

Medicaid and CHIP Premiums and Access to Care: A Systematic Review

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abstract

BACKGROUND: Premiums are required in Medicaid and the Children's Health Insurance Program in many states. Effects of premiums are raised in policy debates.

OBJECTIVE: Our objective was to review effects of premiums on children's coverage and access.

DATA SOURCES: PubMed was used to search academic literature from 1995 to 2014.

STUDY SELECTION: Two reviewers initially screened studies by using abstracts and titles, and 1 additional reviewer screened proposed studies. Included studies focused on publicly insured children, evaluated premium changes in at least 1 state/local program, and used longitudinal or repeated cross-sectional data with pre/postchange measures.

DATA EXTRACTION: We identified 263 studies of which 17 met inclusion criteria.

RESULTS: Four studies examined population-level coverage effects by using national survey data, 11 studies examined trends in disenrollment and reenrollment by using administrative data, and 2 studies measured additional outcomes. No eligible studies evaluated health status effects. Increases in premiums were associated with increased disenrollment rates in 7 studies that permitted comparison. Larger premium increases and stringent enforcement tended to have larger effects on disenrollment. At a population level, premiums reduce public insurance enrollment and may increase the uninsured rate for lower-income children. Little is known about effects of premiums on spending or access to care, but 1 study reveals premiums are unlikely to yield substantial revenue.

LIMITATIONS: Effect sizes were difficult to compare across studies with administrative data.

CONCLUSIONS: Public insurance premiums often increase disenrollment from public insurance and may have unintended consequences on overall coverage for low-income children.

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(Medicaid OR CHIP OR S-CHIP OR SCHIP OR public insurance OR insurance program) AND (premium OR premiums) AND (children OR child OR adolescent OR adolescents OR youth OR family OR families).

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Premiums, periodic financial contributions required to maintain insurance benefits, are now included in many public insurance programs serving low- and moderate-income children. Premiums for children's insurance became prominent with implementation of the 1997 Children's Health Insurance Program (CHIP).¹ CHIP was created for children in working families with incomes too high to qualify for Medicaid. Before CHIP, most children enrolled in Medicaid were in families below the poverty line that were generally exempted from premiums.² Under CHIP states were provided with new federal funding to expand insurance to nonpoor children by using either existing Medicaid programs, new stand-alone CHIP plans, or some combination.¹ Using this flexibility, many states created CHIP programs with benefits more closely resembling private insurance plans, and included premiums for nonpoor children.

Premiums are now permitted in both CHIP and Medicaid. The 2005 Deficit Reduction Act (DRA) increased cost-sharing, allowing Medicaid programs to charge premiums to children in households above 150% of the federal poverty line (FPL).² Premiums can be charged at even lower income levels in CHIP. For both programs, the DRA limits total cost-sharing from premiums and copayments to 5% of the enrollee's household income.² The DRA exempts certain groups, including children in foster care, from premiums.³ States have also received authority through Section 1115 demonstration waivers to charge premiums beyond DRA levels to cover higher-income children (an "optional population") using Medicaid funding.

As of 2013, thirty states imposed premiums on some children in CHIP and 5 applied them in Medicaid (Table 1; states have discretion to change these premiums

TABLE 1 Summary of Premiums in Medicaid and CHIP for Children, 2013

Income at Which Premiums Begin	Number of States Required in Medicaid ^a	Number of States Required in CHIP ^b
<100% FPL	0	1 ^c
101%–150% FPL	1	12
151%–200% FPL	3	10
>201% FPL	1	7
Total	5	30

Premium amounts can vary year-to-year, so these data represent only 1 point in time and are subject to change. Source: Georgetown University Health Policy Institute, Center for Children and Families. Premium, enrollment fee, and copayment requirements for children. Available at: <http://ccf.georgetown.edu/wp-content/uploads/2012/04/Cost-Sharing2.pdf>. Accessed on January 11, 2016

^a Maryland, Minnesota, Rhode Island, Vermont, and Wisconsin.

^b Alabama, Arizona, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Maine, Massachusetts, Michigan, Missouri, Nevada, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Texas, Utah, Vermont, Washington, West Virginia, and Wisconsin.

^c In Nevada, although Medicaid covers children in families with income up to 133% FPL, some children with lower incomes may qualify for CHIP depending on the source of income and family composition. Such families with incomes at or above 36% of the FPL are required to pay premiums.

year-to-year), with the majority of states imposing premiums only at incomes above 150% FPL. States with premiums in Medicaid use CHIP funds to expand traditional Medicaid to higher-income populations rather than creating stand-alone programs. Median monthly premiums ranged from \$10 in states requiring premiums of populations below 150% FPL to \$39 for states requiring premiums only of populations between 251% and 300% of FPL.⁴

Application of premiums is controversial. Opponents argue that requiring low-income families to contribute even small amounts to children's health insurance undermines the financial protection of public insurance, discourages parents from enrolling uninsured children, leads to greater instability ("churn") in children's coverage,⁵ and introduces administrative complexities and hidden costs.⁶ Supporters, on the other hand, contend that premiums increase the financial stability and reach of public insurance without creating an undue burden for families, foster personal responsibility and ownership over health care use among low-income individuals, and better prepare families to ultimately enroll in private insurance where premiums are routine.⁷ Additionally, premiums could limit "crowd-out"

(ie, substituting public coverage for a private alternative).⁸

A simple economic framework posits that premiums could affect access and wellbeing through their impact on insurance coverage. Compared with a free program, premiums introduce a cost that families must weigh against the benefits (financial protection and access to care) of having a child covered by public insurance. Although premiums are hypothesized to discourage public insurance enrollment in general, effects could be heterogeneous depending on the child's health, the availability of private insurance alternatives, and the financial resources of the family.

Premiums can alter 3 domains: coverage (eg, coverage stability and crowd-out), spending for both families and state programs, and access to health services that promote health and wellbeing. These issues will likely be raised in future policy debates over children's insurance, as CHIP will require Congressional reauthorization to continue beyond 2017.⁹ There is also interest in transitioning some CHIP populations to other coverage options under the Affordable Care Act (ACA), including insurance Marketplace plans.¹⁰ Subsidies to purchase Marketplace plans are available for families between 100%

and 400% FPL, with premiums capped at 2% of household income at the low-end and 9.5% at the upper end. Experiences under CHIP thus provide guidance about effects of ACA premiums.¹¹ Although the effects of CHIP and Medicaid coverage on access and health have been broadly reviewed,¹²⁻¹⁴ to our knowledge this is the first systematic review of the effects of premiums. We focus on studies related to publicly insured children, focusing on quasi-experimental studies.

METHODS

Literature Search

PubMed was searched to identify articles published between January 1995 and December 2014, a 15-year time period encompassing the implementation of CHIP (originally called the State Children's Insurance Program, or SCHIP/S-CHIP) in 1997 and the 2005 DRA. Search terms were divided into 3 groups: terms identifying children, youth, or families; terms identifying a public insurance program (Medicaid, CHIP, SCHIP, S-CHIP, insurance program, public insurance); and terms identifying premiums.* The Boolean phrase "AND" was used between groups and the phrase "OR" was used within groups.

Inclusion Criteria

Our initial search yielded 263 articles, of which 34 were deemed relevant on the basis of abstracts and titles, and 17 were ultimately found to meet study criteria. To be included in the review, studies had to report on youth under 18 enrolled in Medicaid, CHIP, or some other public insurance program (such as a county safety net insurance program); evaluate effects of a change in premiums (either an increase or decrease); and report on outcomes related to coverage and enrollment, access to care, financial burden, program expenditures, or health status. To be included, studies

needed to present an estimate specific to the effect of premiums, independent of other concurrent policy changes. Additionally, studies were required to include data on the population of children before and after the study intervention by using either longitudinal or repeated cross-sectional data. Studies using a single cross-section were excluded, because baseline data were considered necessary to evaluating possible causal effects of premium changes.

Study Selection

Two members of our team compiled an initial set of studies and removed duplicates. Authors also conducted an initial review of titles and abstracts. Potentially eligible studies were reviewed by at least 2 of the study authors. The final set of included studies was agreed upon by all study authors.

Risk of Bias

All of the studies included used quasi-experimental methods, but potential biases varied. Studies with greater potential bias were evaluations in a single state where the premium change coincided with other simultaneous policy changes, making it difficult to isolate effects of the premium change, or studies where premiums may have been implemented in response to concurrent changes in the economic environment, such as a recession, that could independently influence trends in enrollment. Bias may be present in these studies if the effect of premiums is confounded by other cooccurring trends. Furthermore, even if the premium effect is successfully identified, this effect may not generalize to other contexts (an issue of external validity). Strongest studies were those in which it was possible to identify a policy exposing some, but not other, publicly insured children to premiums in a nearly random manner, and it was possible to compare both groups. Absent

random assignment, stronger observational studies included controls for the unemployment rate and other contextual variables. Stronger studies using administrative data also included comparison groups that reported on children in the same state that were not impacted by premium changes during the study period. Stronger observational studies using national survey data included state and year fixed effects, covariates for time-varying economic conditions, prices of private insurance premiums, income eligibility thresholds, and other public insurance policies. Stronger studies also probed sensitivity of study results for lagged effects (since short-term and long-term effects may differ) and tested alternative measures of premiums (for example discrete versus continuous measures). Overall, publication bias could exist if studies reporting a significant effect of premiums were more likely to be accepted for publication than studies reporting null effects.

Data Synthesis

We divided the literature into 2 categories of studies: population studies that report on population-level effects of premium changes and program enrollment studies that report on longitudinal changes by using administrative data. Separating these 2 categories is important, because program enrollment studies use the population of enrolled children within a program as the denominator for reporting effect sizes, whereas population studies estimate average effects within a population (typically the segment of children likely to be eligible to participate in public insurance programs). For both categories, we recorded the change in the premium. Because all of the studies span multiple years and different time periods, we provide premium amounts and changes as reported

in each study (not in current year dollars). It is important to note that the studies we cite are from different time periods and many of the premium amounts reported would be substantially larger in current year dollars.

For studies on coverage dynamics with national survey data, we extracted estimates of the effects of premium changes on the share of low-income children in the population with public insurance (Medicaid or CHIP), private insurance, or uninsured. Several of these studies included simulations of the likely effects of different premium policies, typically by extrapolating the effects on different income groups by using regression coefficients. In these studies, we identified a “midrange” simulation representing a moderate premium increase, and compared percentages with each coverage type with and without premium increases. Using a midrange amount reduced possible out-of-sample extrapolations (eg, simulations that could not be supported by data) and also improved comparability.

For administrative data studies, we extracted several variables related to changes in enrollment after premium changes: (1) changes in disenrollment rates; (2) changes in rates of transfers from premium to nonpremium public insurance programs; (3) changes in reenrollment rates (the probability that a child would reenter the program after a period of lapsed coverage); and (4) net change in enrollment in the premium program. Wherever possible, we recorded the time period over which changes were assessed.

An important point of differentiation across these studies is the definition of an enrollment spell (the length of time a child is enrolled in public insurance). Some administrative data studies used both Medicaid and CHIP enrollment data, so were able to differentiate between CHIP coverage

exits in which children transitioned to Medicaid coverage and exits in which the child left public coverage completely. Others used CHIP data only, so were not able to differentiate in this way. There are also differences in how studies treated censoring (ie, enrollment patterns before or after the study period), coverage gaps, and multiple spells of coverage.

For studies that considered other outcomes, we extracted estimates related to relevant outcomes, initially searching for effects on access to care, program and household spending, and financial burden within the population impacted by premiums.

RESULTS

Population Coverage Studies

We identified 4 studies that included estimates of the effects of premium changes on the overall insurance coverage of low-income children by using multiple years of data (Table 2).^{15–18} Using national survey data from 1996 to 2003, Hadley et al¹⁵ model children’s enrollment into public insurance as an effect of prevailing premiums in their state’s CHIP program versus the likely premium level of private insurance in the county predicted by using an instrumental variables technique.¹⁵ They estimate that increasing the relatively modest premiums of the early 2000s by ~\$10 (in 2003 dollars) would result in a 3 percentage point decrease in public insurance enrollment among children eligible for CHIP, with approximately one-third of these children becoming uninsured.

Using a similar approach, Kenney et al¹⁶ examine changes across states from 1999 to 2003 with data from the Current Population Survey. Their models also account for average private insurance premium costs at the county level. They simulate that compared with no premium, a \$10

per month premium (in 2003 dollars) resulted in approximately a 1.4 percentage point decrease in public coverage among children between 100% and 300% of the FPL, with approximately one-third of those children becoming uninsured. In a subanalysis, they find average effects on enrollment were more than twice that size for the segment of children between 100% and 200% of the FPL.¹⁶

Gresenz et al¹⁷ update earlier estimates, examining changes from 2002 to 2009. During this period, several states further expanded CHIP to children in households above 300% of the FPL, and raised premiums for this new population. They estimate a 2-stage selection model accounting for the possibility that families might strategically keep their incomes low to qualify for public insurance. They simulate the coverage effects of 3 sliding scale premium programs (low, medium, and high) and 3 different income ranges (0%–200%, 0%–300%, or 0%–400% FPL). They find raising income thresholds without imposing any premiums substantially increases public insurance enrollment (for example, going from an income cutoff of 200% FPL to 400% FPL would increase the fraction of publicly insured low-income children from 38% to 43%). They simulate that these increases in enrollment would be effectively nullified, however, under modest or high premiums, with income cutoffs at 400% FPL combined with high premiums, ~37% of all eligible children would enroll. Simulations also suggest that the effect of raising premiums is fully offset by increases in private coverage, with no increase in the uninsured rate among children. One interpretation is that higher income families are sensitive to premiums in public insurance but are also more likely to have available private coverage alternatives when they encounter premiums.

TABLE 2 Population Studies Estimates

Study	Years	Data, Premium Changes, and Populations			Changes After Premium		
		Data Set	Population Studied	Average Premium Change	Medicaid/CHIP	Private	Uninsured
Hadley et al 2006 ¹⁵	1996/1997, 1998/1999, 2000/2001, and 2003	Community Tracking Study Household Survey	Children between 100% and 300% FPL	Baseline: Average annual premium per child (in 2003 dollars) over the years 1999–2003 was \$10. Simulation: going from baseline to imposing a minimum premium of \$10 and increase existing premiums by \$10 for near-poor children eligible for Medicaid/CHIP.	–3.09 percentage points	2 percentage points	1.09 percentage points
Kenney et al 2006 ¹⁶	2000–2004	Current Population Survey	Children between 100% and 300% FPL	Average premiums charged among states that charged premiums for children: \$5 (101%–150% FPL) to \$50 (251%–300% FPL). Simulation: going from baseline distribution to a \$10 increase in public premium for all children 100%–300% FPL.	–1.40 percentage points	1.12 percentage points	0.29 percentage points
Gresenz et al 2013 ¹⁷	2002–2009	Current Population Survey	All children <400% FPL	Simulation: going from \$0 premiums on all children to introducing premiums from \$40 to \$60 between 200% and 400% FPL (0%–200% FPL stay at \$0 per month).	–3.19 percentage points	2.18 percentage points	0.25 percentage points
Abdus et al 2014 ¹⁸	1999–2010	Medical Expenditure Panel Survey	Children above 100% FPL	Average premiums charged among 2009–2010 sample: \$5 (101%–150% FPL) to \$47 (>250% FPL). Simulation: going from baseline distribution to increasing (annualized) public premiums by \$10 for all eligible children above FPL.	–3.9 percentage points	2.3 percentage points	1.6 percentage points

Premium amounts represent per child per month for the relevant income categories. If multiple simulations were presented, we selected a simulation representing a moderate increase in premiums relative to a baseline (often characterized by low premium levels). CHIP, Children's Insurance Program.

In another recent study, Abdus et al¹⁸ use data from the 1999–2010 Medical Expenditure Panel Survey on low- and moderate-income children above the poverty line. They control for child and family fixed effects, and directly observe whether a child's parent is offered employer-sponsored insurance. They simulate that a \$10 per child premium (in 2010 dollars) would result in an average decrease in public insurance of 3.9 percentage points among eligible children, with private coverage rising by 2.3 percentage points and the child uninsured rate increasing by 1.6 percentage points. The estimated decrease in public insurance enrollment was almost twice as large when considering children between 100% and 150% FPL, and most of the decrease among the lowest-income children was simulated to result in uninsurance in households where the parent had no offer of employer-sponsored insurance.

The magnitude of the estimates from these 4 studies varies somewhat, but they consistently indicate that premiums reduce public insurance coverage and that a substantial fraction of children (perhaps two-thirds) who leave public insurance after premium increases receive private coverage. The magnitude of these effects and the degree of crowd-out varies by population segment, with lower-income children being more vulnerable to losing insurance coverage.

Studies of Program Enrollment

We identified 11 studies with data from 9 state programs on changes in enrollment after changes in public insurance premiums (Table 3).^{19–29} The majority of studies reported on children enrolled in CHIP programs with household incomes at 150% to 300% FPL. Most premium changes were increases between \$5 and \$20, but some changes were either partial (applying to a subset of beneficiaries)

or complete premium reductions.^{21,26} Effect sizes were typically reported as hazard ratios, reflecting changes in monthly disenrollment risk relative to baseline rates over a discrete period of time (such as 12 months after a premium change). However, some studies reported changes on total caseload, reflecting changes in both entries and exits from the program, or reported changes over a different time period. Regardless of unit of measurement or time horizon, direction of association was generally consistent across studies. Premium increases were generally associated with disenrollment (7 studies revealed such reductions)^{16,20–22,24,27,29} and premium reductions were associated with increased retention.^{21,26}

Effect sizes were difficult to directly compare across studies but, qualitatively, several factors appear to be associated with larger disenrollment effects. Disenrollment was higher when premiums were new (as opposed to increases to existing premiums) and when premiums were more stringently enforced, including lockout periods (preventing reenrollment for a time interval after nonpayment) and prompt termination of benefits for nonpayment. For example, both Kansas and Kentucky imposed \$20 per family per month premium increases in 2003, but in Kentucky the premium was new and accompanied by prompt termination of benefits, whereas in Kansas the policy was an increase of an existing premium with no benefits termination for 12 months. Premiums had no significant effect on disenrollment in Kansas, but increased disenrollment hazards 28% in Kentucky in the first year of the program.²¹

Enrollment responses to the same premium change may also differ depending on the child's health status, because parents of children with elevated health care needs may

be willing to pay more to maintain public insurance coverage. Two studies reveal a lower disenrollment rate among children with physical or mental chronic diagnoses compared with healthy children,^{20,26} whereas 1 study reveals no difference in effect,²⁴ 1 study reveals that disenrollment rates were actually higher among children with chronic illness,²⁸ and 1 study reveals that the response varies depending on the child's chronic condition (with a significantly lower disenrollment change for families with children with intellectual disability but higher for asthma).²⁷ The evidence is mixed about whether greater premium amounts lead to higher disenrollment; for example, the disenrollment effect was larger for moderate income children in Kansas than in Kentucky (net premium changes of \$20), but other program features also differed. A study using Wisconsin data that matched households just above or below income thresholds that trigger higher premiums reveals that although small premiums reduced enrollment compared with zero dollars, premium increases did not affect enrollment at higher income levels.²⁵

Not all children that disenroll from CHIP programs with premiums leave public insurance; some may become eligible for nonpremium (ie, "free") CHIP or Medicaid, mitigating the effects of premiums on disenrollment. This eligibility change could theoretically arise through a strategic response from parents to maintain an income low enough to stay in a program not requiring premiums (sometimes known as "the welfare notch")^{25,30} or through families being motivated to update their eligibility determination after income decreases. In a simulation, for every 3 additional children disenrolling from CHIP programs requiring premiums in the year after a premium increase in Georgia, 1 child would subsequently enroll in

Medicaid²⁹; large effects on other public program enrollment have also been found in studies of children exiting CHIP in Kentucky and Arizona.^{22,29}

Studies on Cost, Access, and Wellbeing

We identified 1 study (also reported as a program enrollment study) that explicitly considered program spending as an outcome. Using data from Arizona and Kentucky, the study reveals that premium revenues, on their own, account for little savings (recovering 0.5%–2.0% of total costs in a best case scenario).²² Larger program savings result from decreased spending on children who drop CHIP coverage requiring premiums. However, the savings from spending less on children who drop CHIP coverage requiring premiums are mitigated by the fact that some of these children subsequently enroll in nonpremium Medicaid.

Premiums directly increase family health care spending, but it is unclear to what extent they might increase financial hardship. We did not identify any studies that compared overtime changes in self-reported financial insecurity or medical debt after changes in premiums.

Effects on access to care have also not been extensively studied. We only identified 1 study that met our criteria examining an access outcome. This study examines a premium forgiveness program in Idaho that waived premium requirements for families who maintain recommended well-child visits and immunizations.³¹ This policy, which is effectively a premium reduction for families taking children to receive medical care, was associated with an increase in the probability of well-child visits of between 20% and 113%, with larger effects for older children. Beyond this study, focusing on a specific intervention we did not find any studies that focused on

TABLE 3 Studies on Premium Changes and Program Enrollment

State and Years	Study	Background on Program			Changes After Premium			Total Caseload
		Population	Monthly Premium Change	Disenrollment Probability	Reenrollment Probability	Transition to Other Public Programs		
Alabama, 1999–2009	Morrisey et al 2012 ²⁸	CHIP 100%–200% FPL	CHIP 101%–150% FPL: \$0→\$4.2, CHIP 151%–200% FPL: \$4.2→\$8.4 (ie, annual \$50→\$100), premiums capped for families >3 children	NA	–6.1 percentage point of renewing within 12 mo	NA	NA	
Arizona, 2002–2004	Kenney et al 2007 ²²	Medicaid, 101%–150% FPL	\$0→\$10/\$15 premiums (premiums only apply at higher incomes for younger children)	+38%, largest effects in first 2–3 mo	–10%	11% increase in Medicaid exits, 15% other CHIP, 85% other reasons	Overall reduction in monthly caseloads of CHIP 5.3%	
California, LA County, 2009–2011	Cousineau et al 2012 ¹⁹	Children in county uninsured program	Program increased by \$15 per month on children age 6–18 (family maximum \$45), program remained free for ages 0–5	NA	NA	NA	20% decrease in caseload of affected children attributable to policy over 1 y	
Florida, 1997–1999	Shenkman et al 2002 ²⁶	Mostly poor children; transitioned to CHIP from less generous state program	Monthly family premiums capped at \$15, previously up to \$65 per child. Median change: \$5 reduction, ~10% of population experienced premium increases	Median: –2% (ie, enrollment increase)	Median: +6%	NA	NA	
Florida, 2002–2004	Herndon et al 2008 ²⁰	CHIP 101%–200% FPL	101%–150% FPL: temporary \$15→\$20 increase, 151%–200% FPL: permanent \$15→\$20 increase	+142% for lower income, +121% for upper income over 12 mo	NA	NA	NA	
Georgia, 2003–2005	Marnton et al 2010 ²⁹	CHIP 151%–235% FPL	At low income doubled (\$10→\$20) at higher income tripled (\$25→\$75)	+90% first 2 mo, –34% months 3–16	NA	–10% to Medicaid, +55% to no-cost CHIP in first 2 mo	7% net reduction on continuing caseload ^a	
Georgia, 2003–2006	Marnton et al 2015 ²⁴	CHIP 101%–235% FPL	Changes ranged \$7.5→\$10, \$7.5→\$35 (for 1 child, higher premiums for families with multiple children)	+2% for all children, similar effects for children with a chronic disease indicator	NA	NA	NA	
Kansas, 2001–2004	Kenney et al 2006/2007 ²¹	CHIP 151%–200% FPL	151%–175% FPL: Premium increased \$10→\$30 per family per month in February 2003; then decreased to \$20 in July 2003. 176%–200% FPL: Premium increased \$15→\$45 per family per month in February 2003; then decreased to \$30 in July 2003	–5%	NA	NA	4.1% decrease in average monthly enrollment of CHIP requiring premiums population	
Kentucky, 2001–2003	Kenney et al 2007 ²²	CHIP 151%–200% FPL	\$0→\$20 premiums	+52%, largest effects first 2–3 mo	–5%	No exit to other Medicaid, 1% increase to other CHIP, 134% increase “other reason”	Overall reduction in monthly CHIP caseloads of 18%	
Kentucky, 2001–2004	Marnton et al 2010 ²⁹	CHIP 151%–200% FPL	\$0→\$20 premium	+120% in first 2 mo, +8% in month 3–7	NA	+21% to Medicaid, +11% to no-cost CHIP in first 2 mo	16% net reduction on continuing CHIP caseload ^a	

TABLE 3 Continued

State and Years	Study	Background on Program		Changes After Premium				
		Population	Monthly Premium Change	Disenrollment Probability	Reenrollment Probability	Transition to Other Public Programs	Total Caseload	
Kentucky, 2001–2004	Kenney et al 2006/2007 ²¹	CHIP 151%–200% FPL	Monthly family premiums: \$0→\$20; termination for 2 mo nonpayment	+28%	NA	NA	18.1% decrease in average monthly enrollment	NA
Kentucky, 2001–2004	Marton 2007 ²³	CHIP 151%–200% FPL	\$0→\$20 premiums	+159% in first 3 mo, +13% in 6 months	NA	More than half of all children exiting program (both before and after premium change) go to nonpremium programs	NA	NA
Kentucky, 2001–2004	Marton and Talbert 2010 ²⁷	CHIP 151%–200% FPL	\$0→\$20 premiums	Heterogeneous effects by chronic disease indicator (lower disenrollment for retardation, higher for asthma)	NA	NA	NA	NA
New Hampshire, 2001–2004	Kenney et al 2006/2007 ²¹	CHIP 185%–300% FPL	Lower income: \$20→\$25, upper income \$40→\$45; termination for nonpayment	+11%	NA	NA	3.7% reduction in average monthly enrollment	NA
Wisconsin, 2006–2009	Dague 2014 ²⁵	CHIP >200% FPL	\$0→\$10–\$91 premium per month	Households just above or below income thresholds matched. Significant effect +12% over 12 mo for children 200%–230% FPL, but no effect at higher income levels.	NA	NA	NA	NA

Premiums are reported in per-child per month increments for a single child unless otherwise noted. Time period for changes after premium is 1 year unless otherwise noted. Percentage changes, representing changes in rates relative to the pre-premium period, are often converted hazard ratios (eg, hazard ratio 2.0 = +100% relative increase). NA, not applicable. The “→” symbol indicates a time-varying increase.

^a Continuing caseload estimates do not reflect new entries into the program, only changes in baseline population.

the effects of conventional premium programs on access or wellbeing.

DISCUSSION

This article reviews the effects of premiums in CHIP and Medicaid on enrollment, access to care, spending, and related outcomes among low-income children. Across studies, premium increases are generally associated with reduced enrollment in premium insurance programs^{20,22,27,29} and decreases are associated with enrollment increases.^{21,26} Premiums that are more stringently enforced and premiums that are newly added (rather than increases of existing premiums) are associated with larger declines in enrollment.²¹ Some,^{20,26} but not all,²⁸ studies reveal that children with chronic illnesses are less likely to disenroll after premium increases. Despite these effects, the overall effects of premiums on the child uninsured rate are mixed. For lower-income children, raising premiums may increase the uninsured rate, but at higher incomes premium increases may result in substitution to private insurance without a substantial increase in the child uninsured rate.¹⁶⁻¹⁸

Beyond the question of whether premiums increase the uninsured rate, the impact of premiums on other child and family outcomes is uncertain. We did not identify any studies meeting our study criteria (ie, use of pre- and postdata and methodology to isolate premium effects from other program changes) that evaluated effects of premiums on outcomes related to financial burden or health status. Such studies are challenging to conduct because state administrative data are not typically linked to data sets that include these measures. Only 1 study, examining a particular program in Idaho that offered premium forgiveness for check-up visits, has linked premiums to a utilization measure.³¹ This

finding is important because it may relate to an area of growing experimentation under the ACA, tying financial incentives to health and wellness behaviors.⁷ However, there is not yet evidence about whether traditional premium programs (without incentives) have any effects on health care utilization.

The only study to evaluate potential budgetary impacts of premiums suggests they raise little revenue relative to program spending, and may create other administrative costs.²² Cost-savings that are generated from premium programs appear to largely derive from reduced enrollment in public insurance. For policymakers, an important question is whether families discouraged by premium programs ultimately enroll children in other forms of coverage, because some policymakers may find it desirable to use premiums to reduce crowd-out. This issue is also of growing importance, because some states have used premium programs to extend coverage to children in higher income families (essentially creating a Medicaid buy-in option for households that are in middle- or higher-income families, as in Wisconsin).²⁵

These findings have implications for pediatric providers. Providers can play an important role in educating low-income families about public insurance premiums that apply in their state. Premiums may be an unfamiliar concept to low-income families, especially those with limited experience with private insurance. Knowledge of premiums can help pediatric providers to assist families with enrollment in public programs. Partnerships between providers and state programs can also enhance awareness of when premium changes will take effect, because changes in premiums can increase the risk of children losing insurance coverage. Finally, pediatricians can play a role as advocates for low-income families

in presenting state policymakers with first-hand evidence on the impact of premiums on access to care.

Our review indicates some important evidence gaps. Research on premiums could be strengthened by consistently reporting levels and changes in premium amounts, relative and absolute parameters representing changes in enrollment, and time periods over which changes were observed. A lack of consistent reporting of these measures decreased comparability of findings across studies. To improve comparability, program enrollment studies should consistently report changes in 1-year hazard rates relative to preperiods, and if possible separate rates for transitions out of public insurance versus transitions to other public programs. There is a dearth of research on the impact of premiums on access to care, health status, and financial burden, and on longer-term effects of premium programs (beyond 1 year). Such studies would fill a critical gap necessary for complete policy evaluation of premium programs. Cost-benefit analyses that include administrative costs would also enhance the evidence base.

CONCLUSIONS

Although evidence indicates that premiums reduce public insurance enrollment for children overall,¹⁵⁻¹⁸ effects across subgroups are complex and vary by other features of programs. One study suggests that premiums produce little direct revenue compared with average program costs.²² Less is known about how premiums affect children's health, but to the extent that they lead to higher uninsured rates, they may reduce access to care. Premiums increase private insurance enrollment, and may therefore limit crowd-out, but it is uncertain whether private coverage alternatives provide comparable

access to care or are as affordable as CHIP.³² If the objective of premiums is to encourage specific health-related behaviors, more targeted use of premiums may be warranted. For example, using premium forgiveness as an incentive to increase wellness activities could be an effective tool, but there is a dearth of empirical evidence on the impact of such programs. Researchers should continue to evaluate new premium arrangements, including premiums that apply to children receiving coverage through the ACA.

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ABBREVIATIONS

ACA: Affordable Care Act
 CHIP: Children's Health Insurance Program
 DRA: Deficit Reduction Act
 FPL: federal poverty line

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