0 percentage points) (Exhibit 2, along with Appendix Exhibit A3 for standard errors).¹⁸

Patterns of change also varied. Children with always eligible parents experienced a relatively constant rate of increase in public coverage between 2013 and 2015 (Exhibit 2). Children with newly eligible parents had a greater boost in coverage in the first year of ACA implementation (2013–14), while children with never eligible parents exhibited lagged effects, with greater increases seen in the second year (2014–15).

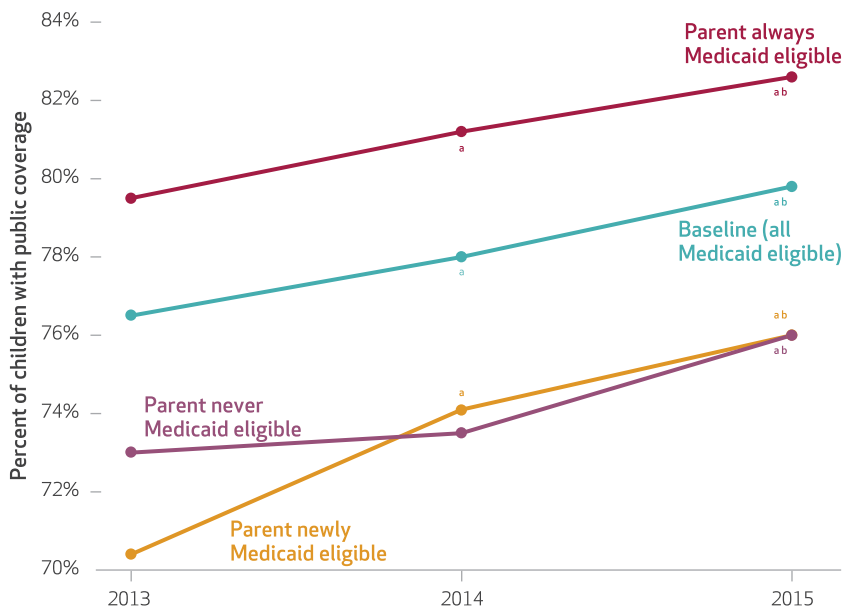
WELCOME-MAT EFFECTS BY SOURCE Exhibit 3 presents the results from our models of welcome-mat effects that simultaneously accounted for the implementation of the ACA, variation in parental eligibility for Medicaid, and state-level adult Medicaid expansion policy. Welcome-mat effects are presented as percentage-point changes in public coverage rates between the base year 2013 and end years 2014 and 2015. Our primary results are broken out by general ACA effects (with 2013 as the base year) and parental eligibility effects (with never eligible as the base category). In our secondary model, expansion policy effects can be observed by comparing children with always eligible parents living in expansion and nonexpansion states. (Full model results, including sample characteristics of control variables, are available in the Appendix.)¹⁸

In the first year of ACA implementation (2014), welcome-mat effects were fully concentrated among children whose parents were also eligible for Medicaid. Children with newly eligible and already eligible parents were 3.3 and 1.4 percentage points, respectively, more likely to experience an increase in public coverage between 2013 and 2014 than children with parents who were never eligible for Medicaid.

By the second year of ACA implementation (2015), welcome-mat effects were more widespread. Public coverage rates were 2.7 percentage points higher among all children in 2015 than in 2013, regardless of their parents' eligibility for Medicaid. Gains seen among children with newly eligible parents in the first year of implementation continued to outpace all others. These children experienced an additional boost in public coverage of 2.7 percentage points, for a total of 5.4 percentage points between 2013 and 2015, resulting in 120,000 additional children covered (see Appendix Exhibit A9).¹⁸

EXHIBIT 2

Changes in public coverage for low-income children already eligible for Medicaid, by parental eligibility under the Affordable Care Act, 2013–15



SOURCE American Community Survey, 2013–15. **NOTES** Nondisabled, citizen children simulated to be eligible for Medicaid using 2013 Modified Adjusted Gross Income (MAGI)-converted thresholds. Public coverage measured at time of the interview. “Low-income” means income below 138 percent of the federal poverty level. State expansion status was defined as of 2014. Estimates using 2015 expansion status are in online Appendix Exhibit A3; see Note 18 in text. ^aFor differences across time within each category of parental eligibility; significantly different from 2013 ($p < 0.01$). ^bFor differences across time within each category of parental eligibility; significantly different from 2014 ($p < 0.01$).

EXHIBIT 3

Welcome-mat effects for children already eligible for Medicaid, by source, 2013 to 2014 and 2013 to 2015

Source of welcome-mat effects ^c	Change ^a in any public coverage ^b from 2013	
	2014	2015
General ACA effects	0.2	2.7***
Parental eligibility effects ^d		
Parent never Medicaid eligible	Base	Base
Parent newly Medicaid eligible	3.3***	2.7***
Parent always Medicaid eligible	1.4***	0.5
In expansion states ^e	1.5***	1.2**
In nonexpansion states ^e	1.2	–1.5

SOURCE American Community Survey, 2013–15. **NOTES** Low-income (less than 138 percent of poverty), nondisabled, citizen children simulated to be eligible for Medicaid using 2013 Modified Adjusted Gross Income (MAGI)-converted thresholds. ^aPercentage-point changes in any public coverage obtained from difference in difference models that interact year and parental eligibility of the sampled child. Ordinary least squares coefficients presented as percentage-point change. ^bPublic coverage is measured at time of the interview. ^cWelcome-mat effects obtained from the following variables: Year (general ACA effect), Year*Always, Year*Newly (parental eligibility effects). ^dParental eligibility simulated using state-level MAGI-converted thresholds for 2013 and post-ACA MAGI thresholds for 2014 and 2015. ^eWelcome-mat effects by expansion status derived in a separate triple-difference model that controlled for state policy for ACA Medicaid expansion to adults. ** $p < 0.05$ *** $p < 0.01$

By 2015 our primary model no longer exhibited additional coverage effects for children whose parents were already Medicaid eligible before the ACA. However, once we controlled for expansion state status, we found that children with already eligible parents living in expansion states experienced an additional boost of 1.2 percentage points, for a total of 3.9 percentage points compared to children with never eligible parents. This resulted in 350,000 additional children being covered between 2013 and 2015 in expansion states (see Appendix A9).¹⁸ Their gains were also significantly larger than those for children with already eligible parents living in nonexpansion states (data not shown), which suggests the presence of expansion policy effects.

Using public coverage alone, we were unable to distinguish between the relative sizes of the welcome-mat effect for children whose parents were newly eligible versus those with always eligible parents living in expansion states. However, corresponding changes in the percentage of children uninsured and the percentage with only private coverage suggest that these two groups experienced different coverage patterns under the ACA (not shown, see Appendix Exhibit A8).¹⁸ Children with newly eligible parents were 4.1 percentage points less likely to be uninsured than children with never eligible parents in 2015 than in 2013 but showed no significant difference in private coverage over the same time period. Alternatively, between 2013 and 2015, children with always eligible parents in expansion states were less likely than children with never eligible parents to be uninsured (–3.0 percentage points) and to have private coverage

(–1.0 percentage points).

IMPACT OF WELCOME-MAT EFFECTS Quantifying these effects (Exhibit 4), we estimated that 710,000 low-income children who were already eligible for Medicaid before the ACA implementation gained public coverage between 2013 and 2015, despite having no changes in their own eligibility. If nonexpansion states had adopted the adult Medicaid expansion and experienced similar effects to those in the model, we predicted that an additional 200,000 low income children already eligible for Medicaid could have gained public coverage by 2015.

A gain of 710,000 translates to 4.6 percent nationwide growth in public coverage among children in our sample, but increases varied significantly when observed by parents' eligibility for Medicaid. Gains for already eligible children with newly eligible parents (8.1 percent) were more than twice the size of those experienced by those with never eligible parents (3.6 percent) (Exhibit 4). The growth in public coverage can also be broken down into the relative impacts from general ACA policies and parental eligibility effects. We estimated that by the second year of ACA implementation, 76 percent of the increase in public coverage among already eligible children was the result of general ACA policies, and 24 percent was attributed to parental eligibility (8 percent and 16 percent for newly eligible and always eligible parents in expansion states; see Appendix Exhibit A9 and discussion on pages 9–10 of the Appendix).¹⁸

SENSITIVITY TESTING Our results were not sensitive to a wide variety of specification tests (available in the Appendix).¹⁸ These included models that accounted for parents' eligibility

EXHIBIT 4

Gains in public coverage under the Affordable Care Act, by parental eligibility and expansion status, for Medicaid-eligible, nondisabled, citizen children in families with incomes up to 138 percent of poverty, 2013–15

	Publicly insured			Predicted additional gains ^{a,d} if all states expanded Medicaid
	Baseline, 2013 ^a	Gains, 2013–15 ^{a,b}	Percent gain ^c	
All Medicaid-eligible children	15.50	0.71	4.6%	0.20
By parental eligibility:				
Parent never Medicaid eligible	4.40	0.16	3.6	0.16
Parent newly Medicaid eligible	1.48	0.12	8.1	– ^e
Parent always Medicaid eligible	9.62	0.43	4.5	– ^e
In expansion states	7.12	0.35	4.9	– ^e
In nonexpansion states	2.49	0.08	3.2	0.04

SOURCES See below. **NOTES** ^aMillions. ^bObtained by multiplying population estimates (see Exhibit 1) by statistically significant relevant coefficients shown in Exhibit 3 (and in Exhibit A9, column (d), in the online Appendix; see Note 18 in text). ^cObtained by dividing gains (column 2) by the number of those publicly insured (column 1). ^dA gain for children with never eligible parents is obtained by multiplying the population estimate by the estimated effect among children with newly eligible parents. A gain for children with always eligible parents in nonexpansion states is obtained by multiplying the population estimate by the estimated effect for children with always eligible parents in expansion states. ^eThere are no gains listed for these parental eligibility categories if additional states expand Medicaid because all children in these rows live in states that have already expanded Medicaid.

Our findings speak to the importance of factoring in family-level decision making when crafting health policy.

for Marketplace subsidies. Others tested the treatment of states that in the pre-ACA period had either already adopted generous (non-ACA) parental Medicaid eligibility policies or chosen to adopt the ACA adult Medicaid expansion early.

Discussion

Our results showed clear evidence of welcome-mat effects for children as the ACA was implemented, measured as increased enrollment in public coverage among children who were already eligible for Medicaid. We provide the first national-level, analytical estimates for welcome-mat effects among Medicaid-eligible children and are the first to reveal that the parental eligibility effects found in earlier Medicaid expansions to parents were also present in the ACA expansions. The largest effects in our sample were found among children whose parents gained eligibility for Medicaid through ACA-related Medicaid expansions to adults. These children had significant increases in both the first (2014) and second (2015) years of ACA implementation, outpacing coverage effects among children in families without newly eligible parents by more than double. Broader effects from general ACA policies exhibited more of a lagged pattern, with no significant effects found among the entire population of children until the second year of ACA implementation.

By 2015 the magnitude of ACA welcome-mat effects on public coverage ranged from 2.7 to 5.4 percentage points, depending on children's exposure to expansion policies and parental eligibility. The 5.4-percentage-point increase among children with newly eligible parents aligned perfectly with welcome-mat effects found for children during the 1995–2002 Medicaid expansions to parents,⁷ which serves as additional evidence of the strong link between children's and parents' eligibility and coverage. Our overall

range was consistent with recent research that focused on California during early ACA expansions at the county level and that found public coverage among low-income children increased by approximately 3.2 percentage points.¹⁷ Our estimates were also consistent with findings that show that Medicaid coverage increased by 3.8 percentage points under the ACA in a broader national-level population of nonelderly, previously eligible individuals.¹⁶

We also found measurable effects of the ACA on overall insurance coverage. Insurance gains were widespread by 2015. All Medicaid-eligible children in our sample were less likely to be uninsured, with the impact growing to –3.0 percentage points by the second year of ACA implementation (see Appendix Exhibit A8).¹⁸ Children with newly Medicaid-eligible parents had the greatest improvements: Their likelihood of being uninsured dropped by 4.1 percentage points between 2013 and 2015. Our primary results showed little evidence that private coverage was displaced by public coverage among our sample of Medicaid-eligible children (a phenomenon known as crowd-out). The one exception was found for children with always eligible parents in expansion states, whose 3.9-percentage-point increase in public coverage by 2015 coincided with a 1.0-percentage-point decrease in private coverage.

Our finding that enrollment effects were larger among children in families with joint parent/child Medicaid eligibility speaks to the importance of factoring in family-level decision making when crafting health policy. Consistent with the literature, we found that children were more likely to enroll in and retain public coverage when a parent was eligible for or enrolled in the same program.^{9,11} Extending coverage to families versus individuals simplifies coverage and access decisions for families and decreases hurdles associated with enrollment and renewal. Policy makers recognized the importance of family dynamics under the ACA, standardizing a minimum Medicaid threshold of 138 percent of poverty for all family members and transitioning separate state CHIP-eligible children below 138 percent of poverty into CHIP-funded Medicaid. Our results show that these efforts have made a difference. However, with the future of ACA-related programs currently under debate, it is important to recognize that prior research also predicts that the gains we found among Medicaid-eligible children could be lost if their parents lose Medicaid eligibility or insurance coverage (either public or private), even if there are no changes to eligibility for children themselves.²¹

Identifying the presence of general ACA welcome-mat effects is also relevant for both current

and future policy. It highlights the importance of accounting for the welcome-mat population in fiscal planning and in the structure of funding programs. For example, under the ACA, the relative cost to state and federal governments for new enrollees varied by pre-ACA status. States received a 100 percent federal match for newly eligible adults, while lower pre-ACA match rates applied to previously eligible adults and children in the welcome-mat population. And if insurance coverage is correlated with access to and use of services, state and local delivery systems should be prepared for changes in demand for services among both children and parents.

Future work on welcome-mat effects is warranted. We restricted our analysis to the 21.0 million citizen children below 138 percent of poverty who were already eligible for Medicaid, to best target the impact of joint parent/child Medicaid eligibility. The overall welcome mat effect of the ACA on already eligible children is likely to be much larger when noncitizens and publicly eligible children outside of our sample are considered. General ACA welcome-mat effects are likely to exist among noncitizen (1.0 million) and separate CHIP eligible (1.2 million) children below 138 percent of poverty as well as Medicaid- and

CHIP-eligible children above that income level (14.4 million citizen children). At higher income levels, Marketplace policies and parental eligibility for subsidized coverage could play a significant role in welcome-mat effects, just as adult Medicaid expansions did in our low-income sample. Finally, given the increase in welcome-mat effects seen over time between the first and second years of ACA implementation, it will be important to continue to observe children's coverage over time to see if additional gains were made after 2015.

Conclusion

Several policy decisions are on the horizon for children's coverage, including the funding of CHIP (2017); expiration of maintenance-of-effort requirements for Medicaid and CHIP (2019); and legislative changes to Medicaid, CHIP, and components of the ACA. It is unclear whether enrollment gains seen among Medicaid-eligible children would reverse if ACA policies were rolled back—especially policies affecting parental eligibility and coverage. Nonetheless, our findings can inform policy makers as they craft future health care policy. ■

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Conference, November 4, 2016, in Washington, DC. The authors appreciate the helpful comments of Joel Cohen, Sandra Decker, Genevieve Kenny, Victoria Lynch, Tom Selden, Benjamin Sommers, and the anonymous reviewers. The views expressed in this article are

those of the authors alone, and no official endorsement by the Department of Health and Human Services or the Agency for Healthcare Research and Quality is intended or should be inferred.

NOTES

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ABOUT

QuickTake: Health Insurance Coverage for Children and Parents: Changes between 2013 and 2017



Michael Karpman and Genevieve M. Kenney

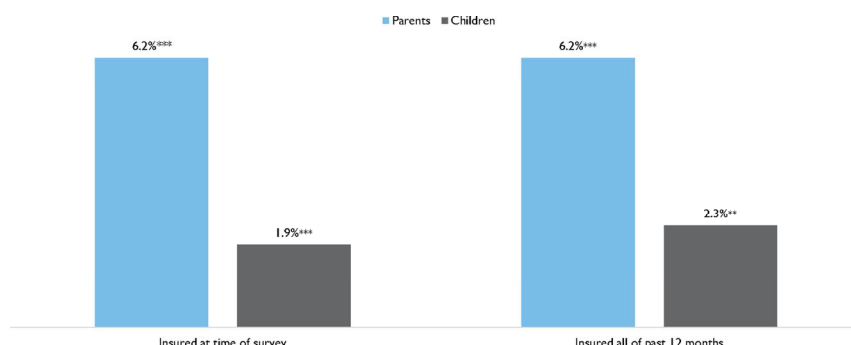
September 7, 2017

The health insurance coverage provisions of the Affordable Care Act (ACA) primarily targeted uninsurance among low-income nonelderly adults, including that of parents living with dependent children, which had far exceeded uninsurance among children before the ACA. Several ACA provisions were also expected to affect children's coverage, and the expansion of coverage for parents was expected to have additional positive spillover effects on coverage for children who were already eligible for Medicaid or the Children's Health Insurance Program, or CHIP (Aizer and Grogger 2003; Dubay and Kenney 2003; Ku and Broaddus 2000). Indeed, new research finds that Medicaid eligibility for parents was associated with greater coverage gains for children under the ACA (Hudson and Moriya 2017). The Urban Institute's Health Reform Monitoring Survey (HRMS) is one of several surveys that found coverage gains for parents and children after the implementation of key ACA provisions in 2014 (Alker and Chester 2015; Gates et al. 2016; Karpman, Gates, et al. 2016; Karpman, Kenney, et al. 2016). Whether these improvements in health insurance coverage are sustained will depend on several important decisions facing policymakers this fall, including reauthorization of CHIP, passage of the fiscal year 2018 federal budget, and preparation for the upcoming Marketplace open enrollment period.

In this QuickTake, we provide updated estimates of changes in coverage for children ages 17 and younger and parents ages 18 to 64 who are living with dependent children through March 2017 using data from the HRMS, including supplemental questions focused on children (HRMS-Kids). These estimates highlight the progress made in expanding coverage under the ACA and the risks of repeal and other policies that would reduce federal funding to provide health insurance for families with children. The data and methods used for this analysis are described in an earlier brief (Karpman, Kenney, et al. 2016), though estimates from that brief are not directly comparable to those from the current analysis because of changes in survey weighting procedures.¹

We find a 6.2 percentage point increase in the share of parents with coverage (at the time of the survey) and a 1.9 percentage point increase in the share of children with coverage between June/September 2013 and March 2017 (figure 1). The shares of parents and children who were insured for the full year before the survey increased 6.2 and 2.3 percentage points, respectively. These coverage gains were concentrated in 2014 and early 2015 after implementation of the ACA's key coverage provisions and, consistent with data from the National Health Interview Survey, appeared to plateau by mid-2015 (Zammiti and Cohen 2017). Despite the larger coverage gains for parents, children remained more likely to have health insurance than parents in March 2017 (table 1).

Figure 1. Percentage-Point Change in Health Insurance Coverage for Parents Ages 18 to 64 and Children Ages 17 and Younger between June/September 2013 and March 2017



Source: Health Reform Monitoring Survey, quarters 2–3 2013 through quarter 1 2017.

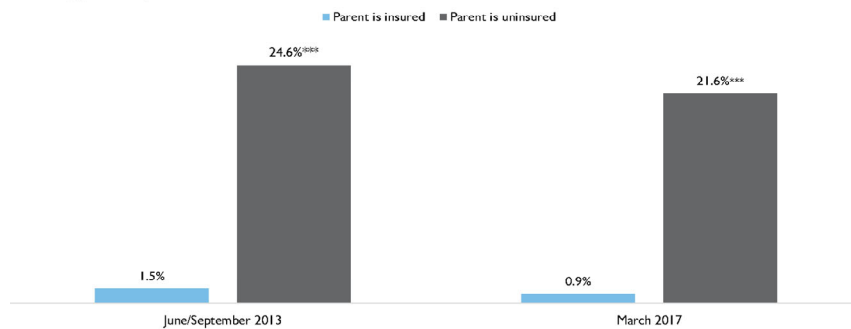
Notes: Estimates are regression-adjusted.

*** Estimate differs significantly from zero at the 0.10/0.05/0.01 level, using two-tailed tests.

We find a strong association between the coverage statuses of parents and children. Children with uninsured parents were significantly more likely to be uninsured than children whose parents had coverage. In March 2017, we find a 21.6 percent uninsurance rate among children with uninsured parents and a 0.9 percent uninsurance rate among children with insured parents (figure 2). Patterns

in children's uninsurance by parental coverage status were similar to those found in June/September 2013.

Figure 2. Share of Children Ages 17 and Younger Who Are Uninsured, by Their Parents' Coverage Status, June/September 2013 and March 2017



Source: Health Reform Monitoring Survey, quarters 2–3 2013 and quarter 1 2017.

Notes: Estimates exclude responses from people who are not parents or guardians. Estimates are not regression-adjusted.

*** Estimate differs significantly from estimate for children with an insured parent at the 0.10/0.05/0.01 level, using two-tailed tests.

These results highlight the sustained increase in health insurance coverage for parents and children after ACA implementation and the significant linkage between children's coverage and their parents' coverage. Additional findings from the March 2017 HRMS show that this increase in coverage among children and parents coincided with improvements in several measures of health care access and affordability (Karpman and Kenney 2017).

Efforts to repeal the ACA and reduce funding for Medicaid and CHIP threaten these recent gains in coverage and access to care for children and parents. For example, the American Health Care Act was projected to reduce coverage by 23 million—including an estimated 3 million children—by 2026 relative to current law, primarily by lowering enrollment in Medicaid and nongroup coverage (Aron-Dine 2017; CBO 2017). The president's proposed budget for fiscal year 2018 included additional cuts to Medicaid beyond those in the American Health Care Act and would also cut funding for CHIP, which provided health insurance to nearly 9 million children at some point in 2016 (OMB 2017).² If members of Congress do not reauthorize funding for CHIP by the end of September, states are projected to begin exhausting their federal funding for the program later this year (MACPAC 2017). Access to affordable coverage for parents and children may also be affected by other federal and state policies, particularly with respect to Medicaid. For instance, several states are seeking waivers to impose work requirements on Medicaid beneficiaries, which could reduce coverage for parents and their children.

Given the strong evidence base showing that health insurance coverage improves health care access and affordability and financial well-being, these reductions in coverage would expose many families to significantly higher health care costs and make parents and children more likely to forgo needed care (McMorrow, Gates et al. 2017; McMorrow, Kenney, et al. 2016; Finkelstein et al. 2012; Glied, Ma, and Borja 2017; Howell and Kenney 2012; Hu et al. 2016; Sommers, Blendon, and Orav 2016; Wherry and Miller 2017).

Table 1. Health Insurance Coverage for Parents Ages 18 to 64 and Children Ages 17 and Younger, June/September 2013 through March 2017

	June/September 2013	March 2017	
Parents			
Insured at time of survey	83.2%	89.3%	***
Insured all of past 12 months	75.1%	81.3%	***
Children			
Insured at time of survey	94.8%	96.7%	***
Insured all of past 12 months	87.9%	90.3%	**
Sample size for parents	4,810	2,977	
Sample size for children	5,121	3,153	

Source: Health Reform Monitoring Survey, quarters 2–3 2013 through quarter 1 2017.

Notes: Estimates are regression-adjusted.

*/**/** Estimate differs significantly from estimate for June/September 2013 at the 0.10/0.05/0.01 levels, using two-tailed tests.

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Notes

¹ In January 2017, we reweighted all rounds of the HRMS from the first quarter of 2013 through the third quarter of 2016 because of a change to the Current Population Survey question on household Internet access that was used to create benchmarks for the original poststratification weights. Under the new procedure, the data are weighted to represent the nonelderly population's lack of Internet access by age group (18 to 34, 35 to 44, 45 to 54, and 55 to 64 for adult weights; birth to 6, 7 to 12, and 13 to 17 for child weights), based on benchmarks derived from a more stable set of questions on household Internet access from the American Community Survey. Other Current Population Survey and Pew Hispanic Survey questions used in the weighting process are unchanged. The transition to the updated weights has a small effect on national estimates. For instance, in the quarter 1 2016 round of the survey, the unadjusted estimated uninsurance rate is 0.22 percentage points lower for children and 0.03 percentage points lower for parents under the new weights. The effect of reweighting on estimated changes in key outcomes over time is small because the new weighting procedure was applied to all previous rounds of the data. However, because of this change, estimates in this brief are not comparable to estimates in previous HRMS publications. In addition, the HRMS sample size was expanded to approximately 9,500 adults ages 18 to 64 in March 2017, producing a sample size of over 3,000 children in the HRMS-Kids. In previous rounds, the HRMS sample size was about 7,500 adults, with approximately 2,400 children in the HRMS-Kids. ^A

² "Unduplicated Number of Children Ever Enrolled," Centers for Medicare and Medicaid Services, accessed September 5, 2017; Edwin Park, "Trump Budget Cuts Medicaid Even More than House Health Bill, Showing Dangers of Per Capita Cap," *Off the Charts* (blog), Center on Budget and Policy Priorities, May 23, 2017; Joan Alker, "Trump Budget Poses Even More Threats to Children's Health," *Say Ahhh!* (blog), Georgetown University Center for Children and Families, May 23, 2017. ^A

About the Series

This QuickTake is part of a series drawing on the HRMS, a survey of the nonelderly population that explores the value of cutting-edge Internet-based survey methods to monitor the ACA before data from federal government surveys are available. Funding for the core HRMS is provided by the Robert Wood Johnson Foundation and the Urban Institute. This QuickTake was funded by the David and Lucile Packard Foundation and funding from an anonymous donor. It draws on the HRMS-Kids, which was conducted in partnership with the Center for Children and Families at Georgetown University and is currently funded by the David and Lucile Packard Foundation. The authors are grateful to Stephen Zuckerman for helpful comments on this QuickTake.

For more information on the HRMS and for other QuickTakes in this series, visit www.urban.org/hrms.

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Medicaid Expansion Increased Coverage, Improved Affordability, And Reduced Psychological Distress For Low-Income Parents

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ABSTRACT Despite receiving less attention than their childless counterparts, low-income parents also experienced significant expansions of Medicaid eligibility under the Affordable Care Act (ACA). We used data for the period 2010–15 from the National Health Interview Survey to examine the impacts of the ACA’s Medicaid expansion on coverage, access and use, affordability, and health status for low-income parents. We found that eligibility expansions increased coverage, reduced problems paying medical bills, and reduced severe psychological distress. We found only limited evidence of increased use of care among parents in states with the smallest expansions, and no significant effects of the expansions on general health status or problems affording prescription drugs or mental health care. Together, our results suggest that the improvements in mental health status may be driven by reduced stress associated with improved financial security from insurance coverage. We also found large missed opportunities for low-income parents in states that did not expand Medicaid: If these states had expanded Medicaid, uninsurance rates for low-income parents would have fallen by an additional 28 percent.

When the Affordable Care Act (ACA) was passed in 2010, it included a Medicaid expansion that aimed to reduce uninsurance among adults with incomes at or below 138 percent of the federal poverty level. However, the June 2012 Supreme Court ruling in *National Federation of Independent Business v. Sebelius* made that expansion optional. As of April 2017, thirty-two states (including the District of Columbia) had chosen to expand eligibility for Medicaid under the ACA. Much attention has been focused on potential coverage gains for childless adults,¹ but Medicaid eligibility for parents was also limited in many states before passage of the ACA. Several states, including Alabama, Arkansas, Louisiana, Missouri, and Texas, had income eligibility thresholds be-

low 30 percent of poverty. As a result of this limited Medicaid eligibility in some states as well as other factors, over ten million parents were uninsured in 2010.² Studies have found significant effects of previous Medicaid expansions on parents’ coverage, access to care, use of services, and mental health status,^{3–5} and those findings suggest that uninsured parents are likely to benefit from the ACA Medicaid expansions as well. Furthermore, children may experience positive spillover effects from their parents’ gains in coverage and improved access to care, health, and financial well-being.^{6,7}

Parents with incomes at or below 138 percent of poverty, but above their state’s pre-ACA Medicaid eligibility threshold, became newly eligible for Medicaid coverage in states that opted to participate in the ACA Medicaid expansion. Cov-

erage options remained limited for low-income parents in nonexpansion states, where Medicaid income eligibility thresholds were often well below the poverty level (with an average threshold of 52 percent of poverty). However, in nonexpansion states, parents with incomes of 100–138 percent of poverty were eligible for federal subsidies to purchase coverage in the health insurance Marketplaces, and in both expansion and nonexpansion states parents who were already eligible for Medicaid may have had an increased probability of enrollment after 2014 as a result of publicity, outreach, and enrollment efforts associated with the ACA expansions.

Strong and consistent evidence has emerged that the ACA Medicaid expansions increased Medicaid coverage and reduced uninsurance rates for low-income adults.^{8–10} Several studies have also found increases in access to care and service use and reductions in out-of-pocket spending.^{9,11,12} Descriptive evidence has shown coverage and access improvements for all parents under the ACA.¹³ However, findings on the impacts of the Medicaid expansion for parents have been mixed. One study found no significant increases in insurance coverage or access to care for low-income parents through 2015,¹⁴ while another study found that the Medicaid expansion reduced uninsurance rates for parents with a high school education or less in 2014.¹⁵ Neither of these studies accounted for the variation in the magnitude of the expansion for parents across states that resulted from states' very different Medicaid eligibility thresholds before implementation of the ACA Medicaid expansion.

In this article we describe changes in insurance coverage, access to care, service use, affordability of care, and health status for low-income parents through 2015. We attempt to isolate the impacts of the ACA Medicaid expansion using variations in the Medicaid eligibility threshold for parents within states over time. We also describe the missed opportunities for parents in states that did not expand Medicaid under the ACA.

Study Data And Methods

DATA AND SAMPLE We used public use data for the period 2010–15 from the Integrated Health Interview Series of the National Health Interview Survey (NHIS).¹⁶ These data provide harmonized versions of NHIS variables across data years. We also obtained access to state and county identifiers through the Research Data Center of the National Center for Health Statistics.

We defined *parents* as US citizen adults ages 19–64 with a biological, step-, or adopted child ages 0–18 years in their health insurance

unit—that is, a group of family members who would be considered a family in determining eligibility for Marketplace subsidies, Medicaid, or family/dependent coverage through private insurance (this is a more narrow definition of *family* than that used for other purposes). We also constructed a measure of income relative to poverty for the health insurance unit using NHIS earnings and income information, which includes imputed information for approximately 25 percent of the sample, and poverty guidelines from the Department of Health and Human Services.

Our sample included parents whose health insurance unit had an income at or below 138 percent of poverty. We excluded noncitizens because legal residents face additional restrictions on Medicaid eligibility, and undocumented immigrants are not eligible for Medicaid. We also excluded people who were pregnant or covered by Medicare at the time of the survey and those who had received Supplemental Security Income benefits in the previous calendar year, because those groups are subject to different Medicaid eligibility criteria.

We constructed a health insurance hierarchy that had seven mutually exclusive categories: Medicare, Marketplace insurance, insurance sponsored by the employer (including the military), other private insurance, Medicaid or the Children's Health Insurance Program (CHIP), other public insurance, and no insurance. We report data for four categories: employer-sponsored insurance; Medicaid or CHIP; Marketplace or other private or other public insurance; and no insurance. These categories are based on self-reported information and reflect coverage at the time of survey. We also examined whether parents reported that their health insurance was better, worse, or the same, compared to the previous year.

We constructed several measures of access and use: the percentages of parents who had a usual source of care (other than the emergency department [ED]) and who in the past twelve months had seen a general doctor or any provider (a general doctor, specialist, obstetrician/gynecologist, midlevel provider, or mental health provider). We also identified parents who in the past year had had multiple ED visits or trouble finding a provider who would see them, and those who delayed care for noncost reasons (issues with transportation, wait times for appointments or in the provider's office, inconvenient office hours, or trouble getting through on the phone).

We measured affordability of care by identifying parents who reported being very worried, moderately worried, or not worried at all about

paying either for the medical costs of a serious illness or injury or for costs of routine health care. We also measured the percentages of parents who reported in the past year having had trouble paying medical bills for themselves or their family members; not receiving needed medical care, prescription drugs, or mental health care because of cost; and having delayed care because of cost.

Finally, we measured self-reported general health status (excellent or very good, good, or fair or poor) at the time of the survey and mental health status in the previous thirty days using the Kessler K6 Psychological Distress Scale.¹⁷ We classified respondents into three categories of psychological distress: none or mild (with a score on the scale of 0–7), moderate (8–12), or severe (13 or more). We also examined whether parents reported that their health was better, worse, or the same, compared to the previous year. Additional details on sample sizes and variable construction are available in the online Appendix.¹⁸

METHODS We chose the outcomes described above based on the Andersen model of access to care¹⁹ and previous work on Medicaid expansions.^{20–22} Expanding Medicaid eligibility is expected to increase health insurance coverage, which has the potential to strengthen patients' access to affordable services, enhance their financial security, and ultimately improve their general and mental health status. Medicaid expansions can also crowd out employer-sponsored coverage, however, and improvements in access, affordability, and health outcomes depend on enrollees' ability to navigate the health care system and that system's capacity to meet increased demand for care.

While we generally hypothesized that there would be increases in coverage and improvements in access, affordability, and health status under the Medicaid expansion, the expected effects on ED use, trouble finding a provider, and delayed care for noncost reasons were less clear. Medicaid expansion could reduce ED use if new enrollees gained access to office-based providers, but it could also increase ED use if the cost of that use declined for the newly insured. Similarly, new enrollees might have less trouble finding a provider after gaining coverage, but if capacity is an issue, they might instead have more trouble finding a provider.

We first estimated changes in insurance coverage, access and use, affordability, and health status for low-income parents before and after the 2014 Medicaid expansions, separately for expansion and nonexpansion states. We classified as expansion states those twenty-six states (including the District of Columbia) that had

Children may experience positive spillover effects from their parents' gains in coverage.

expanded Medicaid by April 2014. We excluded Indiana, New Hampshire, and Pennsylvania—which expanded Medicaid in late 2014 or early 2015—from our main analyses so that we could focus on the effects of the 2014 expansions over two years.

We also estimated the simple (unadjusted) difference-in-differences between expansion and nonexpansion states over time to begin to isolate the effects of the Medicaid expansion from other changes occurring in the study period. However, these estimates did not account for the variation in the magnitude of the expansions across states for parents or for other differences between the populations in expansion and nonexpansion states.

To address these issues, we used a multivariate difference-in-differences approach with a continuous policy variable that reflected the Medicaid eligibility threshold for parents in a given state and year. Specifically, we estimated a model with state and year fixed effects to exploit the variation in the Medicaid eligibility threshold within states over time. To increase the precision of our estimates, we pooled NHIS data in two-year intervals (2010–11, 2012–13, and 2014–15) and assigned individuals their state Medicaid eligibility threshold for the earlier year in each pair. This approach allowed us to capture an average effect of the 2014 Medicaid expansions in 2014 and 2015.

We compiled information on state Medicaid eligibility rules for working parents in 2010, 2012, and 2014 from the Henry J. Kaiser Family Foundation (complete citations are in the Appendix).¹⁸ On average, the Medicaid eligibility threshold for parents in expansion states increased from 112 percent of poverty in 2012 to 146 percent in 2014, but this average obscures substantial variation across states (Appendix Table 2).¹⁸ The largest eligibility expansions occurred in Arkansas, West Virginia, and Oregon—which had increases in the eligibility threshold of 122, 107, and 99 percentage points, respectively. Importantly, the expansion states had much

higher eligibility thresholds in 2012 than the nonexpansion states did (112 percent versus 60 percent), so the potential gains for nonexpansion states were considerably larger, on average, than the actual gains in the participating states. In addition, six expansion states and two nonexpansion states had expanded eligibility to parents beyond the ACA threshold of 138 percent of poverty before 2014. We top-coded the eligibility threshold at 138 percent in all analyses because changes at higher income thresholds were unlikely to affect our sample of low-income parents. Additional details on the eligibility rules, including our use of working rather than jobless parent thresholds and the implications for our analysis, are available in the Appendix.¹⁸

For ease of interpretation, we estimated linear probability models on binary measures of coverage, access and use, affordability, and health status, and we included parent-level controls for age, sex, race/ethnicity, education, work status, income as a percentage of poverty, marital status, number of children, and presence of an activity limitation. To further account for changing economic conditions, we also controlled for the county employment rate. We clustered standard errors at the state level and adjusted them to account for the multiple imputations of income. Additional details and means for all covariates are available in Appendix Table 3.¹⁸ Our key variable of interest was the state Medicaid income eligibility threshold for parents, measured as a percentage of poverty, and the coefficient of interest reflected the effect of a 100-percentage-point increase in the eligibility threshold on the outcome of interest.

The difference-in-differences approach relies on the assumption that preexisting trends in the outcomes of interest are similar in treatment and comparison groups. In our case, with a continuous policy variable, it required that the preexisting trends not be correlated with changes in the eligibility threshold. To test this assumption, we estimated a model that included state-specific linear trends in addition to state and year fixed effects. We were unable to estimate this model for our measures of worries about medical care costs or psychological distress because we had only one year of preexpansion data for these measures.

Given the variety of methodological approaches available to estimate the impacts of Medicaid eligibility expansions, we also tested the sensitivity of our results by using the simulated eligibility approach pioneered by Janet Currie and Jonathan Gruber.²³ We imputed individual eligibility to our sample of low-income parents based on state, year, and income. We then drew a national sample of 3,000 parents

and applied the eligibility rules for each state and year to the sample to generate the simulated eligibility instrument, or the share of the national sample that would be eligible under each state's rules. We estimated the model using two-stage least squares, with the endogenous eligibility indicator as our main variable of interest. We provide additional details on the advantages and disadvantages of each approach and discuss other robustness checks in the Appendix.¹⁸

To investigate nonlinearities in the relationship between the eligibility threshold and our outcomes of interest, we replaced the continuous threshold with four categorical variables: income eligibility thresholds of less than 50 percent of poverty, of 50–99 percent of poverty, of 100–137 percent of poverty, and of 138 percent of poverty and above. We then estimated the effect of being in a state with an eligibility threshold of 138 percent of poverty and above compared to each of the other categories, to capture the separate effects of small, medium, and large eligibility expansions under the ACA.

Finally, we used the results of our threshold model to predict the insurance coverage status of low-income parents in nonexpansion states if the eligibility threshold in their state had increased to 138 percent of poverty. This approach assumed that people in nonexpansion states would respond to a Medicaid expansion as similar people in expansion states did.

LIMITATIONS This analysis had several limitations. First, there is measurement error in the eligibility thresholds, incomes, and types of health insurance coverage. Specifically, we could not reliably determine the appropriate threshold for an individual parent based on the NHIS data on work status, so we used the threshold for working parents in our main specification and tested the sensitivity of our results to using the nonworking threshold. In addition, we allocated income across the health insurance units that made up a family, and NHIS income measures refer to annual income in the previous calendar year (for example, income reported in the 2014 survey refers to 2013 annual income). As a result, using our income measure to approximate the Medicaid target population was subject to error. Furthermore, reports of the presence or absence of coverage are generally valid, but measurement error is more likely in reports of the type of coverage and is likely to be increasing with the changes introduced under the ACA.²⁴

Second, we analyzed two measures that captured perceptions of coverage and health status compared to the previous year. With respect to coverage, we would expect any reported improvement to occur immediately after a respon-

dent gained coverage in either 2014 or 2015. With respect to health status, the likely timing and persistence of any improvements are ambiguous. Thus, pooling 2014 and 2015 data for health insurance compared to the previous year might understate reported coverage improvements if coverage gains were concentrated in 2014. Any likely bias in pooling data on health status compared to the previous year would be less obvious, but our estimates reflect an average of reported changes in 2014 and 2015. Furthermore, all of our outcome measures were self-reported and could be subject to recall or social desirability bias.

Third, there could be unobserved factors at the individual or state level that were correlated with the magnitude of the eligibility expansions and the outcomes of interest. For example, if states with larger expansions invested more resources in outreach and education, compared to states with smaller expansions, or if parents in states with larger expansions differed from those in states with smaller expansions on characteristics not captured in the regression analysis (such as severity of health care need), the estimates of differences in outcomes by the size of the expansion would also reflect the effects of these other factors.

Fourth, relatively small sample sizes for some analyses reduced our ability to detect small changes, and the design of the NHIS makes it likely that we underestimated the full effects of the expansion at two years—given the continuous fielding of the NHIS over a given year and the need to rely on many survey questions that are based on experiences during the previous twelve months.

Finally, we designed this analysis to detect the overall effect of the eligibility expansion on the outcomes of interest, not the effects of gaining Medicaid coverage on access or affordability or on health status. Thus, our ability to detect these second-order effects was more limited than our ability to detect effects on insurance coverage.

Study Results

All results reported in the text are significant at the 5 percent level ($p < 0.05$) unless otherwise noted.

CHANGES IN EXPANSION AND NONEXPANSION STATES Based on simple comparisons over time in both expansion and nonexpansion states, we found that insurance coverage for low-income parents changed significantly after the ACA's 2014 Medicaid expansions. The uninsurance rate for parents in expansion states fell 13.0 percentage points from 2012–13 to 2014–15, and there was a nearly corresponding increase in

Medicaid or CHIP coverage (Exhibit 1). The share of parents in expansion states who reported that their coverage was better than in the previous year also increased ($p < 0.10$). In nonexpansion states, the uninsurance rate fell by 10.6 percentage points, a change driven by increases in Medicaid or CHIP (4.0 percentage points, $p > 0.10$), employer-sponsored coverage (3.0 percentage points, $p < 0.10$), and other coverage (3.6 percentage points). When we compared the unadjusted changes in coverage in expansion and nonexpansion states over time, however, only the unadjusted difference-in-differences for employer-sponsored coverage was marginally significant ($p < 0.10$).

We also found significant increases in access and use among low-income parents in expansion states. The share of parents in those states who had a usual source of care and who had had a general doctor visit or any provider visit increased (Exhibit 1). There were also strong improvements in almost every affordability measure examined for parents in expansion states. Changes in health status were mixed, with a decline in the shares of parents who reported that their health was better than in the previous year and who reported severe psychological distress following the expansions.

There were no significant changes in access and use or health status in nonexpansion states, but there were strong improvements in several affordability measures. When we compared the unadjusted changes in access and use, affordability, and health status in expansion and nonexpansion states, only the unadjusted difference-in-differences on delayed care because of noncost reasons was marginally significant ($p < 0.10$). This finding suggests that there was an increase in non-cost-related delays among parents in expansion states relative to nonexpansion states.

IMPACT ESTIMATES ACCOUNTING FOR THE SIZE OF MEDICAID ELIGIBILITY EXPANSIONS FOR LOW-INCOME PARENTS To better isolate the impacts of the Medicaid expansion on low-income parents, we estimated multivariate models that accounted for the characteristics of the parents and the variation in the magnitude of the expansions to parents across states. We found that a 100-percentage-point increase in the Medicaid income eligibility threshold would result in an 11.0-percentage-point decrease in uninsurance and a 14.6-percentage-point increase in Medicaid or CHIP coverage, if all else were equal (Exhibit 2). The estimated effect on employer-sponsored coverage was a decline of 5.2 percentage points ($p < 0.10$), which suggests some evidence of crowd-out of employer-sponsored coverage. These estimates suggest that the average

EXHIBIT 1
Coverage, access and use, affordability, and health status for low-income parents, by state Medicaid expansion status, 2012–13 and 2014–15

	Expansion states			Nonexpansion states			Unadjusted DD
	2012-13 (%)	2014-15 (%)	Change ^a	2012-13 (%)	2014-15 (%)	Change ^a	
COVERAGE							
No coverage	24.4	11.4	-13.0**	44.3	33.7	-10.6**	-2.3
Medicaid/CHIP	49.2	61.0	11.8**	28.6	32.7	4.0	7.7
Employer sponsored	19.1	18.3	-0.8	22.1	25.0	3.0*	-3.8*
Other coverage ^b	7.3	9.3	2.0	5.0	8.6	3.6**	-1.6
Coverage compared to previous year							
Better	11.9	15.9	4.0*	17.6	17.3	-0.3	4.2
Same	78.2	76.2	-2.0	74.0	73.3	-0.8	-1.2
Worse	9.9	7.9	-2.0	8.4	9.5	1.0	-3.0
ACCESS AND USE							
At least one usual source of care ^c	76.7	83.3	6.6**	66.1	70.9	4.8	1.8
In past twelve months:							
Had trouble finding a provider	5.2	5.9	0.8	6.6	5.2	-1.4	2.1
Delayed care for noncost reasons ^d	12.6	14.2	1.6	12.6	9.7	-2.9	4.6*
Had a general doctor visit	59.5	68.8	9.3**	52.4	55.0	2.6	6.7
Had any provider ^e visit	73.9	80.2	6.3**	68.6	71.4	2.8	3.5
Had more than one ED visit	16.9	16.5	-0.4	16.9	14.9	-2.1	1.7
AFFORDABILITY							
Worried about medical costs of serious illness or accident							
Very worried	41.0	31.2	-9.8**	45.7	37.7	-8.1**	-1.8
Moderately worried	35.9	39.8	3.9*	33.9	38.1	4.3**	-0.4
Not worried	23.0	29.0	5.9	20.4	24.2	3.8	2.1
Worried about costs of routine health care							
Very worried	30.6	22.3	-8.3**	37.2	26.3	-11.0**	2.7
Moderately worried	40.7	41.4	0.7	40.5	42.7	2.2	-1.5
Not worried	28.8	36.4	7.6	22.2	31.0	8.8**	-1.2
In past twelve months:							
Had problems paying family medical bills	28.6	20.2	-8.3**	36.6	32.3	-4.3	-4.1
Delayed care because of cost	13.8	9.2	-4.6**	19.8	14.6	-5.2**	0.6
Because of cost, had unmet need for:							
Medical care	12.9	7.5	-5.4**	18.0	14.0	-4.0**	-1.3
Rx drugs	15.5	9.8	-5.7**	22.0	16.2	-5.8**	0.1
Mental health care	4.1	2.5	-1.6*	4.9	4.6	-0.3	-1.2
Any of the three	23.6	15.4	-8.2**	32.1	24.4	-7.8**	-0.5
HEALTH STATUS							
Self-reported general health status							
Excellent or very good	50.0	50.6	0.7	52.8	53.8	0.9	-0.3
Good	33.2	32.9	-0.3	31.3	31.7	0.4	-0.7
Fair or poor	16.8	16.4	-0.4	15.9	14.5	-1.4	1.0
Health status compared to previous year							
Better	21.8	17.9	-3.9**	18.2	15.3	-2.9	-1.0
Same	67.7	71.8	4.1**	70.6	73.6	3.0	1.1
Worse	10.6	10.3	-0.2	11.3	11.2	-0.1	-0.1
Psychological distress ^{f,g}							
None or mild (0-7)	74.6	81.0	6.4**	78.3	81.9	3.6	2.8
Moderate (8-12)	13.2	11.4	-1.8	13.7	10.6	-3.1	1.3
Severe (13 or more)	12.2	7.6	-4.6**	8.0	7.5	-0.5	-4.1

SOURCE Authors' analysis of data for 2012–15 from the National Health Interview Survey. **NOTES** Low-income parents are US citizen adults ages 19–64 whose health insurance unit (defined in the text) income is no more than 138 percent of the federal poverty level and who were the biological, step-, or adoptive parent of a child ages 0–18 years in that unit. The sample excluded people who were pregnant or covered by Medicare at the time of the survey; those who had received Supplemental Security Income benefits in the previous calendar year; and those living in Indiana, New Hampshire, or Pennsylvania (states excluded from our main analyses, as explained in the text). Nonexpansion states are those that had not expanded eligibility for Medicaid by April 2014. Change and unadjusted difference in differences (DD) may not equal difference in point estimates because of rounding. CHIP is Children's Health Insurance Program. ^aPercentage points. ^bCoverage through the health insurance Marketplaces and other public and other private coverage. ^cNot including the emergency department (ED). ^dTransportation, wait times for appointment or in office, inconvenient office hours, or trouble getting through on phone. ^eGeneral doctor, specialist, mid-level provider, mental health provider, or obstetrician/gynecologist. ^fIn the previous thirty days. ^gScore on the Kessler K6 Psychological Distress Scale (see Note 17 in text). * $p < 0.10$ ** $p < 0.05$

EXHIBIT 2

Effects of expanding Medicaid on coverage, access and use, affordability, and health status for low-income parents

	Threshold model	Threshold model with state linear trends	Simulated eligibility
COVERAGE			
No coverage	-0.110***	-0.105**	-0.137***
Medicaid/CHIP	0.146***	0.112*	0.188***
Employer sponsored	-0.052*	-0.032	-0.070*
Other coverage ^a	0.016	0.026	0.019
Coverage compared to previous year			
Better	0.113***	0.156**	0.151***
Same	-0.107***	-0.148*	-0.147***
Worse	-0.007	-0.008	-0.004
ACCESS AND USE			
At least one usual source of care ^b	0.011	0.023	0.013
In past twelve months:			
Had trouble finding a provider	0.010	0.027	0.011
Delayed care for noncost reasons ^c	0.031	0.026	0.038
Had a general doctor visit	0.049	0.066	0.064
Had any provider ^d visit	-0.010	0.019	-0.011
Had more than one ED visit	0.028	0.074	0.038
AFFORDABILITY			
Worried about medical costs of serious illness or accident			
Very worried	-0.050	— ^e	-0.073
Moderately worried	-0.014	— ^e	-0.016
Not worried	0.065	— ^e	0.089
Worried about costs of routine health care			
Very worried	0.003	— ^e	0.001
Moderately worried	-0.049	— ^e	-0.069
Not worried	0.046	— ^e	0.067
In past twelve months:			
Had problems paying family medical bills	-0.099***	-0.122*	-0.136***
Delayed care because of cost	-0.028	-0.063*	-0.036
Because of cost, had unmet need for:			
Medical care	-0.031	-0.065	-0.039
Rx drugs	0.000	-0.038	-0.003
Mental health care	-0.008	-0.030	-0.012
Any of the three	-0.018	-0.064	-0.027
HEALTH STATUS			
Self-reported general health status			
Excellent or very good	-0.007	0.050	-0.014
Good	0.003	-0.012	0.011
Fair or poor	0.004	-0.038	0.004
Health status compared to previous year			
Better	-0.018	-0.032	-0.024
Same	0.021	0.071	0.032
Worse	-0.003	-0.039	-0.008
Psychological distress ^{f,g}			
None or mild (0–7)	0.062**	— ^e	0.084**
Moderate (8–12)	0.010	— ^e	0.026
Severe (13 or more)	-0.073*	— ^e	-0.109**

SOURCE Authors' analysis of data for 2010–15 from the National Health Interview Survey. **NOTES** Low-income parents and the sample are explained in the Notes to Exhibit 1. In both threshold models, the coefficient reflects the effect of a 100-percentage-point change in the state Medicaid eligibility threshold on the outcome of interest. For the simulated eligibility model, the coefficient reflects the effect of a change in individual eligibility on the outcome of interest. CHIP is the Children's Health Insurance Program. ^aCoverage through the health insurance Marketplaces and other public and other private coverage. ^bNot including the emergency department (ED). ^cTransportation, wait times for appointment or in office, inconvenient office hours, or trouble getting through on phone. ^dGeneral doctor, specialist, midlevel provider, mental health provider, or obstetrician/gynecologist. ^eNot available because we had only one year of pre-expansion data for these measures. ^fIn the previous thirty days. ^gScore on the Kessler K6 Psychological Distress Scale (see Note 17 in text). * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

We found a meaningful impact of the Medicaid expansion on mental health for low-income parents.

change in income eligibility thresholds in expansion states of 34 percentage points (Appendix Table 2)¹⁸ decreased uninsurance rates by about 3.7 percentage points. Consistent with these coverage gains, an increase in the eligibility threshold also increased the share of parents reporting better coverage than in the previous year.

We found no significant overall improvements in access and use for parents in response to an increase in the Medicaid eligibility threshold. Increasing the threshold reduced problems in paying family medical bills, but we found no other significant effects on affordability. Finally, increasing the threshold reduced the share of low-income parents who reported severe psychological distress ($p < 0.10$) and increased the share who reported no or mild psychological distress.

When we added controls for state linear trends, we generally found similar results with reduced precision. However, we also found a marginally significant decline in delayed care because of cost. Using the simulated eligibility approach also resulted in findings that were very similar to those in our main specification.

Our investigation of nonlinearities in the relationship between the Medicaid income eligibility threshold and our outcomes revealed some interesting patterns. The estimates can be interpreted as the effect of moving from a state with one of the lower thresholds to a state with eligibility of at least 138 percent of poverty. These estimates thereby capture the separate effects of small (from 100–137 percent of poverty), medium (from 50–99 percent of poverty) and large (from less than 50 percent of poverty) eligibility expansions to 138 percent of poverty.

We found that expansions of all sizes had significant effects on rates of uninsurance and Medicaid/CHIP coverage and that the magnitude of the effects increased as the size of the expansion did (Exhibit 3). These findings support the assumption of linearity in our main specification.

Similarly, the patterns for quality of insurance coverage compared to the previous year and having problems paying medical bills support the findings from our main model. On measures of access and use, however, we found that small expansions were associated with an increased probability of having a usual source of care ($p < 0.10$), and having had a general doctor visit and any provider visit, compared to the larger expansions. Small expansions were also associated with an increase in having trouble finding a provider.

We also found evidence of reductions in unmet needs and delayed care because of cost that resulted from medium-size expansions. Finally, we found similar reductions in severe psychological distress associated with large and medium-size expansions, but large expansions were associated with a shift toward no or mild psychological distress, while medium expansions were associated with a shift toward moderate distress. Altogether, this analysis suggests that our main specification generally captured the effects of the Medicaid expansion on coverage, affordability, and psychological distress but did not capture the effects of small expansions on access and use.

We explored a variety of additional subgroup analyses and robustness checks on our main specification. For example, we found that men and women experienced similar coverage changes in response to the Medicaid expansion, but women had an increase in doctor visits and a reduction in worries about costs, while reductions in psychological distress were concentrated among men (Appendix Table 4).¹⁸ We also found results that were generally consistent, but smaller in magnitude, when we included noncitizens in the sample (Appendix Table 5).¹⁸ And we found additional evidence of reduced affordability problems when we used the Medicaid income eligibility threshold for nonworking parents (Appendix Table 6).¹⁸ These and other sensitivity analyses are discussed in more detail in the Appendix.¹⁸

As indicated above, the states that expanded Medicaid under the ACA already had much higher eligibility thresholds for parents, compared to the states that did not expand. Non-expansion states would have experienced, on average, a 78-percentage-point increase in their Medicaid eligibility threshold for parents if they had opted to expand eligibility (Appendix Table 2).¹⁸ If the nonexpansion states had expanded Medicaid in 2014, our model suggests that the uninsurance rate among low-income parents would have fallen to an average rate of 24.3 percent in 2014–15, compared to the actual 2014–15 uninsurance rate of 33.7 percent (Exhibit 4). We estimate that the Medicaid/CHIP coverage rate

EXHIBIT 3

Effects of small, medium, and large Medicaid expansions on coverage, access and use, affordability, and health status for low-income parents

	Small	Medium	Large
COVERAGE			
No coverage	−0.045**	−0.071**	−0.098**
Medicaid/CHIP	0.090***	0.120***	0.125***
Employer sponsored	−0.032	−0.064***	−0.030
Other coverage ^a	−0.012	0.016	0.002
Coverage compared to previous year			
Better	0.009	0.043	0.116***
Same	0.028	−0.075***	−0.121***
Worse	−0.037***	0.033	0.004
ACCESS AND USE			
At least one usual source of care ^b	0.036*	−0.012	0.023
In past twelve months:			
Had trouble finding a provider	0.042**	−0.002	0.019
Delayed care for noncost reasons ^c	0.001	0.022	0.063*
Had a general doctor visit	0.093***	0.032	0.024
Had any provider ^d visit	0.084***	−0.010	−0.025
More than one ED visit	0.027	0.016	0.024
AFFORDABILITY			
Worried about medical costs of serious illness or accident			
Very worried	−0.003	−0.061	−0.015
Moderately worried	0.011	0.010	−0.030
Not worried	−0.008	0.051	0.045
Worried about costs of routine health care			
Very worried	−0.022	−0.037	0.052
Moderately worried	0.037	−0.021	−0.068
Not worried	−0.015	0.058	0.015
In past twelve months:			
Had problems paying family medical bills	−0.012	−0.075***	−0.092***
Delayed care because of cost	0.005	−0.037**	−0.013
Because of cost, had unmet need for:			
Medical care	−0.002	−0.032**	−0.021
Rx drugs	0.030	−0.022	0.010
Mental health care	−0.007	−0.012	0.006
Any of the three	0.013	−0.033	−0.007
HEALTH STATUS			
Self-reported general health status			
Excellent or very good	0.001	−0.022	0.006
Good	−0.011	0.030	−0.017
Fair or poor	0.010	−0.008	0.011
Health status compared to previous year			
Better	−0.001	−0.003	−0.013
Same	0.004	0.027	−0.012
Worse	−0.002	−0.024	0.025
Psychological distress ^{e,f}			
None or mild (0–7)	0.028	0.014	0.067**
Moderate (8–12)	−0.011	0.061**	−0.007
Severe (13 or more)	−0.017	−0.075***	−0.060**

SOURCE Authors' analysis of data for 2010–15 from the National Health Interview Survey. **NOTES** Low-income parents and the sample are explained in the Notes to Exhibit 1. The coefficients can be interpreted as the effect of moving from a state with one of the lower eligibility thresholds to a state with a threshold of at least 138 percent of poverty. Thus, the estimates capture the separate effects of small, medium, and large eligibility expansions (from 100–137 percent of poverty, from 50–99 percent of poverty, and from less than 50 percent of poverty, respectively, to at least 138 percent of poverty). CHIP is Children's Health Insurance Program. ED is emergency department. ^aCoverage through the health insurance Marketplaces and other public and other private coverage. ^bNot including the ED. ^cTransportation, wait times for appointment or in office, inconvenient office hours, or trouble getting through on phone. ^dGeneral doctor, specialist, mid-level provider, mental health provider, or obstetrician/gynecologist. ^eIn the previous thirty days. ^fScore on the Kessler K6 Psychological Distress Scale (see Note 17 in text). * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

in 2014–15 would have increased to 47.0 percent in nonexpansion states, compared to the actual 2014–15 rate of 32.7 percent. This would have been offset by an estimated decline in employer-sponsored coverage that was not significant.

Discussion

We estimated the effects of the ACA Medicaid expansion on insurance coverage, access to care, service use, affordability of care, and health status for low-income parents. In contrast to previous studies of the ACA expansion,^{9–12} we accounted for the wide variation in the size of the expansion for parents across states to better capture the average impact on parents, and we specifically estimated the effects of expansions of different sizes.

We found strong and consistent evidence that the Medicaid expansion increased Medicaid coverage and reduced uninsurance rates among low-income parents in 2014–15. We also found some evidence of a reduction in rates of employer-sponsored coverage, but this result was more sensitive to the model specification and disappeared when we focused on parents with incomes below poverty (Appendix Table 6).¹⁸ Our results suggest that low-income parents in nonexpansion states would have experienced an additional 9.4-percentage-point drop in their uninsurance rate—a decline of 28 percent—if those states had opted to participate in the ACA Medicaid expansion.

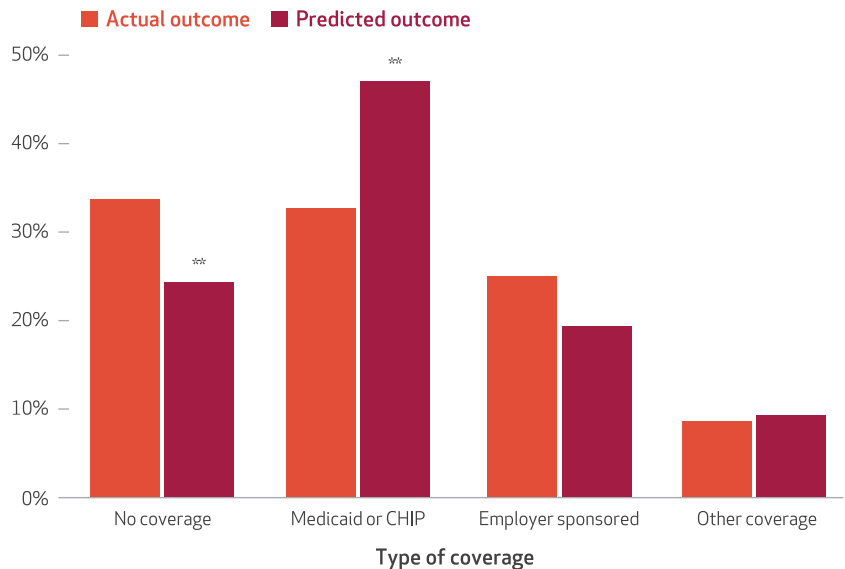
We found that only smaller Medicaid expansions were associated with an increased probability of having a visit with a general doctor or other provider in the previous year, compared to larger expansions. However, smaller expansions had no effects on affordability of care. In contrast, we found that both medium-size and large expansions reduced problems paying medical bills and that medium-size expansions also reduced delayed care and unmet need because of cost.

It is important to remember that the size of the expansion is explicitly tied to the income of the target population. Thus, small expansions target parents with somewhat higher incomes, while large expansions target a broader group—including those with very low incomes. This suggests that expansions in different states reached parents with different characteristics (for example, varying degrees of financial resources and health needs). While we included some controls for these characteristics, there might still be unobserved factors that could have contributed to our results.

Finally, we found a meaningful impact of the Medicaid expansion on mental health for

EXHIBIT 4

Percentages of low-income parents in nonexpansion states in 2014–15, by type of insurance coverage, both actual and predicted if states had expanded eligibility for Medicaid



SOURCE Authors' analysis of data for 2010–15 from the National Health Interview Survey. **NOTES** Low-income parents, the sample, nonexpansion states, and "other coverage" are explained in the Notes to Exhibit 1. Significance refers to the difference from the actual percentage. CHIP is Children's Health Insurance Program. ** $p < 0.05$

low-income parents, with significant reductions in severe psychological distress concentrated among states with medium and large expansions. Given the lack of impacts on service use and the significant improvements in affordability of care in these states, the findings on psychological distress could suggest that the security of having health insurance provides mental health benefits beyond those obtained through medical care. This is consistent with evidence on the "warm glow" of health insurance from the Oregon Health Insurance Experiment.²²

Conclusion

We found strong and consistent evidence that the ACA Medicaid expansion increased coverage, reduced problems paying medical bills, and reduced psychological distress among low-income parents. We also found important missed opportunities for coverage gains among nonexpansion states. Importantly, this analysis might underestimate the potential gains for nonexpansion states because we had limited power to detect the effects of large expansions. Only three expansion states had eligibility levels below 50 percent of poverty before implementation of the ACA Medicaid expansion, but thirteen nonexpansion states had thresholds that low (Appendix Table 2).¹⁸

The benefits of the Medicaid expansion to low-income parents also have the potential to produce spillover effects for low-income children. Evidence suggests that children benefit when their parents are insured, and the mental health improvements for parents gaining coverage under the ACA could have particularly strong ef-

fects on the health and well-being of their children. As policy makers continue to debate the future of the ACA, this study provides important evidence on the benefits of expanding Medicaid eligibility for low-income parents and the missed opportunities for states not participating in the ACA Medicaid expansion. ■

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Center for Health Statistics; the Centers for Disease Control and Prevention; or the Urban Institute, its trustees, or its funders.

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