



Published in final edited form as:
Future Child. 2015 ; 25(1): 65–90.

Child Health and Access to Medical Care

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Abstract

It might seem strange to ask whether increasing access to medical care can improve children's health. Yet Lindsey Leininger and Helen Levy begin by pointing out that access to care plays a smaller role than we might think, and that many other factors, such as those discussed elsewhere in this issue, strongly influence children's health.

Nonetheless, they find that, on the whole, policies to improve access indeed improve children's health, with the caveat that context plays a big role—medical care “matters more at some times, or for some children, than others.” Focusing on studies that can plausibly show a causal effect between policies to increase access and better health for children, and starting from an economic framework, they consider both the demand for and the supply of health care. On the demand side, they examine what happens when the government expands public insurance programs (such as Medicaid), or when parents are offered financial incentives to take their children to preventive appointments. On the supply side, they look at what happens when public insurance programs increase the payments that they offer to health-care providers, or when health-care providers are placed directly in schools where children spend their days. They also examine how the Affordable Care Act is likely to affect children's access to medical care.

Leininger and Levy reach three main conclusions. First, despite tremendous progress in recent decades, not all children have insurance coverage, and immigrant children are especially vulnerable. Second, insurance coverage alone doesn't guarantee access to care, and insured children may still face barriers to getting the care they need. Finally, as this issue of *Future of Children* demonstrates, access to care is only one of the factors that policy makers should consider as they seek to make the nation's children healthier.

What role does access to medical care play in protecting and promoting children's health? Although it might seem self-evident that medical care improves children's health, evidence for the population as a whole suggests that medical care is less important than we might have thought. One widely cited study estimates that lack of access to medical care explains only about 10 percent of early mortality in the population as a whole; the remainder is attributed to genetics (30 percent), social circumstances (15 percent), environmental exposure (5 percent), and behavioral factors (40 percent).¹ Compared with its effect on

Jeannette Rogowski of Rutgers University reviewed and critiqued a draft of this article.

overall mortality, medical care may be more or less important as a determinant of children's health. Medical care's role also depends on time, place, and context; for example, screening children for exposure to lead may be much more valuable in an environment with older housing stock. Similarly, access to medical care is critically important during infectious disease outbreaks. Nonetheless, the fact that, on average, medical care may matter less than we think is a useful starting point as we consider how access to care affects children's health.

In this article, we review what is known about how policies that promote access to medical care affect children's health. We consider a range of such policies, including government-provided insurance coverage, increased payments to health-care providers who care for publicly insured children, cash payments to parents who take their children to get care, and the placement of health-care providers in schools. We organize our discussion using an economic framework, categorizing policies to promote access according to whether they affect primarily the demand side of the market (children and their families) or the supply side (doctors, hospitals, clinics, and other providers of medical care). The aspect that we care about—actual use of services, or what sociologist Ronald Andersen calls “realized access”—is, of course, the result of the interaction between supply and demand.² But policies to promote access tend to focus on one side of the market or the other, and so we structure our discussion accordingly.

Ultimately, we conclude that access to medical care does affect children's health, and that an array of policies to improve access—expanding coverage, increasing reimbursement to providers, placing nurses or counselors in schools—can improve children's health. We can't say which of these policies yields the most bang for the buck in terms of improved health, nor can we say whether they are more effective than policies that focus on domains beyond access to medical care, such as those discussed in other articles in this issue. At the same time, we can say with some certainty that access to care is not the whole reason some kids are healthier than others, a point that is reinforced by the fact that socioeconomic disparities in child health exist in countries like Canada that have more equal access to health care.³ Nonmedical inputs into children's health, like those discussed elsewhere in this issue, as well as the quality of medical care, are important pieces of the puzzle.

Finally, we close by discussing how the Affordable Care Act is likely to affect children's access to care, the policy questions that may arise as this landmark legislation is implemented against an already complex backdrop of public insurance programs for children, and the challenges that will remain to ensure children's access to care.

Standards for Inclusion in This Review

At the outset, we need to acknowledge that it's hard to identify true causation when it comes to how access to medical care affects health. Simply comparing people with and without insurance, for example, or those who have public versus private coverage, tells us little about how insurance affects health.⁴ We can't necessarily solve this problem by using statistical models that control for observed differences between the two groups; such an analysis might even yield the paradoxical result that Medicaid appears to make health worse, when in fact

the worse health of Medicaid enrollees may be driven by other dimensions of disadvantage that are not necessarily measured in the data.⁵ Evaluating the experience over time of new enrollees in public programs may also be misleading, since the decision to enroll in the program may have been driven by declining health—a phenomenon first identified in the context of job training programs, where those who enroll are more likely to have experienced a dip in earnings beforehand.⁶

With these considerations in mind, we focus on studies that have an effective strategy for dealing with such problems. In practice, this means we favor studies that rely either on randomized trials—relatively rare, but not unknown, in social policy—or on “natural experiment” methods that rely on changes in policy that are close to random (such as a federally imposed requirement that all states expand their Medicaid programs for children—more on this later) and therefore can teach us something about how the policy in question affects the outcomes we want to study. The trade-off associated with relying on randomized trials or natural experiments is that they give us good information about a relatively narrow range of situations. For example, most of our evidence on the impact of health insurance on children’s health relates to low-income children who are on the margin of Medicaid eligibility, with much less information about those who are privately insured, even though, judging by the 2012 American Community Survey, the privately insured represent 55 percent of all children.

In terms of what outcomes to look for, we focus on studies that measure either health or the use of preventive services; use of preventive services includes whether a child makes any visit to a doctor during the year, since the American Academy of Pediatrics recommends that all children have at least one visit per year, even if it is only a well-child visit. We don’t consider studies that review only how policy affects, for example, the total amount of medical care that children use (which would include sick visits and hospitalizations). Our rationale for singling out preventive services is that health benefits from prevention may occur far down the road; a necessary although not sufficient step for policy to improve health through preventing illness would be to increase the use of preventive services.

Finally, this article does not consider two special groups, not because they are unimportant but because they are discussed elsewhere. In this issue of *Future of Children*, Maya Rossin-Slater discusses how access to prenatal care affects infants’ health. And health insurance for children with disabilities—how it affects their access to care and their health outcomes—was reviewed by Peter Szilagyi in a recent issue of the journal.⁷

Demand-Side Policies

The primary demand-side policy to promote children’s access to medical care is providing free or subsidized health insurance. The past 25 years have seen dramatic expansions of Medicaid, as well as the creation of the State Children’s Health Insurance Program (formerly known as SCHIP and now as CHIP) in 1997. Table 1 describes selected milestones in the history of public health insurance coverage for U.S. children, and figure 1 shows how enrollment in these programs has grown. In 1988, approximately 16 percent of all children were covered by Medicaid; in 2010, Medicaid and CHIP together covered half

of all children under age 19 for at least some part of the year, as well as 45 percent of all births.⁸ This growth both increases the importance of public insurance as a way of promoting access to care and provides an opportunity to evaluate how public coverage affects the health of infants and children. In this section, we review the evidence on the effects of these large expansions in public health insurance. In addition to considering the consequences of whether children have coverage at all, we consider the continuity, type, and generosity of coverage for those who have it. We examine how insurance “churning”—moving in and out of coverage—may affect children’s health, and we look at the relatively limited evidence on how HMO or high-deductible plans affect health compared with more traditional insurance coverage. Finally, we discuss two studies that evaluate what happens to children’s health when parents receive direct financial incentives to obtain preventive care for their children.

How Insurance Affects Child Health

With a few exceptions, most of the evidence on how health insurance—and the improvement in access to care that it affords—affects children’s health and use of preventive services comes from expansions of Medicaid in the late 1980s and early 1990s and the establishment of SCHIP in 1997. One of the important exceptions is the RAND Health Insurance Experiment (HIE), conducted between 1971 and 1986.

The RAND Health Insurance Experiment—The RAND HIE has been extensively described elsewhere.⁹ In a nutshell, the experimenters randomly assigned approximately 6,000 people to insurance plans with different levels of cost sharing. At one extreme was a plan in which all care was free; at the other, a plan in which participants had to pay 95 percent of the cost of their care, up to an out-of-pocket maximum of \$1,000, at which point care was free. Note that because of inflation, \$1,000 in 1971 would be almost \$6,000 in today’s dollars, so the RAND participants with the least generous coverage had what we now think of as a high-deductible health plan. After tracking the participants for three to five years, the researchers compared their health-care use and health status. The results for adults have been well publicized; on average, the RAND HIE found no difference in health among adults across the different insurance plans, despite large differences in health-care use.¹⁰ Low-income adults who received free care experienced some measurable improvements in health; in particular, the researchers found improvements in corrected vision and, for those who began the study with hypertension, significant reductions in blood pressure.¹¹

The results of the RAND HIE for the approximately 1,000 children who completed the study are similar. There were no differences across insurance plans, on average, in physiologic measures of health such as anemia and hearing or vision problems, or in parental assessments of children’s overall health—again, despite large differences in the use of medical care.¹² Among children, anemia (for low-income children) and dental care (for all children) seemed to be exceptions. Eight percent of low-income children in the free care group had anemia at the end of the study, compared with 22 percent in cost-sharing plans, although the relatively small number of low-income children in the study makes it hard to say with confidence that this difference did not occur by chance. For children between the ages of six and 17, although the overall rate of decayed, missing, and filled teeth did not vary

by insurance plan, children on the free care plan were more likely than those in the cost-sharing plans to have filled teeth rather than decayed or missing ones (on average, a difference of about one tooth).¹³ Among children ages three to five, those in the free care plan were less likely than those in the cost-sharing plans to have decayed teeth. Both of these effects were largest for children in low-income families; in fact, for preschoolers in high-income families, the number of decayed teeth did not vary significantly for those covered by cost-sharing plans (0.44 teeth) versus the free plan (0.19 teeth).¹⁴

The chief criticisms of the RAND results related to the health of children center on the fact that there were relatively few low-income children in the study—possibly too few to detect important effects of coverage on health; the fact that the study excluded infants; and the relatively high proportion of children who left during the course of the study.¹⁵ For our purposes, an additional consideration is that RAND didn't compare insured versus uninsured people but rather estimated the effect of the generosity of coinsurance in an insured population. Notwithstanding these caveats, the RAND results for children—like those for adults—suggest that in the population as a whole, the generosity of insurance coverage does not significantly determine overall health. For high-risk children, however, which in this case means low-income children, the RAND experiment suggests that the generosity of coverage does affect health (again, mirroring the results for adults).

Medicaid—Next, we consider how Medicaid affects children's health. Two recent studies analyzed Medicaid's impact after its inception in 1965. Both found positive health effects. One study used variation across states in both the timing of Medicaid adoption and the fraction of children receiving welfare (who were automatically eligible for Medicaid) to identify how coverage affected infant and child mortality.¹⁶ It found that, in the year after implementation, mortality fell among nonwhite infants (although not among white infants), and that this effect persisted for at least 10 years. The second study exploited variation across states in the timing of Medicaid adoption to estimate how exposure to Medicaid in childhood affected health in adulthood.¹⁷ It found that among children from low-income families, those who experienced more years of Medicaid eligibility were in better health, measured using an index of chronic conditions, than were those with less exposure to Medicaid. This finding supports the rationale we offered above for focusing on the use of preventive services in addition to health outcomes; the effects of investments in health may take a while to reveal themselves.

More recently, the expansions of Medicaid eligibility in the late 1980s and early 1990s have proved to be a powerful natural experiment shedding light on how coverage affects infants' and children's health. Several influential studies have documented significant positive effects. One pair of researchers used mortality data, combined with a measure of the generosity of coverage expansions, and concluded that expanding eligibility significantly decreased child mortality.¹⁸ Using a similar strategy, the same researchers focused on expansions of eligibility among pregnant women; they found that these expansions significantly increased women's use of prenatal care and reduced the incidence of low birth weight and infant mortality.¹⁹ Another set of researchers used data from the National Hospital Discharge Survey to document that eligibility expansions led to increased hospitalization among children. These researchers also looked at why the children were

hospitalized, to see whether improved access to care might have succeeded in reducing hospitalizations for conditions like asthma that should ideally be managed with adequate primary care, while increasing hospitalizations for truly serious conditions. On the contrary, they found no decline in hospitalizations for conditions like asthma, suggesting, somewhat surprisingly, that the expansion in coverage did not improve children's access to primary care.²⁰ And a third set of researchers used data from the National Health Interview Survey to show that expansions of Medicaid eligibility increased use of preventive care. Though there was no immediate effect on children's health, their health improved later in childhood, further bolstering the case for focusing on use of preventive services.²¹

Exploiting the fact that an expansion of coverage meant that many more children born after September 30, 1983, were eligible for Medicaid than were children born before that date, another study measured how coverage affected adolescents.²² It found significant reductions in mortality for black children ages 15 to 18 but no reduction for whites (echoing the results for infants after Medicaid's 1965 inception). However, using the differences across states in the income level at which children are eligible for Medicaid, another study analyzed data from the Panel Study of Income Dynamics—Child Development Supplement, and found that Medicaid eligibility had no significant effect on three aspects of children's health: the probability of being in excellent health, obesity, and school days missed because of illness.²³

The Medicaid studies we've discussed so far focus primarily on the impact of expanding eligibility, rather than on actual enrollment. In contrast, one researcher exploited California's variation in the placement of outreach centers for Medicaid enrollment to estimate the effect of actual enrollment on child health.²⁴ She found that increases in enrollment led to significant decreases in hospital admissions for conditions that could, in theory, be well-managed in a primary care setting and should not result in hospitalization if children's access to primary care is adequate.

Taken as a whole, the evidence from studies of Medicaid expansion—and, in one case, actual enrollment—suggest that coverage has large and significant impacts on children's physical health. To this firm conclusion, however, we would add several more nuanced observations. First, although the preponderance of evidence supports the view that access is important for children's health, not all studies find this to be so. This reinforces a point we made earlier: the importance of medical care depends on context. It matters more at some times, or for some children, than others. Access may matter more, for example, for the typical low-income child made newly eligible for Medicaid coverage than for the average child in the RAND experiment gaining access to more rather than less generous private coverage. Second, some programs—such as those that offer access to preventive services—may not yield any effect for months or even years, meaning that the available data, typically measured at one point in time, may understate their effects on children's health in the long run. Third, researchers have paid relatively little attention to how coverage affects children's mental health, even though some of coverage's most striking effects on low-income adults are in the domain of mental health.²⁵

How Continuity and Type of Coverage Affect Health

Insurance coverage among low-income children is strikingly dynamic; such children frequently move between having public insurance, being uninsured, and having private insurance. For example, one nationally representative study took a snapshot of child enrollees in Medicaid and tracked their enrollment one year later. Over one-quarter had left the Medicaid program; among those who left, approximately half had become uninsured.²⁶ State-specific studies have found similarly high Medicaid dropout rates and have also found that many dropouts reenter the program in fairly short order, a phenomenon known as “churn.”²⁷ Unfortunately, this pattern is likely to continue in the post-ACA era; low-income families’ incomes and employment trajectories are quite volatile, and this volatility is projected to mean that children’s eligibility for coverage will frequently churn between Medicaid, subsidized coverage from health insurance market-places, and employer-based coverage.²⁸ And although the ACA’s individual mandate now imposes a fine on families if their children are uninsured, a grace period allows a lapse in coverage of up to three months in any given year. Moreover, children in families under the tax filing threshold (\$20,000 for a married couple in 2013) are not subject to the mandate and consequently could face longer coverage gaps.²⁹

Insurance volatility is especially likely for children in families with income that is just above or below the Medicaid eligibility threshold. For families with income just below the threshold, an increase in income may mean that they have to begin making a premium contribution even for public insurance; this has repeatedly been shown to increase the likelihood that they will lose coverage and experience uninsured spells.³⁰ Additionally, this group of children is the one most likely to experience across-year and even within-year shifts in eligibility for public coverage versus publicly subsidized exchange coverage.

Two studies use data that track children’s insurance coverage and health-care use over time to demonstrate compellingly that coverage gaps, even those of short duration, reduce children’s access to and use of care. One of the authors of this article, Lindsey Leininger, examined how the number of months children spent uninsured affected the likelihood that they would experience any doctor’s visit and any well-child visit in a given year.³¹ She found that each additional month without coverage was associated with a small, statistically significant decline in the probability of both outcomes; four months without insurance—the typical length of an uninsured spell for this group—was associated with a 4 percent decrease in the likelihood of any visit to a doctor and a 9 percent decrease in the likelihood of a well-child visit. The study found that one reason even short gaps in coverage reduced doctor visits is that interruptions in coverage may lead children to lose their usual source of care.

A recent study expanded on Leininger’s work, exploring how the types of coverage held over the course of a year (that is, public versus private), in addition to the duration of coverage, affected the likelihood of any visit to a doctor.³² Interestingly, it was not the type of coverage children held over the year—public, private, or a mix of public and private—that affected their use of health care, but solely the total amount of time for which the children had coverage. These findings offer some reassurance that children who churn among different types of insurance coverage are likely to retain sufficient access to care, as long as

the transitions are not punctuated by spells without insurance. Accordingly, we need policies that make such seamless transitions possible.

A related question is whether the structure of children's insurance—whether they're in fee-for-service or managed-care programs—affects their health. Several studies have examined whether Medicaid managed care for pregnant women affects their infants' health, with varying results. One study used data on Medicaid beneficiaries in California from 1993 to 1999 to evaluate the impact of that state's switch to managed-care contracts for its Medicaid program.³³ It found that this switch had no impact on infants' health. Using a more reliable design, however, another study found that the switch to managed care in California led to increases in low birth weight, prematurity, and neonatal death; the authors noted that the managed-care plans they studied had no incentive to improve the health of newborns because expensive neonatal care was “carved out” of their contracts in the sense that expenses for those babies were reimbursed separately, rather than being included in the lump-sum payments the plan received for providing routine newborn care.³⁴ Earlier research on the transition to managed care in Tennessee's Medicaid program between 1993 and 1995 suggested that managed care led to lower Apgar scores and an increase in birth abnormalities, compared with births among Medicaid enrollees in a neighboring state (North Carolina) that did not transition to managed care for its Medicaid program.³⁵ (The Apgar test, performed minutes after birth, is a summary assessment of newborn health.)

Finally, there has been some concern that the cost-sharing in high-deductible health plans might discourage children's use of preventive services. A recent study examined this question.³⁶ Using data from a single health plan, the researchers analyzed the experience of 1,598 children whose parents' employer switched their families from a standard insurance plan to a high-deductible plan. Although the fraction of these children who received well-child visits over the course of a year decreased slightly (from 84.6 percent to 84.1 percent), this decrease was no larger than that of a control group of 10,093 children who remained in traditional insurance plans throughout the study period (from 86.1 percent to 85.5 percent). For this population, at least, there is no evidence that the increase in cost-sharing associated with the switch to a high-deductible health plan reduced children's use of preventive services. Because the switch to a high-deductible plan was made by the employer on behalf of all employees, the study avoided potential concerns that families might have chosen a high-deductible plan precisely because they don't place much value on preventive services.

Financial Incentives for Use of Preventive Services

Medicaid agencies have recently begun adopting financial incentive programs to promote healthy behaviors and use of preventive care among members.³⁷ Most of these programs, including a series of demonstration projects created and funded as part of the ACA, focus on promoting healthy behaviors such as quitting smoking among adults, but a few have focused on well-child visits. Encouragingly, the results from the well-child visit pilot programs are the most positive among all of the burgeoning Medicaid incentive programs.

The best-studied program that focuses on children is Idaho's Preventive Health Assistance (PHA). Launched in 2007, PHA aimed to increase compliance with recommendations for well-child visits among children in the state's CHIP program. The effort was motivated by

low compliance rates among the state's Medicaid and CHIP child enrollees, ranging from a high of 40 percent among children ages 0–6 to less than 19 percent for children ages 7–18.³⁸ Though both Medicaid and CHIP had similarly low compliance rates, PHA was limited to CHIP enrollees, largely because of financial and administrative constraints in Medicaid.³⁹ Under the PHA program, all CHIP enrollees were eligible to receive up to 10 points per month (equivalent to \$10) to be used for the program premium's payments, as long as the enrollee stayed up to date with the age-appropriate well-child visit schedule. This \$10 credit was equal to the monthly premium required of CHIP enrollees with family incomes between 139 percent and 149 percent of the federal poverty line, and it was two-thirds of the \$15 monthly premium required of CHIP enrollees with family incomes between 150 percent and 185 percent of the federal poverty line.

Two studies found that PHA had large positive impacts on CHIP enrollees' well-child visits. One study compared PHA participants to a control group of Medicaid-enrolled children. It found that after the PHA's introduction, well-child visits as much as doubled among some age and income subgroups of CHIP-enrolled children relative to their Medicaid-enrolled comparison groups. The largest increases occurred among older CHIP enrollees whose families had relatively higher incomes.⁴⁰ Another study used the same design to explore how the PHA affected well-child compliance rates across various sub-groups.⁴¹ This study found that children who required only one well-child visit per year to meet compliance standards for their age experienced greater improvements from the program than did their peers who required two or more visits.

A financial incentive program launched by a Medicaid managed-care insurer in Minnesota has also been positively associated with well-child visits. In October 2000, the insurer, Medica Health Plans, introduced a \$10 Target gift card as an incentive for member children. The incentive was implemented via a voucher program—network physicians gave vouchers to parents during well-child visits that could be redeemed by mailing them back to the insurer. No control group was available, so a study of the program exploited differences in distance from the children's homes to the nearest Target store to estimate the program's impact.⁴² The study found that children who lived within the sample's median distance to a Target store (2.5 miles) saw a 6 percent relative increase in the likelihood of having a well-child visit, compared with children who lived further away (before the study began, 37 percent of children in the near-to-Target group were receiving well-child visits, compared with 28 percent in the distant-from-Target group). Unfortunately, there is no easy way to use this "distance-to-Target" effect to estimate the incentive program's actual impact, so it's hard to compare these findings to those from Idaho. Importantly, however, the Idaho and Minnesota programs both showed positive impacts, albeit within opposite contexts: during the study period in Idaho, rates of well-child visits among Medicaid-enrolled comparison-group children were generally rising, while during the Minnesota study they were falling.

We must also note a counterexample to these positive findings. A randomized controlled trial evaluating New York City's conditional cash transfer program (Opportunity NYC) found no meaningful differences between treatment and comparison group children in the likelihood of having a well-child visit, which is perhaps surprising given that the program offered a relatively rich financial incentive of \$200 per child per year.⁴³ The reason is likely

that before the study began, rates of well-child visits among the participants were atypically high. Even the comparison group children (that is, those who weren't offered an incentive), in every age group, had well-child visit rates in the mid-90-percent range. More promisingly, the study found that an incentive for dental visits of \$100 per child per visit (with a one-visit annual maximum for ages one to five and a two-visit annual maximum for ages six and above) had large impacts on whether middle and high school children received dental care. Two years after the randomized trial began, treatment-group high school students were more likely than comparison-group high school students to have had at least two dental visits in the prior year, by 13 percentage points (70 percent for treatment group, 57 percent for comparison group); treatment-group middle school students were more likely to have had two dental visits by 10 percentage points (70 percent for treatment group; 60 percent for comparison group). Importantly, these effects persisted (and indeed increased somewhat) at another follow-up two years later.⁴⁴

The four studies we've just discussed consistently demonstrated that financial incentive programs can appreciably increase use of preventive care, including dental care, among low-income children. This finding mirrors similar work on adults, which has found that financial incentives are more effective when they target use of preventive care than when they aim to bring about more sustained health behavior changes, such as quitting smoking and exercising.⁴⁵

The programs' effectiveness was also greatly influenced by administrative difficulties associated with the system for redeeming the rewards; the success of Idaho's PHA has been attributed to the fact that it automatically credited earned rewards to families' premiums.⁴⁶ In contrast, the complex Opportunity NYC reward system, which initially involved 22 categories of rewards, has been cited as a serious deterrent to the program's effectiveness.⁴⁷ Encouragingly, two recently implemented replications of the Opportunity NYC model have adopted considerably simpler financial reward systems.⁴⁸

Supply-Side Policies

Turning now to the supply side, we review what is known about how provider reimbursement from Medicaid affects children's health, since low payments to providers are one of the reasons that some providers simply do not see Medicaid patients. We also review evidence on policies that focus on providing care directly, including Federally Qualified Health Centers, the Vaccines for Children program, and school-based health centers. These policies have received less research attention than has public insurance, but they could nonetheless be important for improving children's health.

How Medicaid Reimbursement Rates Affect Child Health

Compared to Medicare or private insurers, Medicaid has historically paid lower rates to doctors and other clinicians. A recent survey found that on average, Medicaid pays physicians approximately two-thirds of what Medicare would pay them, with considerable variation across states, from a low of 37 percent in Rhode Island to a high of 134 percent in North Dakota.⁴⁹ Researchers and policy analysts have long been concerned that low Medicaid reimbursement rates may translate into diminished access to care for Medicaid

patients.⁵⁰ Three studies have examined the effects of Medicaid reimbursement levels on child-specific health outcomes; all of them found that higher reimbursement levels mean better health.

An important early study, now somewhat dated, assessed the relationship between Medicaid's physician fees and infant health.⁵¹ This study examined changes in individual states' fee levels over time to assess how the ratio of Medicaid fees to private fees for obstetricians and gynecologists affected infant mortality rates. Its findings indicate that when the Medicaid-to-private fee ratio doubled (the ratio ranged from 0.45 to 0.60 over the study period, according to the working paper version of the manuscript), infant mortality fell by 0.56 deaths per 1,000 live births (mean infant mortality rate in the study was 9 deaths per 1,000 births). Weighing the costs of increased reimbursement rates against the benefit of better health, the authors concluded that it cost about \$260,000 (in 1986 dollars, or about \$560,000 in 2014 dollars) in increased Medicaid fees to save one additional infant's life. An important limitation of this study is that, unlike the others we review in this article, it analyzed state-level aggregate data as opposed to using person-level observations. Accordingly, we can't know for which groups of women the changes in Medicaid fee ratios affected infant mortality.

Two recent national studies convincingly demonstrate that Medicaid fee levels for dental services are positively related to the likelihood that publicly insured children receive dental care.⁵² Using changes in states' Medicaid fees from 2000 to 2009 for a preventive dental visit for children, and employing a comparison group of privately insured children, one study found that increasing payments to providers from \$20 to \$30 increased publicly insured children's use of dental services enough to close the gap between them and their privately insured peers.⁵³ The original payment level of \$20 was relatively stingy—less than the fees paid to dentists for comparable work in 75 percent of cases—while the increased payment of \$30 was relatively generous, less than only about 25 percent of such fees. To help put these findings in context, the most recent round of the National Survey on Children's Health (2011–12) found that approximately 74 percent of publicly insured children ages 1–17 had received a dental visit in the previous year, compared with 83 percent of privately insured children. These findings are in keeping with an earlier, well-designed study that exploited a series of dental fee increases in the Michigan Medicaid program.⁵⁴

Recent research documents that elementary school counselors can have beneficial behavioral effects on children

Using the same research design, but with data covering a longer study period and a larger set of dental procedures, a later study produced very similar results, though the effects were somewhat smaller.⁵⁵ However, this study used an additional calculation to show that the improvements in the public-private gap in dental-care use came at great cost, because the large fee changes required to induce marginal improvements in dental-care use among publicly insured children would be applied toward all visits the children made, not just those induced by the changing fee schedule. Thus, they calculated, the implied cost of one additional visit was approximately eight times the amount of the current Medicaid payment rate for a single visit.

Taken together, these compelling studies suggest that for prenatal care and children's dental care, increasing Medicaid provider fees is an important way to improve access. Unfortunately, to our knowledge, no studies of how Medicaid reimbursement levels affect children's access to medical care or behavioral health care have research designs that meet our criteria for inclusion in this article.

How Policies that Provide Direct Medical Care Affect Child Health

In recent decades, promoting access to insurance coverage has been the primary policy to improve children's access to medical care. But policies that provide medical care directly have also improved children's health. These policies include placing counselors or health-care workers in schools, funding community health centers, and subsidizing vaccinations.

Elementary School Counselors—Recent research documents that elementary school counselors can have beneficial behavioral effects on children. In contrast to counselors serving older children, who require intensive academic advising, elementary school counselors—there are more than 40,000 of them across the country—spend most of their time focusing on students' mental and behavioral health.⁵⁶

One study examined the effect of counselors by exploiting the differences within academic years in a Florida school district's student-to-counselor ratios that arose from the placement schedule of University of Florida graduate student counseling interns.⁵⁷ The researchers found that fewer students per counselor meant fewer discipline problems in schools. A decrease in the student-to-counselor ratio from the sample mean level of 544 students per counselor to the ratio of 250 students per counselor recommended by the American School Counselor Association (ASCA) was associated with a 7.4 percent decrease in the probability that a given student would repeat a disciplinary problem. These effects were the most pronounced for black male students, who saw a 10 percent decrease. A school-level analysis suggests that a drop from the mean student-counselor ratio to the ASCA-recommended ratio is associated with an 11.8 percent decrease in the mean share of students with a disciplinary occurrence. A potential problem with the study design is that interns were more likely to be placed in schools with lower levels of discipline problems in the previous semester; to the extent that this occurred, however, it means that the study's findings are conservative and may underestimate the true effect.

Similar findings emerge from two companion studies. The first exploited the fact that Alabama has strict enrollment cutoffs for financing elementary school counselors, meaning that schools with almost the same number of students could have different numbers of counselors.⁵⁸ Importantly, there is no evidence—either in the data, or based on conversations with Alabama school officials—that schools were strategically manipulating their enrollment levels to get more resources the following school year, which could have biased the findings. The findings suggest that although the student-to-counselor ratio had no meaningful relationship to academic outcomes (measured by math, reading, and language test scores), it did have a statistically significant and qualitatively important influence on rates of suspension and weapons-related incidents. The estimated effect of having more counselors was somewhat sensitive to the assumptions used in different statistical analyses;

the study's best estimates indicated that an increase of one half-time counselor decreased the likelihood that the school would have at least one student suspension per school year by 20 percent compared to the mean rate of suspension and decreased the likelihood of at least one student weapons-related incident per school year by 26 percent. However, the study found that additional counselors had no effect on other behaviors, including rates of attendance, expulsions, and drug-related incidents.

In a later study, the same author explored how changes in state-level elementary school counselor policies affected a variety of teacher-reported measures of behavioral issues.⁵⁹ The research design took advantage of the fact that different states adopted minimum student-counselor ratios and/or subsidies for schools to hire more counselors at different times. The study consistently found that additional counselors were associated with decreases in the likelihood that teachers would report that a series of seven out of eight behavioral issues presented at least a minor problem. The decrease in likelihood typically ranged from 5 to 9 percent, with one outlier of 19 percent for the measure "students cutting class." Interestingly, effects on the likelihood that teachers would report a given behavioral issue as a moderate or severe problem were much weaker—only two measures, "student drug abuse" and "physical conflicts among the students," consistently showed significant effects.

Taken as a whole, these studies offer powerful evidence that public policies to reduce student-to-counselor ratios have meaningful effects on elementary school students' behavioral health. Such policies seem even more important when considered in the context of the high prevalence of mental and behavioral health problems among children and the damage that they inflict, which Alison Cuellar discusses in detail in this issue.

School-Based Health Centers—A national network of approximately 2,000 school-based health centers (SBHCs)—distributed across elementary, middle, and high schools—provides preventive services to an estimated 2 million children and adolescents each year.⁶⁰ Though the SBHCs date back to the 1930s, the vast majority of existing centers (over 85 percent) were established after 1990, and 20 percent were established after 1999.⁶¹ The SBHCs serve a strikingly diverse student population; the racial/ethnic profile of host schools is fairly evenly divided among non-Hispanic white, Hispanic/Latino, and black students.⁶² The SBHCs are more prevalent in underserved communities, and over two-thirds of them explicitly seek to serve the broader community in addition to the host schools' student population.⁶³ Under the Affordable Care Act, the SBHCs recently entered a period of great expansion. Specifically, the ACA appropriated \$200 million over the years 2010–13 both to increase the number of SBHCs and to increase service levels at the existing SBHCs.⁶⁴

A recent working paper constitutes the first empirical study of the SBHCs with a research design that can plausibly show causation.⁶⁵ Based on the variation arising from openings, closings, and changes in per-student service levels in different counties over time, the authors estimated how the SBHCs affected teenage birthrates and high school dropout rates. Though they found no effect on dropout rates, they discovered large, statistically significant effects on teen birthrates. Specifically, they found that opening an average-size SBHC was associated with a 20 percent decline in the birthrate among teens less than 15 years old

(from an average of 0.56 births per 1,000 teens) and a 7 percent decline in the birthrate among teens ages 16–19 (from an average of 45.6 births per 1,000 teens). Moreover, they found that these results were driven entirely by the 85 percent of the SBHCs that offered birth control services (either directly or through referral), underscoring the SBHCs' important role in providing access to reproductive health services, an issue around which there has been considerable controversy.⁶⁶

Other Direct Provision Policies—The Affordable Care Act has appropriated over \$10 billion to expand Federally Qualified Health Centers (FQHCs), also commonly referred to as community health centers, a network of 9,000 clinics that provide primary care to underserved populations, including an estimated 7 million low-income children each year.⁶⁷ A 2010 study found that increases in federal funding for the FQHCs directly translate into meaningful increases in the services offered by the clinics—including, importantly, increases in behavioral health services. Thus the new ACA funding should increase access to preventive and mental health services among low-income children.⁶⁸ Although extensive correlational evidence suggests that the FQHCs achieve impressive health benefits, no research that focuses specifically on the FQHCs and children's health meets our criteria for inclusion in this review.⁶⁹ A study of the early years of the FQHCs, beginning in the mid-1960s, found that the clinics were associated with declines in mortality among older adults, but no data suitable for analyzing outcomes among children were available.⁷⁰

Another major policy to directly provide health care is Vaccines for Children (VFC), the federal program that offers free vaccines to participating pediatricians' offices for uninsured and publicly insured children. VFC pays for almost half of pediatric vaccines administered in the United States.⁷¹ As with the FQHCs, the research evidence behind VFC is mostly correlational. Studies suggest that VFC's introduction was associated with increases in immunization rates and, among inner-city children, decreases in fragmentation of care. However, these findings should not be taken as conclusive, because these studies were not designed in a way that can show causation.⁷²

The ACA and Children's Access to Medical Care

The passage and implementation of the Affordable Care Act (ACA) mark a new era for the health-care system. The law's hallmark provisions provide new pathways to insurance coverage for populations that have historically been at high risk of being uninsured. These provisions were crafted largely with adults in mind because, before the ACA, children were much more likely than adults to be eligible for public coverage and less likely to be uninsured. Nonetheless, some of the coverage provisions targeting adults or low-income families will have spillover effects on children's coverage and access to care. Moreover, some provisions of the ACA do focus on children or young adults. In this section, we outline how the ACA is likely to affect children's access to care.

Coverage Impacts

The primary way that the ACA can influence children's access to care is through increased insurance coverage. Overall, the ACA is projected to cut the fraction of uninsured children nearly in half, from 9.4 percent to 5.3 percent.⁷³ These gains will come from both private

and public coverage. In terms of private insurance, one of the first ACA provisions to be implemented required private plans offering family coverage to allow children to remain on a parent's policy until the age of 26, which produced an immediate and sizeable increase in insurance coverage among young adults.⁷⁴ Subsidized exchange coverage for children ineligible for public coverage whose parents also lack access to affordable employer-sponsored coverage, as well as a mandate that almost all children be covered, are projected to bring insurance to 2 million children.⁷⁵

Increased enrollment in public insurance programs will drive many additional gains. An estimated 68 percent of uninsured children are currently eligible for Medicaid and CHIP, and though the ACA left children's income eligibility for these programs broadly unchanged, several other forces are likely to increase this group's take-up of public coverage.⁷⁶ First, earlier experiences with public insurance expansions have consistently demonstrated what is often called the "welcome mat" effect—a phenomenon in which expansion affects previously eligible but unenrolled populations.⁷⁷ The ACA is likely to exert an appreciable welcome mat effect on children; the reform effort has been highly visible, and a variety of stakeholders have spent considerable resources on outreach, launching nationwide advertising campaigns and funding outreach workers who help facilitate enrollment. Moreover, parents' eligibility for Medicaid has increased greatly in many of the states that have implemented the optional adult expansion, and research compellingly indicates that children's Medicaid take-up increases when their parents become eligible for Medicaid.⁷⁸ Also, former foster-care children of all income levels will be eligible for Medicaid until the age of 26, mirroring the policy change in the private market.

Box 1

Major Affordable Care Act Provisions Affecting Insurance Coverage of Children and Young Adults

Ban on excluding people for preexisting condition

Individuals (including children) cannot be denied coverage based on the presence of preexisting conditions (all large group and most individual/small group private plans*).

Premium determination

Most individual/small group plans cannot charge higher premiums based on health status or gender.

Ban on lifetime or annual coverage limits

No lifetime dollar limits are allowed on most covered benefits (all private plans); no annual limits are allowed on most covered benefits (all large group and most individual/small group private plans).

Maximum out-of-pocket responsibility

*In some cases, large groups may adopt a temporary preexisting condition exclusion period.

The law caps cost-sharing by most large group and individual/small group private plans. In 2014, this cap was \$12,700 for families.

Dependent coverage up to age 26

All private plans that cover children as dependents must make coverage available up to age 26.

Exchanges and subsidies

Health insurance marketplaces (“exchanges”) offer individual/small group private coverage. Families with incomes up through 400 percent of the federal poverty level who lack access to affordable employer coverage and are ineligible for Medicaid/CHIP are eligible for sliding-scale subsidies for exchange coverage.

Preventive services mandate

Most large groups and most individual/small group plans must cover a wide range of preventive services with no cost to the patient at the time of service.

Essential health benefits mandate

All exchange and most individual/small group plans must cover a wide range of preventive, acute, and rehabilitative services, including pediatric dental and vision services.

Medicaid expansion for parents

The law expands Medicaid eligibility to 138 percent of the federal poverty level for parents (state option). Large “welcome mat” effects are expected to increase the take-up of Medicaid coverage for eligible children who were previously unenrolled.

Medicaid expansion for young adults who have aged out of foster care

Young adults ages 19 and up who have aged out of foster care and who received Medicaid while in foster care remain eligible until they turn 26.

Individual mandate

All individuals in families with incomes over the tax filing threshold (\$13,050 for a single parent with children in the household; \$20,300 for married parents) must have health insurance; failure to meet this requirement results in a financial penalty (with limited exemptions including financial hardship or religious objections).

Definitions: A large group is a group health plan that covers employers/organizations with 100 or more employees/members; in some contexts, a threshold of 50 or more employees/members is applied. A small group is a group health plan that covers employers/organizations that fall below the large group threshold. Individual insurance policies cover individuals and/or families as opposed to groups.

These changes to coverage shift the policy debate regarding reauthorization of funds for CHIP. The program’s current funding is slated to end this year. CHIP programs vary a great deal across states; however, there is bipartisan consensus that, on the whole, they have successfully lowered the uninsured rate among children.⁷⁹ One principal factor has been the

direct enrollment of millions of near-poor children into CHIP, which was serving 8 million children at the most recent count. Arguably, however, CHIP's spillover effect on the much-larger Medicaid program, which serves approximately 40 million children, has been even more important.⁸⁰ CHIP is notable for successful outreach and administrative simplification, which produced a very large welcome mat effect among Medicaid-eligible children.

Under the ACA, the typical income range for CHIP eligibility—from 150 percent to 250 percent of the federal poverty line—now overlaps with the income eligibility levels for coverage through subsidized exchanges. Many current CHIP enrollees will be ineligible for this subsidized coverage, however, since their parents have offers of coverage under their employer-sponsored plans. Dependent coverage is typically very expensive, and its cost isn't considered when determining eligibility for exchange subsidies (a feature called the “family glitch”); thus many children covered by CHIP might become uninsured if the program is discontinued, unless the regulations governing eligibility for exchange subsidies are revised to fix the “family glitch.” With this in mind, the Medicaid and CHIP Payment and Access Commission (MACPAC), an independent agency that advises Congress, has recommended funding CHIP for an additional two years, until adequate provisions for covering these children can be made. MACPAC is also concerned about potential differences in the generosity of children's benefits between exchange coverage and CHIP. Its preliminary analysis suggests that, on average, CHIP plans have more generous coverage than exchange plans; MACPAC was to continue to monitor the issue and report back to Congress in spring 2015.

The ACA also offers states the option of establishing and administering a Basic Health Program (BHP), which would mitigate the problem of differential benefit generosity. BHPs are intended to provide a subsidized coverage option, with benefits and provider networks similar to Medicaid's, to Medicaid-ineligible people with incomes up to 200 percent of the federal poverty line.⁸¹ Such a program could reduce the potentially damaging effects of coverage churn among such people. Moreover, it would provide an option for low-income parents who are eligible for neither Medicaid nor CHIP to have an insurance plan with the same provider networks as those available to their Medicaid- or CHIP-enrolled children. Though states have the option to establish a BHP beginning in 2015, as of this writing, very few states have signaled an interest in doing so.

Because it mandates increases in the scope or generosity of private coverage, the ACA may also improve access for children who are already insured. For example, the ACA prohibits annual or lifetime limits on coverage, and people can't be denied coverage because of preexisting conditions. The act also requires that all private insurance, including employer-sponsored plans, cover the full cost of preventive services, such as childhood immunizations and well-child visits. The ACA may also increase the scope of coverage for private individual health insurance plans by introducing minimum benefit standards called Essential Health Benefits. These standards encompass a wide range of preventive, acute, and rehabilitative services and, for children, vision and dental services. It is unclear how many children will be affected by these provisions, since many plans are likely to have covered most of these benefits already.

The ACA also includes some smaller-scale supply-side provisions that are likely to affect children's access to care, although exactly how is hard to predict. These provisions include the expansion of funding for the SBHCs and the FQHCs, both of which are important sources of medical care for vulnerable children, as well as a temporary Medicaid reimbursement increase (in 2013–14) for primary care providers, including pediatricians, to achieve parity with Medicare. Additionally, several small-scale workforce initiatives are designed to increase the supply of providers serving vulnerable populations, including underserved children. These expansions in supply may not be enough to meet projected demand increases likely to be induced by the ACA's coverage provisions. Accordingly, it will be important to watch for barriers to access for newly insured children and their families. The first studies of the issue provide some reassurance that existing capacity in the health-care sector has been able to absorb the increased demand.⁸²

Finally, the ACA contains a series of health-care system delivery reforms designed to tackle two problems: the high cost and fragmentation of medical care. Specifically, the ACA introduces and supports a series of pilot demonstrations involving financing changes that accelerate the existing trend away from payments based on quantity of services toward a fixed, global per-patient payment, with payment bonuses for providing higher-quality care (for example, ensuring that patients receive annual flu shots). Additionally, the ACA pilot demonstrations involve initiatives to enhance the coordination of care, which are expected to increase the continuity and integration of care across primary care providers and specialists. The two most notable reform models tested in these pilots are the Accountable Care Organization, a new type of multiprovider network that coordinates care across providers (primary care and specialty) and settings (hospital, outpatient, and in-home), and the Patient-Centered Medical Home (PCMH), a primary care-focused model providing enhanced payments to primary care providers to promote "whole patient" care. These pilots overwhelmingly focus on adult populations, so very few children are likely to benefit directly from them in the short run. But they indicate broader health-care system trends that are shaping changes in pediatric practice. Indeed, the concept of the medical home originated in pediatrics, and the American Academy of Pediatrics continues to advocate for pediatric-focused PCMHs.⁸³ A key aim of such efforts is to integrate behavioral health care into primary care, which is vital given the high prevalence of behavioral health problems among children.

Conclusions

The ACA builds on the earlier successes of Medicaid expansion and CHIP to promote children's access to care, but challenges remain. We close by summarizing the three most significant challenges facing policy makers and policy-oriented researchers when it comes to the relationship between children's access to care and their health.

Not All Children Have Coverage

The country has made tremendous progress in increasing insurance coverage among children, but some groups have been left behind. In particular, undocumented children have very few affordable coverage options. Immigrant children, including the undocumented, are

less likely to have access to employer-sponsored insurance than are citizen children.⁸⁴ Moreover, undocumented children are ineligible for both Medicaid/CHIP and exchange coverage. Many of these children will continue to rely on free and/or greatly reduced-price care from safety net providers such as the FQHCs, free clinics, and public hospitals. Federal payments to safety net hospitals for uncompensated care are slated to decrease substantially under the ACA, further reducing the medical resources available to this vulnerable group.

Coverage Does Not Guarantee Access

As we've noted, coverage is just one piece of the puzzle for ensuring access. Children may face barriers to access when they move between insurance plans ("churning"); they may also face barriers if there are not enough providers, or if not enough providers are willing to see children covered by Medicaid at the rate the government is willing to pay. Parents also play a critical role in ensuring that children get the care they need, when they need it. For example, adolescents, especially boys, are much less likely to have a usual care provider than are younger children, and they have relatively fewer medical visits (including preventive visits), even though adolescents have more health problems.⁸⁵ Researchers hypothesize that a key reason for this gap is that parents are less aware of adolescents' health-care needs compared to those of younger children.⁸⁶

Other Inputs Are Critical

Our review of the evidence suggests that, without question, access to care plays an important role in promoting children's health. Moreover, improving children's access to care represents a relatively straight-forward problem in the sense that, if the political will exists, we know which policies will work: expanding coverage, promoting continuous coverage, and increasing reimbursement rates. At the same time, as we noted at the outset, access to care is not the whole reason that some kids are healthier than others. It is worth repeating a point from the RAND Health Insurance Experiment: even in the free care plan, 30 percent of children had uncorrected vision problems in spite of receiving an average of more than three office visits per year.⁸⁷ Nonmedical inputs into children's health, such those discussed in the other articles in this issue, as well as the quality of the medical care that children can access, are also important pieces of the puzzle.

Acknowledgments

Levy acknowledges financial support from the National Institute on Aging (grant number NIA K01AG034232).

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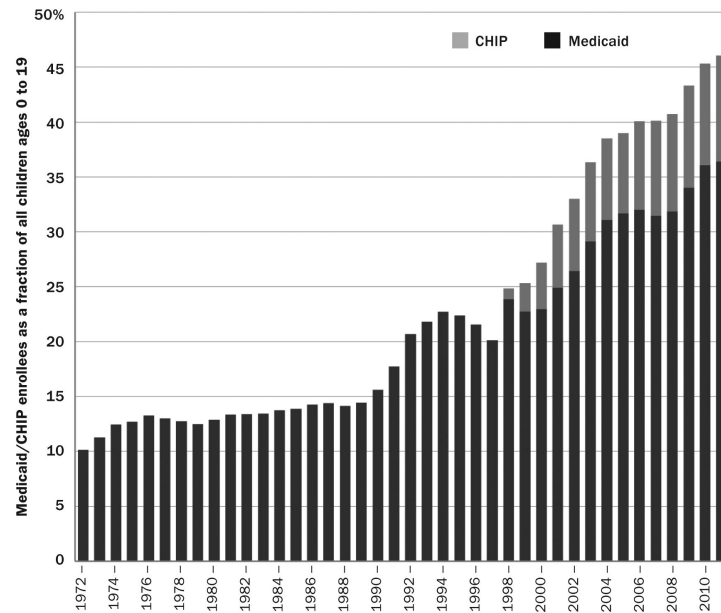


Figure 1. Children Enrolled in Medicaid or CHIP, 1972–2011

Sources: MACPAC June 2014 Report to Congress (Medicaid enrollment 1975–2011); 1998 Green Book (Medicaid enrollment 1972–1975); Marilyn Ellwood, Angela Merrill, and Wendy Conroy, “SCHIP’s Steady Enrollment Growth Continues,” Mathematica Policy Research, Final Report to the Centers for Medicare & Medicaid Services, May 2003 (CHIP enrollment 1998–2001); *Statistical Abstract of the United States* for years 2004–11 (CHIP enrollment 2003–09); CHIPRA Annual Reports to Congress for 2010 and 2011 (CHIP enrollment 2010 and 2011); *Economic Report of the President 2012* (estimates of the population ages 0 to 19, all years).

Table 1**Milestones in Public Health Insurance Programs for Children**

1965	Medicaid is established to provide health insurance coverage to children in families receiving welfare.
1986–90	Congress requires gradual increases in income eligibility threshold for Medicaid until all children living below the poverty level are covered by Medicaid.
1997	Congress enacts the State Children's Health Insurance Program (SCHIP) , providing funds for states to expand insurance coverage to low-income children above the poverty level, either through their existing Medicaid programs or through new state-sponsored programs.
2009	Congress reauthorizes the State Children's Health Insurance Program and changes its acronym from SCHIP to CHIP.
2010	Affordable Care Act (ACA) becomes law.
2014	Major coverage provisions of the ACA take effect: health insurance expansions, premium tax credits, individual coverage mandate, and Medicaid expansions for adults in some states.