



# Health Insurance Coverage of Low-Income Rural Children Increases and is More Continuous Following CHIP Implementation

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## Overview

Research demonstrates that, compared to their insured counterparts, children without health insurance are less likely to have a usual source of care, use fewer health care services, and are more likely to delay or forego needed care, including physician visits, dental care, medications and vaccinations.<sup>1-6</sup> This is true for chronically uninsured children, but also for those who experience periodic disruptions in coverage.

Nearly 11 million children were uninsured in 1997 when Congress created the State Children's Health Insurance Program (CHIP) to increase access to insurance for children with family incomes too high for Medicaid, and too low to afford private coverage.<sup>7</sup> At that time, 21% of rural children were uninsured versus 14% of urban children,<sup>8</sup> and rural children were much more likely than urban to be in CHIP's target income range (100% to 200% of the federal poverty level, or FPL).<sup>9</sup> This suggested that many rural children would be eligible for CHIP, and that it could help reduce the large rural-urban disparity in children's insurance coverage. In addition to reducing the number of uninsured children in a given month (or at a "point-in-time"), rural experts noted that CHIP had the potential to improve the continuity of coverage for rural children;<sup>10</sup> however, studies of rural-urban differences in coverage continuity have been limited and yielded mixed results.

Based on the 1996 through 2008 panels of the Medical Expenditure Panel Survey (MEPS), this study analyzed the impact of CHIP on health insurance enrollment and continuity among low-income (<200% FPL) rural children. Specifically, it used a combination of bivariate and multivariate analyses, including Cox proportional hazard models, to compare rural-urban uninsured rates and coverage continuity before and after CHIP was implemented, and to identify factors associated with lower uninsured rates and greater insurance continuity. For the point-in-time analyses, children were categorized as having private health insurance, public health insurance (either Medicaid or CHIP), or being uninsured. The continuity analyses began with children that had either private or public coverage, and followed them until they became uninsured or the two-year survey ended. Rural-urban residence was defined based on OMB classification of counties as metropolitan statistical areas (MSAs) or non-MSAs. Time relative to CHIP was divided into three periods: pre-CHIP (1996-97); early CHIP (1998-2002); and mature CHIP (2003-2008).

## Changes in Monthly and Annual Health Insurance Coverage

Prior to CHIP, nearly one-fourth of low-income children were uninsured at a point-in-time. About 40% had public coverage, and around 35% had private coverage, and this did not differ statistically by residence (Figure 1). By the mature CHIP period, however, the rate of public coverage among rural children in this income group had increased to 61% compared to 55% among urban children. Despite a decrease in private coverage among both rural and urban children, the increase in public coverage was sufficient to reduce the uninsured rate in a given month among low-income urban children to 20%, and to 14% among those in rural areas.

## Key Findings

Prior to CHIP, low-income rural and urban children had comparable rates of public coverage and uninsurance, including chronic (a year or more) uninsurance.

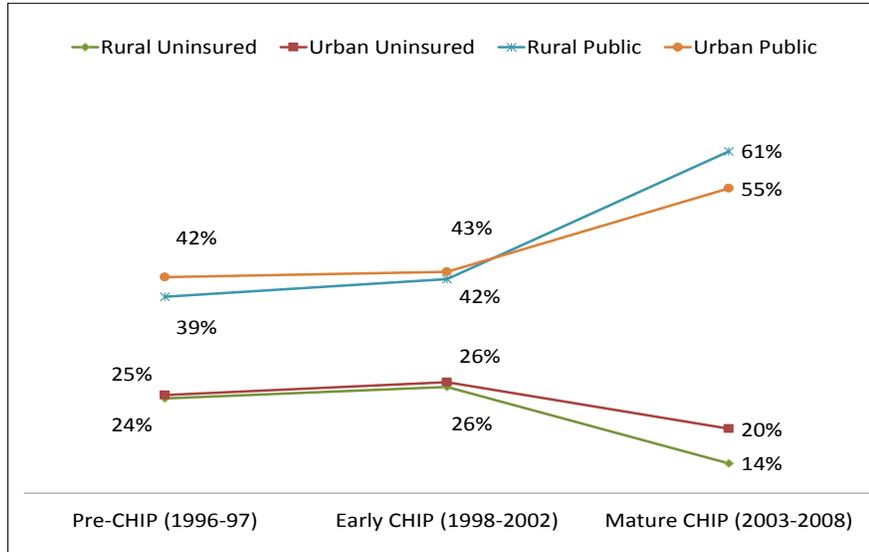
By the time CHIP was fully implemented, uninsured rates had declined so much among low-income rural children that they were lower than among urban children.

In addition to lower uninsured rates in a given month, low-income rural children experienced dramatic increases in the continuity of their health insurance coverage following CHIP.

Controlling for child and family characteristics, low-income rural children have more continuous coverage post-CHIP than do their urban counterparts.

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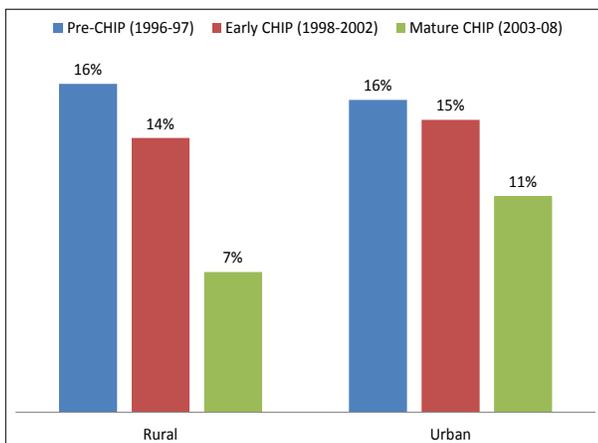
**Figure 1. Rural-Urban Differences in Point-in-Time Insurance Coverage of Low-Income Children (< 200% FPL), Before and After CHIP Implementation**



Source: 1996-2008 Medical Expenditure Panel Survey  
Differences over time and rural-urban differences during “mature CHIP” period significant at  $p \leq .05$

Similarly, while the proportion of low-income children who were ever uninsured in a year did not differ by residence before CHIP or early in its implementation, during the mature CHIP period only 24% of those in rural areas ever lacked coverage during the calendar year, compared to 30% of those in urban. In the mature CHIP period, low-income rural children were more likely than their urban counterparts to have both private and public coverage over the course of a year (10% versus 7%).

**Figure 2. Rural-Urban Differences in the Percent of Low-Income Children Uninsured All Year, Before and After CHIP Implementation**



Source: 1996-2008 Medical Expenditure Panel Survey  
Differences over time and by residence significant at  $p \leq .05$

The proportion of low-income children who were chronically uninsured (no coverage for a full year or more) also declined following the implementation of CHIP (Figure 2). Prior to CHIP, about one-sixth of all low-income children, regardless of residence, lacked health insurance for at least an entire year. However, this improved so much, particularly in rural areas, that by the mature CHIP period, only 7% of rural children in this income group lacked coverage for a year or more, compared to 11% of those in urban areas.

### Changes in Insurance Coverage Continuity

A Kaplan-Meier estimator was used to descriptively compare health insurance survival functions for low-income rural and urban children in each of the three time periods. This revealed that health insurance became slightly more continuous in the early CHIP period, and even more so by mature CHIP, particularly for those in rural areas. Before CHIP, 33% of insured low-income rural children lost coverage by the end of two years, compared to only 28% of their urban counterparts. During the early CHIP period, continuity of coverage improved such that only 27% of both rural and urban children lost health insurance by the end of the 24 months. By the mature CHIP period, the rate of continuity increased further, with only 21% of rural children becoming uninsured after 24 months compared to 23% of urban children ( $p < .01$ ).

Following these analyses, this study sought to identify whether observed differences in improved continuity over time and by residence could be

explained by child or family characteristics. Several child and family characteristics were associated with greater risk of becoming uninsured during the 24 months a child was observed. For example, among all children studied, the relative risk of becoming uninsured increased 4% with each year of a child's age. Compared to the White, non-Hispanic referent group, non-Hispanic minority children had a 34% lower risk of becoming uninsured, holding all else constant. Children without any working adults in the household had 26% lower risk of losing coverage compared to those in households with two working adults. When parents have not completed high school, a low-income child was at 40% greater risk of becoming uninsured than when a parent had attended college. Compared to children in the Northeast, those in all other regions of the country had greater risk of becoming uninsured across the study period. For children in this low-income group (< 200 % FPL), coverage continuity was not significantly associated with private versus public coverage.

Controlling for child and family factors, health insurance coverage continuity among low-income children improved over the three CHIP time periods, particularly for rural children. In multivariate analyses (Cox proportional hazard models), the risk of losing insurance once covered was essentially the same for rural and urban children before CHIP's implementation. By early CHIP, rural children experienced an improvement in coverage continuity, amounting to a 23% lower risk of becoming uninsured compared to the urban, pre-CHIP referent. Health insurance continuity among urban children in early CHIP did not differ from baseline, but by mature CHIP urban children experienced a 22% decline in the risk of losing coverage. Of all six combinations of residence and time period, rural children during mature CHIP had the lowest risk of losing coverage, with a relative risk 35% lower than the baseline referent.

### **Discussion and Policy Implications**

CHIP was established to improve access to health insurance coverage among children with family incomes too high for Medicaid, but too low for private coverage to be affordable. This study reveals that point-in-time health insurance enrollment among low-income rural children has improved substantially since CHIP—despite early concerns that stigma or other barriers could limit CHIP enrollment among all eligible families and especially those in rural areas. In addition to greater rates of coverage in a given month, the continuity of rural children's health insurance coverage improved to such a degree that by CHIP's maturity they were less likely than urban children to lose coverage in

a 24-month period. These rural-urban differences persist after controlling for key socio-economic characteristics of rural children and their families, making the reasons behind this rural advantage unclear. One possible explanation is that rural families may be more persistently low-income than their urban counterparts and thus rural children are less likely to lose CHIP eligibility. This dynamic probably explains why non-White, non-Hispanic children, and those living in families without any adult worker, are also at lower risk for losing coverage.

In addition to providing information relevant to Medicaid and CHIP, this study can help states as they implement the Affordable Care Act (ACA). As written, Medicaid expansion was a key strategy for achieving near-universal insurance coverage, with all U.S. citizens earning up to 133% FPL becoming eligible regardless of health or employment status. However, under the Supreme Court ACA decision of June 28, 2012, Medicaid expansion has become optional for states.<sup>11</sup> Given CHIP's apparent success in stabilizing low-income rural children's insurance, Medicaid expansion may aid rural adults in achieving more continuous health insurance coverage. This will depend on whether states with large rural populations choose to participate, and whether rural residents view expanded Medicaid in the same way they have CHIP.

Policy experts believe fluctuating eligibility among lower income populations between Medicaid and the subsidized private coverage available through Marketplaces (also known as "Exchanges") will be a significant challenge for ACA implementation. In light of these concerns, coverage continuity has been proposed as a performance measure to monitor ACA outcomes.<sup>12</sup> This study suggests that health insurance coverage is more continuous among low-income rural versus urban children, despite the fact (based on descriptive data) that rural children are also more likely than urban to have both public and private coverage during a single year. However, in analyzing coverage continuity, this study did not test whether movement between insurance types led to coverage gaps, or what factors may minimize such coverage disruptions. Thus, while it suggests rural families maintain more continuous coverage for children, even from mixed sources, further research is needed to confirm this and whether rural adults may fare differently. This is of particular concern because, while states generally expanded CHIP to 200% FPL, ACA Medicaid eligibility is capped at 133% FPL—a substantial difference given that half of adults living below 200% FPL may be eligible for both Medicaid and subsidies during a year.<sup>13</sup>

Low-income rural children have experienced substantial gains in insurance continuity since the enactment of CHIP, and the ACA contains provisions that may help ensure these gains are maintained. First, the ACA extends funding for CHIP through 2015. Second, it requires Medicaid and CHIP “maintenance of effort,” meaning that states cannot reduce public program eligibility below what existed in December 2009. The ACA reduces the burden of this requirement by also increasing the federal match rate for CHIP by 23 percentage points (for an average federal contribution of 93%) beginning in October, 2015 and continuing through September, 2019. Whether low-income rural adults will see similar gains in coverage continuity under the ACA remains to be seen and may depend on whether states choose to participate in Medicaid expansions, the degree to which they engage in assertive outreach campaigns, and how they implement their Marketplaces.

*For a more detailed discussion of the methodology, please contact the author.*

## Endnotes

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