

Contract No.: 500-96-0016(03)
MPR Reference No.: 8644-300

MATHEMATICA
Policy Research, Inc.

**SCHIP at 10: A Synthesis
of the Evidence on Access
to Care in SCHIP**

Final Report

January 31, 2007

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Submitted to:

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This report was prepared for the Centers for Medicare & Medicaid Services (CMS), U.S. Department of Health and Human Services (DHHS), under contract number 500-96-0016 (03). The contents of this publication do not necessarily reflect the views or policies of CMS or DHHS, nor does the mention of trade names, commercial products, or organizations imply endorsement by CMS, DHHS, or Mathematica Policy Research, Inc. (MPR). The authors are solely responsible for the contents of this publication.

ACKNOWLEDGMENTS

We would like to express our appreciation to several individuals at Mathematica Policy Research, Inc. (MPR) who contributed to this report: Judith Wooldridge for providing insightful review and comments; Eileen Curley and Christopher Johnson for abstracting data from the SCHIP annual reports; and Margaret Hallisey for producing the report. In addition, we thank CMS staff for their review of the paper.

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EXECUTIVE SUMMARY

Purpose. The State Children’s Health Insurance Program (SCHIP) has made substantial gains in providing affordable health coverage to children. However, health insurance coverage alone does not ensure access to needed health services. Measuring whether SCHIP increases access to care for enrolled children requires that we look beyond the level of coverage to examine changes in access to care. This paper presents recent evidence about changes in access to care associated with enrollment in SCHIP.

Background. Access to care within SCHIP can be measured along several dimensions, including potential, realized, and perceived access. “Potential access” refers to factors (such as having a usual source of care) that may make it easier to use health care when it is needed. “Realized access” reflects utilization outcomes, such as increased preventive care use, increased provider or specialist visits, and decreased emergency department use. “Perceived access” refers to experiences or observations that may signal the adequacy of access (such as the level of unmet need or delays in receiving care). Individual measures of access may be imperfect (for example, increased utilization does not necessarily mean appropriate access, while the level of unmet need may reflect parents’ subjective expectations). However, when these measures are considered together, they tell a more complete story of the effects of coverage on access to care.

Approach. We selected studies that met three criteria for inclusion in this literature synthesis: (1) the study population included a clearly defined sample of SCHIP enrollees; (2) the study evaluated at least one measure of potential, realized, or perceived access; and (3) the study design measured a change in access to care associated with SCHIP enrollment. We identified 15 studies that assessed how access to care changed for children when they enrolled in SCHIP. These studies provide evidence across 14 states (Alabama, California, Colorado, Florida, Illinois, Iowa, Kansas, Louisiana, Missouri, New Hampshire, New Jersey, New York, North Carolina, and Texas), representing the experience of nearly two-thirds of the national SCHIP population.

Findings. Children were more likely to have a usual source of care and less likely to have unmet health care needs or delayed care after they enrolled in SCHIP. Evidence was

mixed for the utilization measures; while some studies found significant positive effects, others observed no evidence of change in access for provider visits, preventive care use, specialty care use, and emergency department use. The size of improvements in access varied according to the study and the measure, although most exceeded 10 percent. Many of the SCHIP access studies included analyses within subgroups of the SCHIP population, permitting an assessment of how selected vulnerable populations may have fared in the program. We focused on four subgroups with historically high levels of unmet need before they enrolled in SCHIP: (1) the long-term uninsured (that is, those without coverage for more than six months before SCHIP); (2) adolescents; (3) children with special health care needs; and (4) children of minority race/ethnicity. Children who had been without coverage for more than six months before SCHIP and adolescents had the greatest gains in access under SCHIP. Children with special health care needs and children of minority race/ethnicity were less likely to experience consistent gains.

Implications. These findings suggest that SCHIP is opening doors to health care by increasing access for low-income children, particularly those who were least likely to have health insurance coverage before SCHIP. Disparities have also been reduced in some vulnerable populations, although many of the long-standing gaps in access, such as among children with special health care needs and children of minority race/ethnicity, have not been eliminated. Additional strategies may be needed to further reduce barriers to care for these populations. Future research should focus on the links between program design and improvements in access, and subsequent effects on health outcomes (such as improved health status and functional status).

SCHIP AT 10: A SYNTHESIS OF THE EVIDENCE ON ACCESS TO CARE IN SCHIP

As the State Children's Health Insurance Program (SCHIP) nears its 10-year anniversary, the program has made substantial gains in providing affordable health coverage to children. More than 6 million children were enrolled in SCHIP in fiscal year 2005 (Centers for Medicare & Medicaid Services 2006). However, health insurance coverage alone does not ensure access to needed health services. Children with insurance coverage use more health services and have better health outcomes than those without coverage (Institute of Medicine 2001). However, some insured children may face barriers to obtaining care, such as lack of provider availability or lack of awareness of the need for preventive health care (Rosenbach et al. 1999). Measuring whether SCHIP increases access to care for enrolled children requires that we look beyond the level of coverage to examine changes in access to care. This report presents recent evidence about changes in access to care associated with enrollment in SCHIP.

Access to care within SCHIP can be measured along several dimensions, including potential, realized, and perceived access. "Potential access" refers to factors (such as having a usual source of care) that may make it easier to use health care when it is needed. In and of itself, however, this measure is not an indicator of actual utilization. "Realized access" reflects utilization outcomes, such as increased preventive care use and decreased emergency department use. Aggregate provider visits or specialist visits are also frequently measured. "Perceived access" refers to experiences that may signal the adequacy of access (such as the level of unmet need or delays in receiving care), but these measures are somewhat subjective. Individual measures of access may be imperfect on their own (for example, increased utilization does not necessarily mean appropriate access, while the level of unmet need may reflect parents' subjective expectations). When these measures are considered together, however, they tell a more complete story of the effects of coverage on access to care.

This report focuses on six access-to-care measures, spanning all three dimensions of access. The six measures are (1) usual source of care, (2) provider visits, (3) preventive care,

(4) specialty care, (5) emergency department use, and (6) unmet need or delayed care. Two of these measures—usual source of care and unmet need/delayed care—are included in the Healthy People 2010 initiative as national benchmarks for access to care. Healthy People 2010 has established a goal that 97 percent of children have a usual source of care and that 7 percent or less of the population experience a delay in care or have an unmet health need (U.S. Department of Health and Human Services 2000).

We identified 15 studies, covering 14 states, that included one or more of these measures to assess how access to care has changed for children when they enrolled in SCHIP. This report synthesizes evidence across the 14 states (Alabama, California, Colorado, Florida, Illinois, Iowa, Kansas, Louisiana, Missouri, New Hampshire, New Jersey, New York, North Carolina, and Texas). The SCHIP enrollees in these 14 states represent nearly two-thirds of the national SCHIP population. The states include a mix of program types, including 10 states with separate child health programs (S-SCHIP), 2 states with Medicaid expansion SCHIP programs (M-SCHIP), and 2 states with a combination of S-SCHIP and M-SCHIP programs.

The next section describes prior evidence of the strong association between insurance coverage and access to care. We then propose a framework of the hypothesized relationship between coverage, access, and health outcomes within the SCHIP program. Using this framework, we summarize the evidence on access to care in SCHIP. We then focus on whether children in vulnerable populations have experienced similar gains in access within SCHIP. We conclude with a discussion of remaining questions and suggested directions for research.

In summary, the evidence suggests that children's access to care generally improved upon enrollment in SCHIP, particularly as shown by a reduction of unmet need and delayed care. We found the greatest improvements occurred within two groups of enrollees who had large deficits in access to health care before entering the program: (1) the long-term uninsured, and (2) adolescents. These findings suggest that SCHIP is opening doors to health care by increasing access for low-income children, particularly those who were least likely to have health insurance coverage before SCHIP.

INSURANCE PLAYS AN IMPORTANT ROLE IN ACCESS TO CARE

It is well established that insurance coverage plays an important role in facilitating access to care (Institute of Medicine 2001). Children who lack health coverage are less likely than those with private or public health coverage to have a usual source of care, to have seen a health provider in the past year, or to have received adequate preventive care; they have fewer provider visits overall; and they are more likely to have unmet needs and to delay seeking care (see, for example, Dey et al. 2004; Kenney et al. 2003; Newacheck 1998; Rosenbach et al. 1999; Starfield 2000). Thus, coverage is often seen as the first step in a sequence to promote health and prevent disease.

The relationship between coverage and access has been documented for all income groups. There is particularly strong evidence of this relationship among poor and near-poor

populations (Rosenbach 1989).¹ Recent data suggest that half (48 percent) of uninsured children in poor and near-poor families reported no health care expenditures during 2001, compared to only one-fifth of children with public or private coverage (18 and 19 percent, respectively) (Simpson et al. 2005). Similarly, among children in poor and near-poor families, children who lacked insurance coverage were less likely to report a usual source of care; less likely to report provider visits (in general, and for preventive care, dental care, and mental health care); more likely to report unmet needs; and less likely to report excellent health status (Stevens et al. 2006; Dubay and Kenney 2001).

The Medicaid expansions of the early 1990s also provide strong evidence that granting coverage to previously uninsured low-income children affords greater access to care and improved health status (Brown et al. 2001; Rosenbach et al. 1999). For example, the Medicaid expansions resulted in an increased likelihood of having a usual source of care, increased provider visits, and reduced emergency department use (Banthin and Seldin 2003), as well as an overall reduction in mortality (Currie and Gruber 1996). Similarly, an evaluation of the TennCare coverage expansions found that newly covered children were more likely than uninsured children in Tennessee to have a usual source of care, less likely to have unmet needs or delayed care, and used more health services (Moreno and Hoag 2001). Furthermore, health care need appeared to be similar in both the covered and uninsured populations, suggesting that increases in access were not merely a reflection of greater need or poorer health status among those who sought coverage.

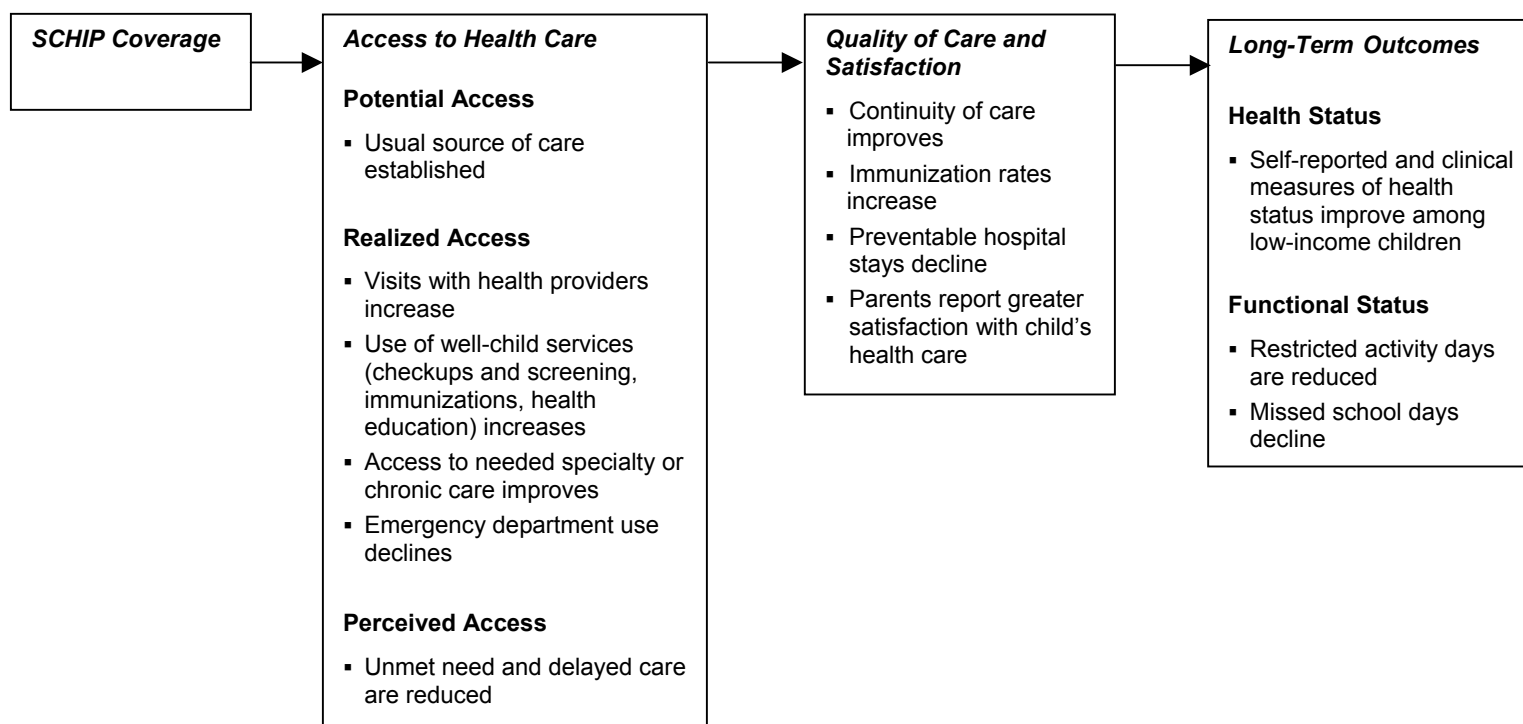
Two early studies provided preliminary, indirect evidence of the effects of SCHIP by examining trends in access among near-poor children who were targeted for coverage by SCHIP since its enactment in 1997. Findings from the Community Tracking Study demonstrated a twofold reduction in the percent of near-poor children reporting unmet needs between 1997 and 2003 (Strunk and Cunningham 2004). Similarly, the National Survey of America's Families found that near-poor families reported more provider visits for their children, as well as more well-child visits overall, between 1999 and 2002 (Kenney et al. 2003). This literature synthesis focuses on direct evidence of the linkage between enrollment in SCHIP and changes in access to care.

HOW SCHIP ENROLLMENT MAY LEAD TO INCREASED ACCESS TO CARE: A CONCEPTUAL FRAMEWORK

To guide this analysis, we developed a conceptual framework that illustrates the hypothesized relationship between the expansion of insurance coverage under SCHIP; improvements in potential, realized, and perceived access to care; and, ultimately, improvements in health outcomes. As Figure 1 shows, the framework hypothesizes that enrollment in SCHIP may facilitate the establishment of a usual source of care if a child does not already have one (potential access). For those who already have a usual source of care, SCHIP enrollment may facilitate access to a usual source that may not have been affordable

¹In this report, "near-poor" refers to children living in families with incomes between 100 and 200 percent of the federal poverty level.

Figure 1. Hypothesized Link Between SCHIP Coverage, Access, and Health Outcomes



without coverage (such as a private physician's office). In turn, we expect that the availability of a usual source of care and reduced out-of-pocket costs would lead to increased use of appropriate health care (including provider visits, well-child services, and specialty care) and decreased use of the emergency department (realized access). As a result, enrollees may experience reduced delays or barriers to obtaining needed care (perceived access).

Enhanced access to health care is expected to lead to increased quality of care and satisfaction through improved continuity of care, improved preventive care practices, a decline in preventable hospitalizations, and greater parent satisfaction.² Finally, increased coverage may lead to improved health status over the long term.

METHODOLOGY

We developed three criteria for the inclusion of studies in this literature synthesis. The criteria ensure that the selected studies focus explicitly on children who were enrolled in SCHIP, and that they measure changes in access associated with SCHIP enrollment and not simply cross-sectional variation within the SCHIP population. The three criteria are:

1. ***The study population included a clearly defined sample of SCHIP enrollees.*** Because the specific focus of this review is on the link between SCHIP coverage and access to care, we required studies to identify a sample of SCHIP enrollees. This led to two types of exclusions from the study sample: (1) studies that defined their sample based on potential eligibility for SCHIP using income or poverty level (for example, Kenney et al. 2003; Cunningham et al. 2002); and (2) studies that focused on pre-SCHIP or SCHIP-like programs (for example, Lave et al. 1998; Feinberg et al. 2002; Szilagyi et al. 2000).
2. ***The study evaluated at least one measure of potential, realized, or perceived access.*** To be in this review, studies had to include one or more measures of access. Based on the conceptual framework, we identified six core access measures that were key to demonstrating the linkage between SCHIP coverage and access to care. These core measures are:
 - ***Usual Source of Care.*** Percent of enrollees with a usual source of care, including a usual provider or a usual place
 - ***Provider Visits.*** Average number of provider visits or percent of enrollees with one or more provider visits

² Parent satisfaction is not an explicit focus of this literature synthesis. However, substantial evidence exists that SCHIP enrollment is associated with increases in parent satisfaction ratings of their child's health care and the quality of that care (see, for example, Kempe et al. 2005; Fox et al. 2003; RKM Research and Communications, Inc. 2004; Szilagyi et al. 2004).

- ***Preventive Care.*** Percent of enrollees with a preventive care visit in the past year
- ***Specialty Care.*** Average number of specialty care visits or percent of enrollees with one or more specialty care visits
- ***Emergency Department Use.*** Average number of emergency department visits or percent of enrollees with one or more emergency department visits
- ***Unmet Need or Delayed Care.*** Percent of enrollees reporting an unmet need or a delay in receiving care

3. ***The study design measured a change in access to care associated with SCHIP enrollment.*** Three designs predominant in the access-to-care literature satisfied this criterion: pre/post, retrospective, and non-equivalent comparison group designs. The first two designs compare access among SCHIP enrollees before and after their enrollment in the program. The third design compares access among SCHIP enrollees to an external comparison group of children who are eligible or nearly eligible for SCHIP but not enrolled. As noted in Table 1, each of the designs has varying abilities to control for measurement error.

Based on these criteria, we conducted an extensive search of the published literature and the internet. Through this effort, we identified 15 studies covering 14 states that documented changes in access to care after SCHIP enrollment.³ Table 2 lists each study by state, program name and type, author, study design, data source, and use of statistical significance testing. These 15 studies are the most recently available SCHIP evaluations for each state. For seven states (California, Colorado, Florida, Iowa, New York, North Carolina, and Texas), we present more than one study, because some measures differed across the evaluation studies. In addition, one study presents average rates across 10 states, as well as individually for each state (Wooldridge et al. 2005). Appendix Table A.1 describes the major features of the SCHIP programs represented in these studies (type of delivery system, eligibility threshold, cost sharing).

The studies varied in their methodological approach, and two of the studies used more than one approach to assess changes in access (Table 2). The most common approach,

³ In addition to the 15 selected studies, we identified other studies that estimated the effects of SCHIP on access to care but that did not meet the criteria for this study. We cite these studies, where appropriate, but do not include them in the tables and figures. One study, for example, examined changes in access among SCHIP-eligible children rather than SCHIP-enrolled children (Davidoff et al. 2005). However, because of the study's focus on children with chronic conditions, we cited it in our discussion of the effects of SCHIP on access for children with special health care needs. Other studies synthesized existing research from the Children's Health Insurance Research Initiative (Brach et al. 2003; Dick et al. 2004).

Table 1. Three Designs Used to Measure Changes in Access to Care Among SCHIP Enrollees

Design	Description	Design Strengths	Design Weaknesses
Pre/Post	This design surveys a single cohort of SCHIP enrollees at two points in time. The first survey, occurring soon after SCHIP enrollment, asks about the cohort's access during the year before SCHIP enrollment. These results are then compared to those of a second survey, occurring 6 to 12 months later, which asks about the cohort's experiences while enrolled in SCHIP.	This design controls for individual differences in responses between the pre- and post-enrollment surveys.	Response rates are often lower for this design because the same cohort of enrollees must be surveyed, and therefore located, twice. There is also potential for sample bias because harder-to-reach populations may be excluded from the second wave of the survey. Pre-SCHIP estimates may contain recall error because respondents may include post-SCHIP experiences in their responses.
Non-Equivalent Comparison Group	This design involves concurrent surveys with two cohorts to compare the experiences of SCHIP enrollees and non-enrollees. One comparison group design involves comparing "established" enrollees who have been enrolled in SCHIP for five or more months when sampled and "recent" enrollees who have been enrolled for one or two months when sampled. The experiences of established enrollees while enrolled in SCHIP are compared to the experiences of recent enrollees before they obtained SCHIP coverage. Another comparison group design involves comparing the experiences of current enrollees to those of children who are eligible for but not enrolled in the program.	This design requires only one wave per cohort and estimates of pre-SCHIP experiences are less likely to be confounded with post-SCHIP experiences.	This design may be subject to error resulting from important differences between established and recent enrollees or those who are eligible but not enrolled, such as health status.
Retrospective	This design compares experiences of a single cohort of enrollees who are surveyed during their first year of SCHIP enrollment. Parents are interviewed about their experiences accessing care while enrolled in SCHIP, as well as their experiences accessing care during the year before their children were enrolled in SCHIP.	This design requires only a single sample of enrolled children and only one wave of interviews.	This design may be subject to recall error, because parents are asked to report on pre-SCHIP services received more than one year previously. Pre- and post-SCHIP experiences are reported in the same survey, which may limit the ability to detect significant significances.

Table 2. Studies of Effects of SCHIP on Children's Access to Care

State	Program Name	Study Authors	Study Design	Data Source	Statistical Significance Testing
Alabama	ALLKids	Mulvihill et al. (2000)	Retrospective	Survey	No
California	Healthy Families	Stevens et al. (2006)	Non-equivalent comparison group	Survey	Yes
		Kenney et al. (2005)	Non-equivalent comparison group	Survey	Yes
		Managed Risk Medical Insurance Board (2004)	Pre/post	Survey	No
Colorado	Child Health Plan Plus	Kempe et al. (2005)	Pre/post	Survey	Yes
		Kenney et al. (2005)	Non-equivalent comparison group	Survey	Yes
		Eisert and Gabow (2002) ^a	Pre/post	Claims	Yes
Florida	KidCare	Kenney et al. (2005)	Non-equivalent comparison group	Survey	Yes
		Nogle and Shenkman (2004)	Non-equivalent comparison group	Survey	No
		Shenkman et al. (2000)	Pre/post and non-equivalent comparison group ^b	Survey	Yes
Illinois	KidCare	Kenney et al. (2005)	Non-equivalent comparison group	Survey	Yes
Iowa	hawk-i	Damiano and Tyler (2005)	Pre/post	Survey	Yes
		Damiano et al. (2003)	Pre/post	Survey	Yes
Kansas	HealthWave	Fox et al. (2003)	Pre/post	Survey	Yes
Louisiana	LaCHIP	Kenney et al. (2005)	Non-equivalent comparison group	Survey	Yes
Missouri	MC+ for Kids	Kenney et al. (2005)	Non-equivalent comparison group	Survey	Yes
New Hampshire	Healthy Kids Silver	RKM (2004)	Non-equivalent comparison group	Survey	No
New Jersey	Family Care	Kenney et al. (2005)	Non-equivalent comparison group	Survey	Yes
New York	Child Health Plus	Kenney et al. (2005)	Non-equivalent comparison group	Survey	Yes
		Szilagyi et al. (2004)	Pre/post	Survey	Yes
North Carolina	Health Choice for Children	Kenney et al. (2005)	Non-equivalent comparison group	Survey	Yes
		Slifkin et al. (2002)	Pre/post	Survey	Yes
Texas	TexCare	Kenney et al. (2005)	Non-equivalent comparison group	Survey	Yes
		Shenkman (2003)	Retrospective and non-equivalent comparison group ^c	Survey	No
10-state estimate	^d	Kenney et al. (2005)	Non-equivalent comparison group	Survey	Yes

^aThe Eisert and Gabow (2002) study was limited to members of Denver Health HMO in Denver County's CHPlus program.

^bPre/post survey for usual source of care and preventive care measures. Non-equivalent comparison of new versus established enrollees on measures of unmet need.

^cRetrospective survey on measures of usual source of care; non-equivalent comparison of new versus established enrollees for unmet need measures.

^dThe 10-state SCHIP evaluation included: California (Healthy Families), Colorado (Child Health Plan Plus), Florida (KidCare), Illinois (KidCare), Louisiana (LaCHIP), Missouri (MC+ for Kids), New Jersey (FamilyCare), New York (Child Health Plus), North Carolina (Health Choice for Children), and Texas (TexCare).

M-SCHIP = Medicaid expansion SCHIP program.

S-SCHIP = Separate SCHIP program.

COMBO = State has both an M-SCHIP and an S-SCHIP program.

which 9 of the 15 studies used, was a pre/post research design; 6 used a non-equivalent comparison group design; and 2 used a retrospective design. All but one of the studies used data from surveys of parents; the other study used health plan claims data to measure access within a pre/post design. Among the 14 studies that relied on parent surveys, survey response rates ranged from 24 to 87 percent, when reported.⁴ Some studies adjusted their estimates for enrollee characteristics such as age of the child, family income, prior insurance, and race/ethnicity. All but five of the studies performed tests of statistical significance. Appendix Table B.1 reports more detail on each of the studies, including the study sample, design, outcome measures, and major findings.

RESULTS

This section synthesizes results from the 15 studies pertaining to access to care in SCHIP (see Table 3). The results are first presented by type of access measure and then discussed for selected vulnerable populations, including the long-term uninsured, adolescents, children with special health care needs, and children of minority race/ethnicity.

Access to Care Improved Across Several Dimensions

Overview. SCHIP enrollment was associated with an increased likelihood of having a usual source of care and widespread reductions in unmet need and delayed care. Evidence was mixed for the utilization measures; while some studies found significant positive effects, others observed no evidence of change in access for provider visits, preventive care use, specialty care use, and emergency department use. Although the magnitude of the improvements in access varied according to the study and the measure, most exceeded 10 percent. The largest statistically significant percentage changes were associated with reductions in delayed care or unmet need, which ranged from 39 percent in New York (a decrease from 31 to 19 percent; Szilagyi et al. 2004) to 90 percent in North Carolina (a decrease from 20 to 2 percent; Slifkin et al. 2002). More modest increases were observed on the usual source of care measure, ranging from 4 percent in Kansas (an increase from 92 to 96 percent; Fox et al. 2003) to 17 percent in Florida (an increase from 81 to 95 percent; Nogle and Shenkman 2004).

More children had a usual source of care after enrolling in SCHIP. As Figure 2 shows, most SCHIP enrollees had a usual source of care after enrolling in SCHIP. However, the percent of enrollees with a usual source of care was already so high before SCHIP enrollment that the magnitude of change reported was often quite small. Nevertheless, in all but two states (Colorado and Iowa), the likelihood of having a usual source of care

⁴ Many of the studies reporting low response rates used pre/post designs that required that the same cohort of enrollees be surveyed twice (and, thus, located twice). However, response rates were calculated differently across studies, when reported at all, and some studies did not provide enough information to determine the accuracy of the reported rates.

Table 3. Changes in Children's Access to Care Within SCHIP, by State

State	Study	Usual Source of Care	Provider Visits ^a	Preventive Care	Specialty Care	Reduction of Emergency Department Use	Reduction of Unmet Need or Delayed Care
Alabama	Mulvihill et al. (2000)*	+					+
California	Stevens (2006)	+	0				+
	Kenney et al. (2005)	+	0	0	0	0	+
	MRMIB (2004)*	+					+
Colorado	Kempe et al. (2005)	0	Mixed ^b	+	0	0	+ ^c
	Kenney et al. (2005)	+	+	0	0	0	+
	Eisert and Gabow (2002)		+	+	0	0	
Florida	Kenney et al. (2005)	+	0	0	0	+	+
	Nogle and Shenkman (2004)*	+					+ ^d
	Shenkman et al. (2000)	+		+			+
Illinois	Kenney et al. (2005)	0	0	0	0	0	+
Iowa	Damiano and Tyler (2005)	0	Mixed ^e			0	+
	Damiano et al. (2003)	+					+
Kansas	Fox et al. (2003)	+	+	+		+	+
Louisiana	Kenney et al. (2005)	+	+	+	0	+	+
Missouri	Kenney et al. (2005)	0	0	0	0	0	+
New Hampshire	RKM (2004)*	+		+			+
New Jersey	Kenney et al. (2005)	+	0	0	0	+	+
New York	Kenney et al. (2005)	0	0	0	0	0	+
	Szilagyi et al. (2004)	+	+	+	0	0	+
North Carolina	Kenney et al. (2005)	+	+	0	+	0	+
	Slifkin et al. (2002)	+		0		0	+
Texas	Kenney et al. (2005)	+	0	0	0	+	+
	Shenkman (2003)*	+					+
10-state estimate ^f	Kenney et al. (2005)	+	0	0	0	+	+

Note: Except where noted, the (+) symbol indicates that the study reported that SCHIP had a statistically significant positive effect on the access measure; the (–) symbol represents a statistically significant negative effect; (0) indicates no effect. Shading indicates the access measure was not evaluated in the study.

* Indicates statistical significance testing not performed.

^aProvider visits defined as the average number of provider visits for Eisert and Gabow (2002), Damiano and Tyler (2005), Fox et al. (2003), and Szilagyi et al. (2000).

Provider visits defined as the percent of enrollees with any provider visits in the past year for all other studies.

^bThe percent of children with any routine care significantly increased; however, the average number of routine visits did not change.

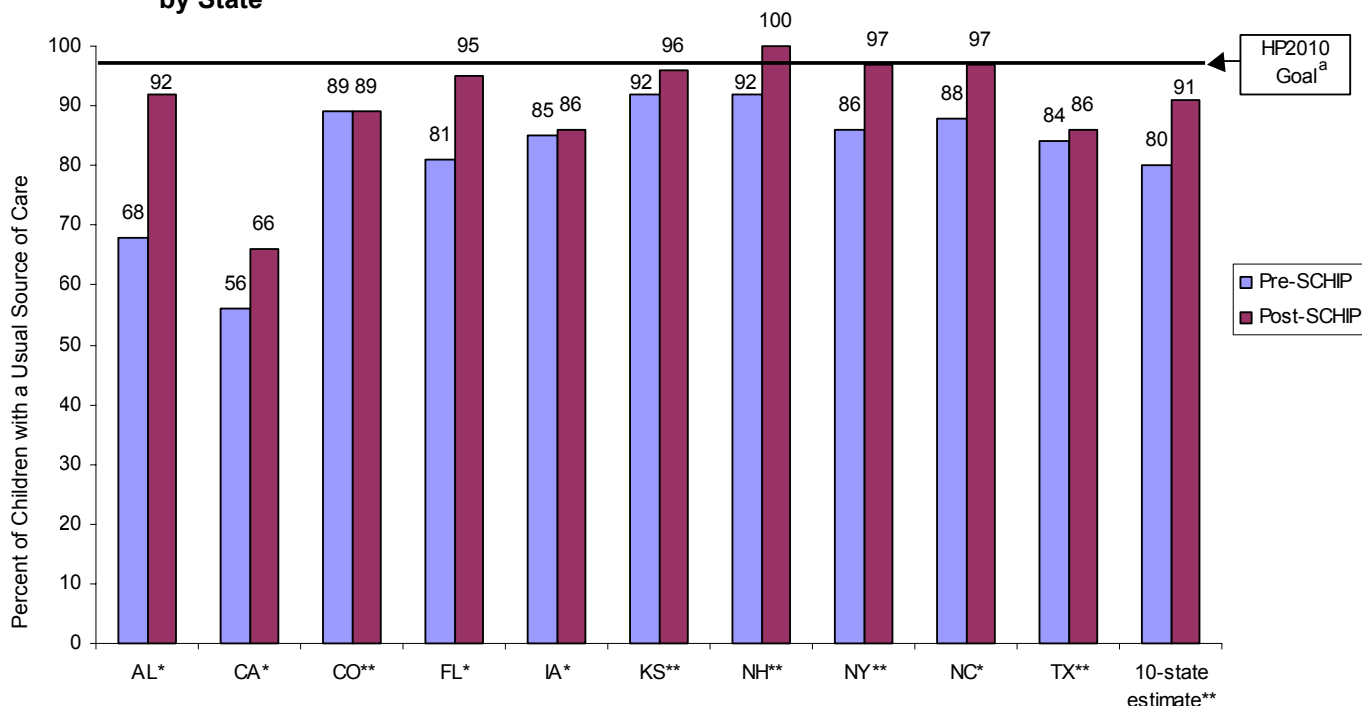
^cDelays in care were measured among those who sought care when sick or injured and those who sought routine care.

^dDelays in care were reduced in all categories measured, including preventive care, minor illness, and surgical care.

^eThe distribution of the average number of provider visits changed significantly, with fewer children having one visit or less and fewer children having more than 10 visits, but more children having between 2 and 9 visits per year.

^fAggregate findings from California, Colorado, Florida, Illinois, Louisiana, Missouri, New Jersey, New York, North Carolina, and Texas.

Figure 2. Change in Percentage of Children with a Usual Source of Care Pre- and Post-SCHIP, by State



Sources: Alabama: Mulvihill et al. (2000); California: Managed Risk Medical Insurance Board (2004); Colorado: Kempe et al. (2005); Florida: Nogle and Shenkman (2004); Iowa: Damiano and Tyler (2005); Kansas: Fox et al. (2003); New Hampshire: RKM (2004); New York: Szilagyi et al. (2004); North Carolina: Slifkin et al. (2002); Texas: Shenkman (2003); 10-state estimate: Kenney et al. (2005).

Notes: We reference the most recent data in this chart if data were available from more than one source for a state. The New Hampshire pre-SCHIP rate reflects a comparison group of prospects who inquired about SCHIP, but who had not yet applied. The 10-state estimate reflects the aggregate change for the 10 study states in Kenney et al. (2005). See Table 2 and Appendix B for more detail on studies and the significance level of results.

* Usual provider of care.

** Usual place of care.

^aHealthy People 2010 goal that 97 percent of children have a usual source of care by 2010. This goal is part of the U.S. Department of Health and Human Services' Healthy People 2010 initiative to establish national public health goals (U.S. Department of Health and Human Services 2000).

increased. Three states (New Hampshire, New York, and North Carolina) had rates at or above the Healthy People 2010 goal of 97 percent. Florida and Kansas were within two percentage points of the goal. These findings are consistent with another recent study about SCHIP's role in increasing access to a usual source of care (Quinn and Rosenbach 2005).

The studies varied in how they defined a usual source of care. Half of the studies asked about a usual provider of care, while the other half asked about a usual place of care.⁵

⁵ For more detail on the distinctions between a usual place of care versus a usual provider of care, see Quinn and Rosenbach (2005).

California's relatively low rate of 66 percent may reflect that enrollees were asked whether they had a "personal physician," which is more restrictive than asking about a usual place of care. In addition, some respondents may have excluded providers in group practice settings, which are common in California.

Five studies took into account changes in the type of usual source, such as a private physician's office, a public clinic, or a hospital emergency department (Fox et al. 2003; Szilagyi et al. 2004; Slifkin et al. 2002; Shenkman 2003; Wooldridge et al. 2005). The type of usual source can be an important determinant of access to care. For example, settings in which there is little opportunity to establish a long-term relationship with a provider (such as emergency departments) are less conducive to maintaining continuity of care and receiving adequate preventive care (Halfon 1995). One study found that many new SCHIP enrollees reported a public clinic, hospital outpatient department, or emergency department as their usual source of care before they enrolled in SCHIP (Brach et al. 2003). After enrolling in SCHIP, enrollees in Kansas, North Carolina, and Texas, as well as in the states in the 10-state SCHIP evaluation, reported an increased likelihood of having a private provider as the usual source of care, compared to a public clinic or emergency department (Fox et al. 2003; Slifkin et al. 2002; Shenkman 2003; Kenney et al. 2005). For example, 20 percent of Texas SCHIP enrollees reported that their usual source of care before SCHIP enrollment was a hospital emergency department, compared to 2 percent post-SCHIP enrollment (Shenkman 2003). Although the New York evaluation showed no change in the location of the usual source of care, Szilagyi et al. (2004) noted that the pattern of health care use changed under SCHIP. More children used their usual source of care for all outpatient services, and the percentage that reported never using their usual source of care declined significantly, suggesting greater continuity of care.

Provider visits increased significantly in most studies that included this measure.

Seven of the 15 studies evaluated changes in provider visits using two measures: (1) the percentage of children with any visits in the past year, or (2) the average number of provider visits within the past 6 to 12 months. The percentage of enrollees with one or more provider visits in the past year increased in Colorado, New York, and 3 states (Colorado, Louisiana, and North Carolina) in the 10-state SCHIP evaluation (Kempe et al. 2005; Szilagyi et al. 2004; Kenney et al. 2005). The average number of provider visits increased in Colorado and Kansas (Eisert and Gabow 2002; Fox et al. 2003).⁶ The results were mixed in Iowa: although the percentage of children with 0 to 1 visits decreased, so did the percentage with 10 or more visits, such that an increased percentage of children received between 2 and 9 visits (Damiano and Tyler 2005). Because none of the SCHIP studies examined both the probability of a provider visit and the number of visits contingent upon one visit, it is not possible to assess the role of SCHIP in improving initial access versus the volume (or intensity) of care. However, evidence from a pre-SCHIP study in Pennsylvania concluded

⁶ Kempe et al. (2005) also examined change in the average number of provider visits in Colorado and the results were not significant. This is in contrast to the earlier Colorado study (Eisert and Gabow 2002), which found a significant increase in the average number of provider visits. Variation in these study results may reflect underlying differences in the new enrollee populations included in the 2002 versus 2005 studies.

that the main effect of expanded coverage was to increase the likelihood of receiving any services, rather than to increase the intensity of care among those who received any services (Lave et al. 1998).

Several studies assessed the effects of SCHIP enrollment on access to dental care. For example, in Iowa, the percentage of children with a dental visit in the past 12 months increased from 52 percent before SCHIP to 67 percent after SCHIP (Damiano and Tyler 2005). Similarly, in Kansas, the percentage increased from 48 to 71 percent (Fox et al. 2003). The 10-state SCHIP evaluation found a 25 percentage point increase in the likelihood of a preventive dental visit among those who were uninsured before enrolling in SCHIP (Wooldridge et al. 2005). These results are consistent with previous research on access to dental care under SCHIP (Shulman and Rosenbach 2004).

Preventive care use increased in some, but not all, states. As Table 3 shows, preventive care use increased in six states (Colorado, Florida, Kansas, Louisiana, New Hampshire, and New York) (Kempe et al. 2005; Eisert and Gabow 2002; Shenkman et al. 2000; Fox et al. 2003; Kenney et al. 2005; Szilagyi et al. 2004). While preventive care rates varied by state before and after SCHIP enrollment, most increases exceeded 10 percent (Figure 3).⁷ However, in North Carolina, and in 9 states in the 10-state SCHIP evaluation, there were no significant changes in preventive care use (Slifkin et al. 2002; Kenney et al. 2005).

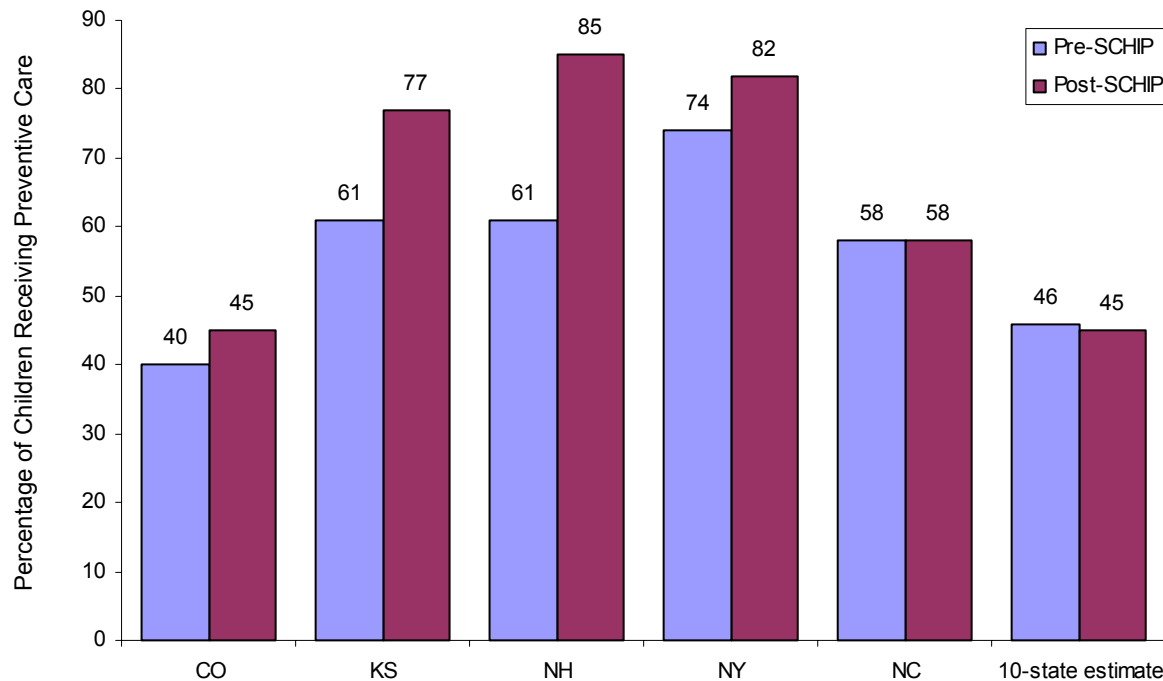
These studies highlight the sensitivity of preventive care rates to the data collection approach. The low preventive care rate reported for Colorado is most likely attributable to this study's use of claims data, which relied on specific billing codes for well-child care (Eisert and Gabow 2002). Because preventive care is often delivered along with other types of services, claims data may underreport preventive care for children. Therefore, survey data that rely on a parent's self-report of preventive care use would be expected to be higher than rates based on claims data.

An unexpected pattern emerged in North Carolina. Although preventive care rates did not change for most of the SCHIP population, Slifkin et al. (2002) found a decrease in preventive care use among children under age 6 who transferred to SCHIP from the Medicaid program. The authors speculate that an intensive initiative to promote preventive care in the North Carolina Medicaid program resulted in high levels of well-child care under Medicaid that were not sustained when Medicaid enrollees transferred to SCHIP.

Few studies found significant changes in specialty care access associated with SCHIP. Only one state—North Carolina—demonstrated a significant increase in access to specialty care following enrollment in SCHIP (Table 3) (Kenney et al. 2005). In addition, there was some evidence of reductions in unmet need or delayed care associated with specialty services in Florida, Iowa, New York, and the 10-state SCHIP evaluation (Nogle and

⁷ Figure 3 does not include the Florida study (Nogle and Shenkman 2004), because specific rates were not reported in the text or graphics.

Figure 3. Change in Percentage of Children Receiving Preventive Care Pre- and Post-SCHIP, by State



Sources: Colorado: Kempe et al. (2005); Kansas: Fox et al. (2003); New Hampshire: RKM (2004); New York: Szilagyi et al. (2004); North Carolina: Slifkin et al. (2002); 10-state estimate: Kenney et al. (2005).

Notes: We reference the most recent data in this chart if data were available from more than one source for a state. The 10-state estimate reflects the aggregate change for the 10 study states in Kenney et al. (2005). We excluded data from Florida because exact percentages are not reported. See Table 2 and Appendix B for more detail on studies and the significance level of results.

Shenkman 2004; Damiano and Tyler 2005; Szilagyi et al. 2004; Wooldridge et al. 2005). The lack of significant findings related to specialty care access may be due, in part, to the effectiveness of primary care services in meeting children's health care needs. For example, Szilagyi et al. (2004) suggest that SCHIP facilitated more efficient use of care for New York enrollees by providing more services through their usual source of care sites.

Evidence on emergency department use was mixed. As Table 3 shows, few studies detected significant changes in emergency department use after enrollment in SCHIP. Five states (Florida, Kansas, Louisiana, New Jersey, and Texas) and the aggregate 10-state estimate exhibited significant reductions in emergency department use after children enrolled

in SCHIP. Contrary to expectations, other states demonstrated no change in emergency department use.

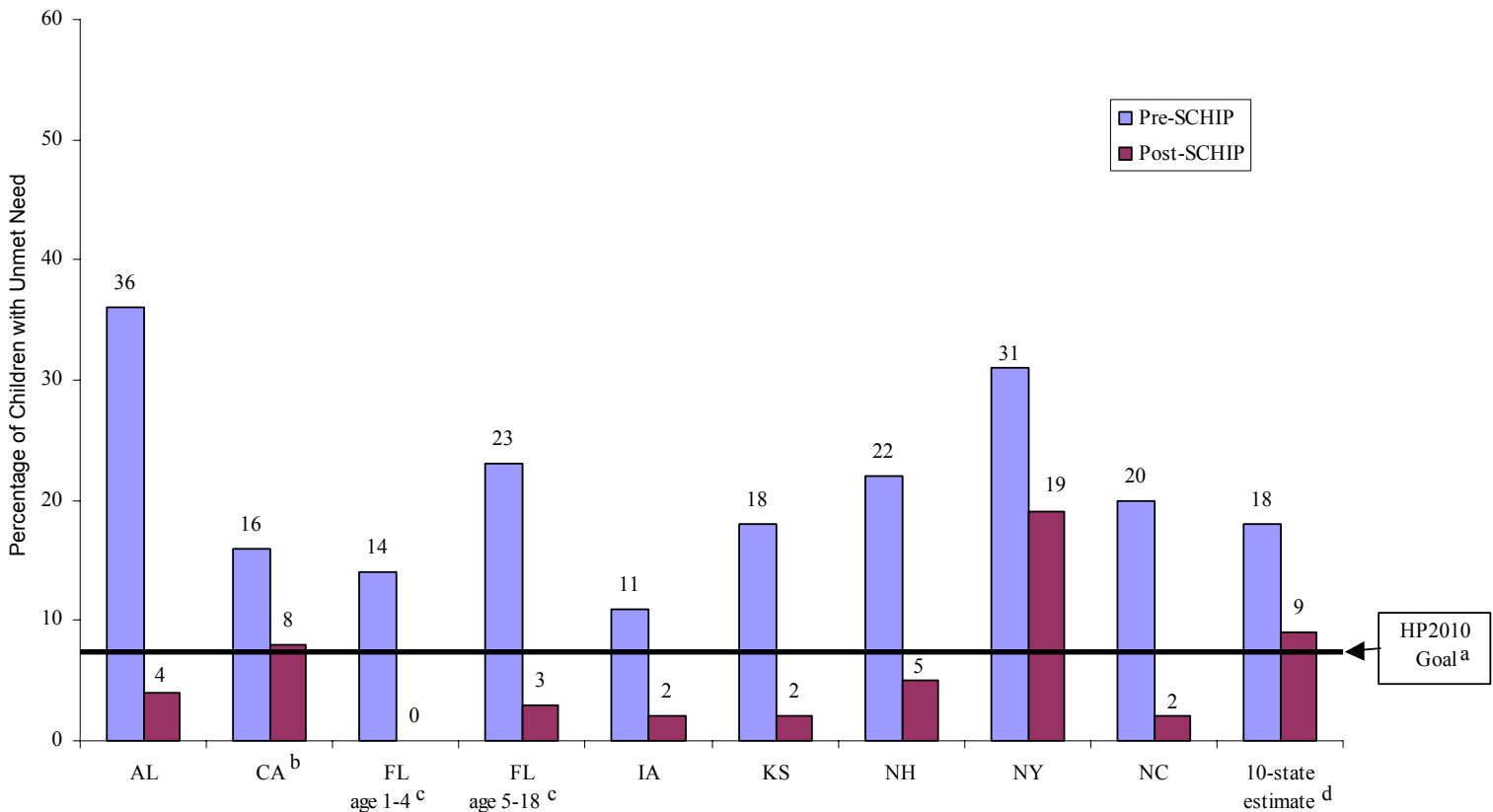
In two states—Kansas and North Carolina—certain groups of children experienced *increases* in emergency department use. In Kansas, for example, although emergency department use decreased for children overall, it increased among those who had not used the emergency department in the six months before SCHIP enrollment (Fox et al. 2003). One possible explanation is that SCHIP enrollment led to better care management for those families who were previously frequent emergency department users and a reduction of pent-up demand for those children who were infrequent users. Similarly, in North Carolina, the likelihood of emergency department use in the past six months increased significantly among infants and preschoolers (from 23 percent before SCHIP to 29 percent after SCHIP) (Slifkin et al. 2002). The authors posited that this might be due to the large proportion of young children who transferred from a Medicaid managed care system to a fee-for-service system within SCHIP, reflecting less gatekeeping in SCHIP than in Medicaid.

Unmet need and delayed care decreased in all states. Before SCHIP, the most common unmet needs were related to mental health, specialty care, dental care, vision, and prescription drugs (Brach et al. 2003). Fourteen studies reported a significant reduction in unmet needs and/or delayed care associated with SCHIP enrollment, providing the most systematic evidence of improved access across any of the measures in this review (Table 3). The magnitude of reductions in unmet need and/or delayed care was large, with all but one state achieving a decrease of 50 percent or more. (New York’s rate decreased by 39 percent.) These results are consistently strong, regardless of the definition of the measure. (Some states referred to the percent with any unmet need, while others referred to the percent with unmet need or delayed care.) As Figure 4 shows, six studies reported post-SCHIP rates for unmet need at or below the Healthy People 2010 goal of 7 percent or less.⁸ California and the 10-state SCHIP evaluation estimate were within two percentage points of the goal. In addition, although Kansas and New York had significant reductions in unmet need, their rates remained well above the Healthy People 2010 goal, possibly reflecting their very high baseline rates.

The results presented in Table 3 and Figure 4 reflect changes in overall unmet need and delayed care, but many of the studies in our review also showed dramatic reductions in specific types of unmet need. For example, unmet need for dental care declined from 53 to 7 percent among SCHIP enrollees in Alabama during the first year of enrollment, and unmet need for prescription drugs declined from 43 to 3 percent (Mulvihill et al. 2000). Similarly, unmet need for mental health care declined from 42 to 18 percent among SCHIP enrollees in Iowa during the first year of enrollment (Damiano et al. 2003).

⁸ Figure 4 does not include the Texas study (Shenkman 2003), because the study results were presented graphically and specific rates were not reported.

Figure 4. Change in Percentage of Children with Unmet Need Pre- and Post-SCHIP, by State



Sources: Alabama: Mulvihill et al. (2000); California: Managed Risk Medical Insurance Board (2004); Colorado: Kempe et al. (2005); Florida: Nogle and Shenkman (2004); Iowa: Damiano and Tyler (2005); Kansas: Fox et al. (2003); New Hampshire: RKM (2004); New York: Szilagyi et al. (2004); North Carolina: Slifkin et al. (2002); 10-state estimate: Kenney et al. (2005).

Notes: We reference the most recent data in this chart if data were available from more than one source for a state. The California and New York studies defined unmet need as pertaining to all health care; all other studies defined unmet need as pertaining to medical care. The 10-state estimate reflects the aggregate change for the 10 study states in Kenney et al. (2005). See Table 2 and Appendix B for more detail on studies and the significance level of results.

^aHealthy People 2010 goal that 7 percent or less of the population experiences a delay in care or has an unmet health need by 2010. This goal is part of the U.S. Department of Health and Human Services' Healthy People 2010 initiative to establish national public health goals (U.S. Department of Health and Human Services 2000).

^bUnmet need or delayed care.

^cFlorida reported unmet need in six categories of health care; this represents the level of unmet need for surgical care or medical procedures, separately for children ages 1 to 4 and ages 5 to 18 years.

^dThe 10-state estimate reported unmet need in eight categories of health care; this represents the level of unmet need for physician, drug, specialist, and hospital care, combined.

Vulnerable Populations Experienced Improved Access, but Some Gaps Remain

Many of the SCHIP access studies included analyses within subgroups of the SCHIP population, permitting an assessment of how selected vulnerable populations may have fared in the program. This section focuses on four subgroups.⁹ Two subgroups—the long-term uninsured (that is, those without coverage for more than six months before SCHIP) and adolescents—appear to have experienced the greatest gains in access under SCHIP. Two other subgroups—children with special health care needs and children of minority race/ethnicity—were less likely to experience consistent gains. These four subgroups share at least one common characteristic: historically, they had high levels of unmet need before enrolling in SCHIP. Despite significant gains in access under SCHIP, gaps remained, especially for children with special health care needs and children of minority race/ethnicity.

The long-term uninsured exhibited more gains than those with recent coverage.

Among the studies that evaluated the effect of prior insurance status on access to care, the results consistently indicated that those who were uninsured for at least six months had the largest improvements in access to care after enrolling in SCHIP, compared to enrollees who had been uninsured for less time or who transferred directly from the Medicaid program (Szilagyi et al. 2004; Slifkin et al. 2002; Wooldridge et al. 2005). For example, the 10-state SCHIP evaluation found striking differences according to prior insurance status (Wooldridge et al. 2005). They compared the health care access of established SCHIP enrollees to the pre-SCHIP experience of two groups of recent SCHIP enrollees: those who were uninsured for six or more months prior to SCHIP enrollment and those who had insurance for some or all of the six months before they enrolled in SCHIP. They found that established SCHIP enrollees exhibited substantially better access to care than recent enrollees who were uninsured for at least six months before they gained SCHIP coverage, including a higher likelihood of having a usual source of care; higher likelihood of having a provider visit, preventive care visit, and specialty visit in the past six months; and lower likelihood of emergency department use and unmet need. Differences in access were less pronounced between established enrollees and those who had other insurance prior to SCHIP. Established SCHIP enrollees had a lower likelihood of emergency department use and unmet need compared to recent enrollees with previous insurance coverage.¹⁰ These results suggest that recent enrollees who lacked insurance coverage for at least six months prior to

⁹ Some studies assessed variations in access according to other demographic characteristics, such as parent education and income. Wooldridge et al. (2005), for example, found that recently enrolled children of parents with fewer years of education reported smaller improvements in access to care (specifically, provider continuity) than children of parents with more years of education. Stevens et al. (2006) assessed patterns of access for uninsured but eligible children versus SCHIP-enrolled children in California and found that enrollees were more likely to have a usual source of care or have a dental visit. The disparity was larger for children with several risk factors (low income, nonwhite, non-English-speaking, and low parent education).

¹⁰ Compared to those with prior coverage, established SCHIP enrollees were equally likely to have had a usual source of care or a specialty visit and less likely to have had a preventive care visit or any provider visit in the past six months (Wooldridge et al. 2005). However, those with insurance coverage before SCHIP had a relatively high level of access pre-SCHIP and thus were less likely to be significantly different from established enrollees on these access measures.

SCHIP enrollment realized the greatest gains in access upon SCHIP entry. As further evidence, parents of established enrollees expressed more confidence in their ability to get needed health care for their children than parents of both groups of recent enrollees; however, parents of children who were previously uninsured had significantly less confidence than parents of children who were previously insured.

Dick et al. (2004) also concluded that SCHIP enrollment was associated with significantly reduced disparities in access to care between the long-term uninsured and those with other coverage before SCHIP, although the effects were more widespread in Florida and New York than in Kansas. In Florida and New York, children and adolescents who were uninsured for at least one year had significant improvements in access after enrolling in SCHIP (as measured by a usual source of care, unmet need, and preventive care use). In these two states, most disparities according to pre-SCHIP insurance status were eliminated after SCHIP enrollment. In Kansas, however, the only significant difference was a reduction in the rate of unmet need among those who were uninsured for 12 months (from 53 percent before to 20 percent after). However, about one-fifth of the Kansas sample was enrolled in SCHIP for fewer than 12 months, which may not have been sufficient time to realize other gains in access.

Szilagyi et al. (2004) provide additional evidence on the effects of SCHIP on the long-term uninsured in New York. SCHIP enrollees who had been uninsured more than one year before enrollment demonstrated a significant (13 point) increase in the likelihood of a usual source of care, whereas those with more recent insurance or those who were insured until SCHIP enrollment experienced no change. The likelihood of a preventive visit also increased significantly for the long-term uninsured (by eight points). Finally, the likelihood of an unmet need decreased significantly (by 19 to 20 points) among those with uninsured spells before SCHIP enrollment, compared to a 12 point decline among those who were insured before enrolling in SCHIP ($p < .06$).

In Colorado, the long-term uninsured made significant gains after enrolling in SCHIP, but they still lagged behind other children on measures of access (Kempe et al. 2005). For example, enrollees who were uninsured more than one year before SCHIP enrollment were less likely to have a usual source of care, had fewer visits, and reported more unmet needs while enrolled in SCHIP than those enrollees with a shorter uninsured period or no insurance gap. The authors speculate that, even though the long-term uninsured demonstrated significant improvements in access, their pre-SCHIP deficits were too great to completely overcome within the first year of SCHIP enrollment.

Adolescents benefited from the SCHIP expansions. Before the implementation of SCHIP, adolescents were less likely than younger children to have health insurance coverage, in part because previous Medicaid expansions had focused on infants and young children (Newacheck et al. 1999). In addition, adolescents had lower rates of access to care on a wide range of measures (Ford et al. 1999; Klein et al. 1998). An evaluation of a pre-SCHIP program in Pennsylvania found that substantial disparities in access were significantly reduced or eliminated after one year of program participation (Keane et al. 1999).

Shenkman et al. (2003) studied the preventive care experiences of adolescents before they enrolled in Florida's SCHIP program and found that many adolescents (especially those who were black or Hispanic) had not received preventive care or counseling in the year before enrolling in SCHIP. Thus, Shenkman et al. (2003) noted that SCHIP offered the opportunity to improve anticipatory guidance about adolescent risk behaviors. Indeed, one study found that adolescents' communication with their providers significantly improved after they enrolled in Alabama's SCHIP program (Mulvihill et al. 2005).

Several other studies highlighted the effect of SCHIP by the age of the child. In the 10-state SCHIP evaluation, adolescents were more likely than younger children to gain a usual source of care upon enrollment (particularly a private doctor's office or group practice) and to usually see the same provider at the usual source of care. These findings signal improvements in the continuity of care received by adolescents in SCHIP. Moreover, parents of adolescents were more likely than parents of younger children to report that they were very confident in their ability to meet their child's needs (Wooldridge et al. 2005).

Dick et al. (2004) also reported significant improvements in access to care among adolescents in Florida and New York. In both states, adolescents were more likely to have a usual source of care and to have a preventive care visit after enrolling in SCHIP, and the rate of unmet need declined significantly in New York (but not in Florida). The authors conclude that the marked improvement is noteworthy, because states did not focus on adolescents' needs when designing their SCHIP benefit packages.

Another study found that, while adolescents (ages 12 to 18) in North Carolina demonstrated slightly lower levels of access than school-age children (ages 6 to 11) before enrolling in SCHIP, they achieved parallel gains within the first year of SCHIP enrollment. In addition, access significantly improved on two key dimensions: (1) obtaining a usual source of care for regular checkups, and (2) reducing unmet needs (Slifkin et al. 2002). For example, the rate of unmet need decreased from 25 to 4 percent among adolescents and from 22 to 2 percent among younger school-age children. Similarly, the percentage with a regular provider for checkups increased from 82 to 94 percent among adolescents and from 88 to 97 percent among younger school-age children. There were no significant changes in either group in the percentage reporting a well-child visit in the past year.

Evidence is mixed for children with special health care needs. Studies show that access for children with special health care needs improved after enrolling in SCHIP, yet gaps remained, as measured by higher levels of unmet need. The 10-state SCHIP evaluation showed larger declines in unmet need among children with elevated health care needs relative to other children after enrolling in SCHIP; yet despite significant gains, the rate of unmet needs remained 10 percentage points higher among children with elevated health care needs than other children (Wooldridge et al. 2005). Moreover, they found that parents of children with elevated health care needs (78 percent) were significantly less likely than other parents (82 percent) to express confidence in their ability to meet their children's health care needs.

Other research also suggests that some of the deficits faced by children with special health care needs persisted within SCHIP. Cross-sectional data from three states (Florida,

Kansas, and New York) indicated that SCHIP enrollees with special health care needs made some gains on measures of having a usual source of care and receiving preventive care, but that disparities remained—as much as a twofold difference compared to other SCHIP enrollees—in unmet need (Dick et al. 2004).

Whereas Wooldridge et al. (2005) and Dick et al. (2004) compared levels of access *within* the SCHIP population, Davidoff et al. (2005) compared the experiences of SCHIP-eligible and near-eligible children.¹¹ This study concluded that SCHIP expansions reduced the rate of uninsurance for children with chronic conditions and resulted in significant reductions in unmet need. The authors estimated a nine percentage point net reduction in the level of unmet need between SCHIP-eligible and near-eligible children. The authors did not find any significant effects of SCHIP eligibility on the use of services for children with chronic conditions.¹² Thus, while some studies suggest that disparities persist *within* the SCHIP population, this study suggests that those who were eligible for SCHIP experienced improvements in access relative to those who were near eligible.

Children of minority race/ethnicity made gains, but substantial gaps remain relative to the level of access among non-Hispanic white children. Children of minority race/ethnicity have been found to use fewer health services and have poorer access to care in both private and public insurance systems (Institute of Medicine 2002; Newacheck et al. 1996). Before enrollment in SCHIP, black and Hispanic children were more likely than non-Hispanic, white children to be uninsured, lack a usual source of care, and report poor health status (Shone et al. 2003). Studies of access before and after SCHIP consistently found strong improvements in access to care among children of minority race/ethnicity, but substantial disparities remained in some cases (Wooldridge et al. 2005; Managed Risk Medical Insurance Board 2004; Kempe et al. 2005).

In California, for example, black and Hispanic children demonstrated the greatest gains in obtaining a regular physician (Managed Risk Medical Insurance Board 2004). Over a two-year period, the percentage of children with a regular physician increased from 74 to 83 percent for white children, from 49 to 62 percent for Hispanic children, from 70 to 86 percent for black children, and from 66 to 69 percent for Asian/Pacific Islander children. Despite significant strides, however, there continued to be a 20-point spread in the percentage of Hispanic children and non-Hispanic white children reporting a regular physician in California. The extent of unmet need, defined as forgone care, showed less variation by race/ethnicity. For example, the rate of forgone care ranged from 13 to 17 percent at baseline and 6 to 8 percent two years later.

¹¹ Because the Davidoff et al. (2005) study was based on national survey data, it was not able to identify children enrolled in SCHIP. Instead, the study simulated SCHIP eligibility, based on income and other criteria.

¹² The authors note that the lack of significant results for children with chronic conditions may be a function of the limited sample sizes, because the effects were of similar magnitude and statistically significant for children without chronic conditions.

In New York, Shone et al. (2005) found that SCHIP eliminated nearly all access-related disparities among white, black, and Hispanic children. Baseline differences in the percentage of children with a usual source of care, the percentage of visits to the usual source of care, and the rate of unmet need dissipated upon enrollment in SCHIP. The authors noted, however, that disparities remained in the use of preventive care and parent perceptions of the quality of care received. These ratings pertained to consumer assessments of how well the provider listened to the parent, explained things to the parent, respected the parent, and spent enough time with the parent.

Finally, in Colorado, black and Hispanic children continued to lag behind white children in the likelihood of having a primary care provider and in parents' perceptions of access to care (Kempe et al. 2005). Specifically, black and Hispanic children were less likely than white children to usually or always see a specialist when their parent thought they needed one or to get a routine appointment as soon as they wanted.

DISCUSSION

This review of 15 studies indicates a strong link between SCHIP enrollment and improved access to care. The clearest findings are among measures of potential and perceived access to care. Compared to their health care experiences before enrolling in SCHIP, there is strong evidence that children were more likely to have access through a usual source of care, and less likely to have unmet need and delayed care, in their first year of participation in SCHIP. Fewer studies examined the effects of SCHIP on measures of realized access to care, such as provider visits and preventive care, but among those that did, there is evidence that SCHIP expanded access to these services. There is little indication, however, of changes in access to specialty care. With the expansion of access through a usual source of care, there is evidence that access gains were accompanied by reductions in emergency department use in several states.

The increase in the percent of children with a usual source of care and reduction of those reporting unmet needs or delayed care are particularly noteworthy, as many state SCHIP programs have met, or are close to meeting, the Healthy People 2010 goals for these measures. That more children have a private physician's office (rather than an emergency department or public clinic) as their usual source further suggests that SCHIP is facilitating access to care in settings that might not have been available or affordable before children were covered by SCHIP.

This review also suggests that SCHIP is helping to reduce disparities among vulnerable subgroups that historically have had large gaps in access to care. Specifically, there is widespread evidence that two groups, the long-term uninsured and adolescents, experienced large improvements in access to care. Although disparities have been reduced for children with special health care needs and those of minority race/ethnicity, substantial gaps still remain. Additional efforts may be necessary to develop strategies aimed at further reducing barriers to care for these populations.

One key unanswered question is the link between improvements in access to health care and health outcomes (such as improved health status and functional status). Changes in health outcomes can be difficult to measure, particularly in studies with a short time horizon. As a result, there is limited evidence linking SCHIP enrollment to improvements in health outcomes. Nevertheless, evidence from several studies that we reviewed suggests that health outcomes may be improving under SCHIP, as measured by the level of perceived health status or the number of missed school days (Damiano et al. 2003; Damiano and Tyler 2005; Fox et al. 2003; Managed Risk Medical Insurance Board 2004). Other studies reported no overall change in perceived health status, although this may be due to the relatively short time frame of the evaluations (Shenkman et al. 2000; Stevens et al. 2006; Szilagyi et al. 2004; Shenkman 2003).¹³ In addition, health status improvements were observed in some subpopulations, such as among enrollees in the poorest health at enrollment (Managed Risk Medical Insurance Board 2004), among those with multiple socioeconomic risk factors (Stevens et al. 2006), and among those who were uninsured longer than six months (Szilagyi et al. 2000).¹⁴ Future research should address whether gains in access (either individually or in combination) may translate into improved health status over the long term.

This review was unable to address whether SCHIP program features affect access. For example, does the effect of SCHIP on access to care vary between states with a managed care delivery system versus states with a fee-for-service delivery system? How does a program's eligibility threshold (and, therefore, income distribution) affect observed levels of access and utilization? Similarly, do the type of program design, scope of benefit package, or level of cost sharing influence access and utilization, particularly among vulnerable populations (such as children with special health care needs)? To explore these questions fully would require comparative analyses with enough power to detect changes in access to care by SCHIP program characteristics.

These results have also raised further questions about the quality and content of care provided within SCHIP. For example, do observed increases in provider visits and reductions in unmet need/delayed care represent more appropriate use of services? Similarly, do changes in emergency department use signal more appropriate use of services, perhaps through primary care settings? What accounts for variations among states in the experiences of children with special health care needs?

Several caveats should also be considered when evaluating the findings presented in this review. Most of the studies relied on small samples, relatively low survey response rates, and limited comparison groups. Only a few studies adjusted their analyses for important factors known to influence access to care (such as age of the enrollee or health status). In addition, several studies did not perform statistical testing to determine if changes in access were

¹³ While enrollment in the New York SCHIP program was not found to be associated with appreciable changes in overall health status, a recent analysis of a subsample of enrollees with asthma found that asthma severity decreased upon SCHIP enrollment (Szilagyi et al. 2006).

¹⁴ Szilagyi et al. (2000) examined access in a pre-SCHIP program in New York that was grandfathered by Title XXI. This study used methods similar to those used in later evaluations of New York's SCHIP program.

significant. The effect of these methodological caveats on the precision of the study estimates is uncertain.

CONCLUSION

This review has contributed substantially to our knowledge about access to care within the SCHIP program. The most notable gains included widespread increases in the availability of a usual source of care and reductions in unmet need and delayed care. Considerable progress toward Healthy People 2010 goals was documented within the SCHIP population. In particular, strong improvements in access were observed among the long-term uninsured and adolescents—two groups that were most likely to lack coverage before SCHIP. Taken together, these results suggest that SCHIP enrollment appears to have opened the door to health care for more low-income children. Nevertheless, this review has also revealed that SCHIP has not eliminated the long-standing disparities among children of minority race/ethnicity and those with special health care needs. Further initiatives may be required to address these gaps.

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APPENDIX A

MAJOR FEATURES OF STATE SCHIP PROGRAMS REVIEWED IN ACCESS TO CARE STUDIES, BY SCHIP PROGRAM TYPE

Table A.1. Major Features of State SCHIP Programs Reviewed in Access to Care Studies, by SCHIP Program Type

State	Program Type Included in Study ^a	Program Name (Implementation Year)	Type of Delivery System	Eligibility Threshold (Percent of FPL)	Cost-Sharing	
					Premiums	Co-Payments
Alabama	S-SCHIP ^b	ALL Kids (1998)	Fee-for-Service	200	Yes	Yes ^c
California	S-SCHIP ^b	Healthy Families (1998)	Managed Care	250	Yes	Yes
Colorado	S-SCHIP	Child Health Plan Plus (1998)	Managed Care	185	Yes ^c	Yes
Florida	S-SCHIP ^b	KidCare (1998)	Managed Care	200	Yes	Yes
Illinois	M-SCHIP	KidCareAssist (1998)	Fee-for-Service	133	--	--
	S-SCHIP	KidCare Share/Premium (1998)	Fee-for-Service	200	Yes ^c	Yes
Iowa	S-SCHIP ^b	hawk-i (1999)	Managed Care	200	Yes ^c	Yes
Kansas	S-SCHIP	HealthWave (1999)	Managed Care	200	Yes ^c	No
Louisiana	M-SCHIP	LaCHIP (1998)	Fee-for-Service	200	--	--
Missouri	M-SCHIP	MC+ for Kids (1998)	Mixed	300	Yes ^d	Yes ^e
New Hampshire	S-SCHIP ^b	Healthy Kids Silver (1999)	Managed Care	300	Yes	Yes
New Jersey	M-SCHIP	FamilyCare Plan A (1998)	Managed Care	133	--	--
	S-SCHIP	FamilyCare Plan B, C, D (1998)	Managed Care	200 (Plan B, C), 350 (Plan D)	Yes ^c	Yes ^c
New York	S-SCHIP ^b	Child Health Plus (1998)	Managed Care	250	Yes ^f	No
North Carolina	S-SCHIP	Health Choice for Children (1998)	Fee-for-Service	200	Yes	Yes
Texas	S-SCHIP ^b	TexCare (2000)	Managed Care	200	Yes ^g	Yes

Sources: State Title XXI Annual Reports from 2000 through 2004; Rosenbach et al. (2003).

^aReflects type of program during year of study. In two states, Alabama and Texas, the structure of the SCHIP programs changed from combination programs to S-SCHIP programs as of October 2002, with the completion of the phase-in of the OBRA expansions.

^bThese states also had an M-SCHIP program, but the selected studies did not report data for that program component.

^cFor enrollees with family incomes greater than 150 FPL.

^dFor enrollees ages 6 to 8.

^eFor enrollees with family incomes greater than 225 FPL.

^fFor enrollees with family incomes greater than 185 FPL.

^gFor enrollees ages 1 to 18.

^hFor enrollees with family incomes greater than 160 FPL.

ⁱFor enrollees with family incomes greater than 100 FPL.

FPL = federal poverty level.

M-SCHIP = Medicaid expansion SCHIP program.

S-SCHIP = Separate SCHIP program.

APPENDIX B
ABSTRACTS OF REVIEWED STUDIES

Table B.1 Abstracts of Reviewed Studies

Authors (Publication Year)	State	Study Sample	Study Design	Outcome Measures Related to Access	Major Findings ^a
Damiano and Tyler (2005)	Iowa	Sample: SCHIP participants who initially enrolled in hawk-i between July 2003 and June 2004 n = 1,526 Response rate: not reported Study period: 2003 to 2004	Pre/post survey administered at enrollment and after one year	Usual source of care (provider), provider visits, unmet need and delayed care (specialty, dental, vision, mental health, prescription drug)	Following enrollment in hawk-i for one year, an equivalent percent of children reported having a usual source of care (85% before vs. 86% after) and fewer reported having an unmet need (2% after vs. 11% before, $p < .05$) or a delay in care among those who needed medical care (29% before vs. 7% after, $p < .05$). Delayed care and unmet need were also reduced among particular types of care, such as specialty, dental, vision, behavioral and emotional care, and prescription drugs. The percent of children with 2 or more physician visits increased (89% before vs. 92% after, $p < .05$). The percent of children using the emergency department decreased (42% before vs. 36% after), but not at a statistically significant level. Overall health status was rated as significantly better (45% before vs. 48% after reported "excellent health", $p < .05$). The percent of children with no missed school days was similar (47% before vs. 44% after) but the percent of children with no restricted activity days increased (77% before vs. 82% after).

Table B.1 (continued)

Authors (Publication Year)	State	Study Sample	Study Design	Outcome Measures Related to Access	Major Findings ^a
Damiano et al. (2003)	Iowa	Sample: SCHIP participants who enrolled in hawk-i from 1999-2000 (First year of program) n = 463 Response rate: 71% responded to both surveys Study period: 1999 to 2001	Pre/post survey administered at enrollment and after one year	Usual source of care (provider), unmet need (specialty, dental, vision, mental health, prescription drug)	Following enrollment in hawk-i for one year, more children reported having a usual source of care (81% before vs. 89% after, $p < .05$) and fewer reported having an unmet need (27% before vs. 6% after, $p < .05$) or a delay in care (37% before vs. 9% after, $p < .05$). Delayed care and unmet need were also reduced among particular types of care, such as specialty, dental, vision, behavioral and emotional care, and prescription drugs. Overall health status was rated as significantly better (37% before vs. 43% after reported "excellent health", $p < .05$). The percent of children with no missed school days increased (22% before vs. 31% after). Children with a chronic condition were less likely to have visited a health provider more than twice in past year (43% before vs. 38% after, $p < .05$) or to be taking prescription drugs for at least 3 months (30% before vs. 25% after, $p < .05$).
Eisert and Gabow (2002)	Colorado	Sample: SCHIP participants who enrolled in Denver Health Medical Plan (an HMO owned and administered through Denver County Health) during 1999 n = 748 Study period: 1998 to 2000	Pre/post comparison of administrative data from child's year prior to SCHIP enrollment and first year Adjusted for: prior insurance	Provider visits, preventive care, specialty care, emergency care, urgent care, and dental visits	Following enrollment in SCHIP, children had more visits annually overall (4.2 before vs. 4.8 after, $p = .03$) and an equivalent number of specialty care visits (.47 before vs. .48 after, $p = .84$). Enrollees were also more likely to have had a preventive care visit (40% before vs. 45% after, $p = .04$) and just as likely to have had an emergency department visit (13% before vs. 11% after, $p = .30$). There were no changes in urgent care or dental visits. Adjustment for prior insurance status revealed similar findings except that children who had been uninsured prior to SCHIP evidenced no change in the percentage with a well child care visit.

Table B.1 (continued)

Authors (Publication Year)	State	Study Sample	Study Design	Outcome Measures Related to Access	Major Findings ^a
Fox et al. (2003)	Kansas	Sample: SCHIP participants who enrolled in Healthwave from January through June, 1999 (first six months of program) n = 1,955 Response rate: 61% responded to both surveys Study period: 1999 to 2000	Pre/post survey administered at enrollment and after one year	Usual source of care (place, including type and continuity), provider visits, preventive care (medical and dental), unmet need (medical, dental, mental health, vision, prescription drug), delay in care, emergency department use, hospitalizations	Following enrollment in SCHIP for one year, children were more likely to have a usual source of care (92% before vs. 96% after, $p < .001$), have that usual source of care be a doctor's office or private clinic (79% before vs. 90% after, $p < .001$), and to see the same provider for each visit (85% before vs. 92% after, $p < .001$). Children had more provider contacts within the past 6 months (1.6 before vs. 3.3 after, $p < .001$) and were more likely to have received preventive care (61% before vs. 77% after, $p < .001$). Fewer children reported unmet need for medical care (18% before vs. 2% after, $p < .001$). Among children who had no visits to the emergency department in the 6 months prior to enrollment, the average number of emergency department visits increased (0 before vs. .4 after, $p < .001$). Among children who had at least one visit to the emergency department in the 6 months prior to enrollment, the average number of emergency department visits decreased (1.4 before vs. 1.0 after, $p < .001$). Parents rated their children's overall health status as significantly better (71% before vs. 76% after reported "excellent/very good health", $p < .001$) and that they were more satisfied with their children's health care (75% before vs. 96% after reported "somewhat/very satisfied," $p < .001$).

Table B.1 (continued)

Authors (Publication Year)	State	Study Sample	Study Design	Outcome Measures Related to Access	Major Findings ^a
Kempe et al. (2005)	Colorado	Sample: SCHIP participants who enrolled during 1999 or 2000 n = 480 Response rate: 52% ^b Study period: 1999-2001	Pre/post survey administered at enrollment and after first year Adjusted for: age, prior insurance (including length), race/ethnicity	Usual source of care (site, provider), delayed care ^c (routine, sick, specialist), unmet needs (routine, sick, vision, mental health, prescription drug, and dental), provider visits (sick, routine, hospitalizations, emergency department, specialty)	Following enrollment in SCHIP, children were less likely to report delayed care (for example, 23% before vs. 9% after for sick care, $p < .001$) or unmet need (for example, 16% before vs. 5% after for sick care, p - value not reported). Multivariate analysis also revealed significant increases in routine care and preventive care (unadjusted rate not reported), but no change in usual source of care (site or provider; for example, site was 89% before vs. 89% after), specialty care, or emergency department use. Provider contacts increased only for children age 3 years or older. Children who had been uninsured for at least a year prior to enrollment and who were of minority race scored lower on all measures of access. Overall health care was rated as significantly better (for example, 35% before vs. 42% after reported “excellent” health care, $p=.02$).
Kenney et al. (2005)	10-state estimate	See Wooldridge et al. (2005) for details on study sample, design, and outcome measures related to access			Compared to established enrollees across the ten states, recently enrolled children were less likely to have a usual source of care (80% for recent enrollees vs. 91% for established enrollees, $p < .01$), but equally likely to have had a physician visit (80% for recent enrollees vs. 91% for established enrollees, $p < .01$), well-child checkup (68% for recent enrollees vs. 67% for established enrollees), or specialty care visit (15% for recent enrollees vs. 17% for established enrollees). Recently enrolled children were more likely to have had an emergency room visit (28% for recent enrollees vs. 18% for established enrollees, $p < .01$) and more likely to have had unmet need (18% for recent enrollees vs. 9% for established enrollees, $p < .01$). Results varied for each of the 10 states. See Appendix Table VII.1 in Kenney et al. (2005) for more detail.

Table B.1 (continued)

Authors (Publication Year)	State	Study Sample	Study Design	Outcome Measures Related to Access	Major Findings ^a
Managed Risk Medical Insurance Board (2004)	California	Sample: all new subscribers in the Healthy Families Program during February and March 2001 n = 3,378 Response rate: 34% ^d Study period: 2001 to 2003	Pre/post child and parent survey using PedsQL questionnaire administered to families when newly enrolled in SCHIP and after one and two years of participation Adjusted for: age, health risk, language spoken, race/ethnicity No significance testing reported	Usual source of care (provider); unmet need ^e	Following enrollment in Healthy Families, more children had a usual source of care (defined as “having a personal physician”; 56% before vs. 66% after) and fewer children reported unmet need (16% before vs. 8% after). Parent-reported health-related quality of life did not change for the overall sample (81% before vs. 81% after) but improved among children who reported lowest health status scores upon entry into SCHIP (58 before vs. 71 after, out of 100-point scale). This was true for all health-related quality of life subscales and for children of all ages. Children without chronic health conditions reported larger gains in quality of life than children with chronic health conditions. African American children and Latinos evidenced the largest improvements in having a usual source of care. African American and Asian/Pacific Islander children showed the largest decreases in unmet need.
Mulvihill et al. (2000)	Alabama	Sample: first-year participants in ALL Kids SCHIP program during 1998 and 1999 n = 3,739 Response rate: 60% Study period: 1999 to 2000	Retrospective parent survey administered following first year of children’s enrollment in ALL Kids No significance testing reported	Usual source of care (provider); unmet need for medical, dental, vision, and prescription drugs; delayed care for medical, dental, and vision	Following enrollment in ALL Kids, more children had a usual source of care for preventive care (68% before vs. 92% after) and when sick (68% before vs. 91% after). There were declines in the proportion of children with unmet need for medical care (36% before vs. 4% after), dental care (53% before vs. 7% after), vision care (29% before vs. 3% after), and prescription drugs (43% before vs. 3% after). There were also declines in the proportion of children with delayed medical care (52% before vs. 9% after), dental care (53% before vs. 7% after), and vision care (percentage change not reported).

Table B.1 (continued)

Authors (Publication Year)	State	Study Sample	Study Design	Outcome Measures Related to Access	Major Findings ^a
Nogle and Shenkman (2004)	Florida	Sample: Florida MediKids (ages 1-4) and Healthy Kids (ages 5-18) who enrolled or were participating during 2002 n = 1,009 (n = 406 for new enrollees; n = 603 for established enrollees) Response rate: 63% for new enrollees; 53% for established enrollees ^f Study period: 2002 to 2003	Non-equivalent comparison of new and established enrollees No significance testing reported	Usual source of care (provider), unmet need (preventive, routine, emergency, surgical, specialty, prescription drug, and dental)	Compared to the experience of new enrollees in the year prior to joining SCHIP, established enrollees were more likely to have a usual source of care (81% before vs. over 95% ^g after) and had less overall unmet need (reductions reported for all services). For example, unmet need for preventive care was 12% before vs. 2% after for Healthy Kids and 10% before vs. 2% after for MediKids.
RKM (2002)	New Hampshire	Sample: participants who enrolled in SCHIP during 1999 and 2000 n = 201 established enrollees; n=605 non- participating families Response rate: none reported Study period: 2003	Non-equivalent comparison of established enrollees and non- participating families who inquired about SCHIP but failed to enroll (defined within 3 categories: prospects (never filed application), closed (did not complete application), declines (application accepted, but never enrolled) No significance testing reported	Usual source of care (place, including continuity and type), preventive care (medical, dental), unmet need	Compared to the experience of children in non-participating families, established enrollees were more likely to have a usual source of care (100% established enrollees vs. 92% prospects, 87% closed, 83% declines). Establish enrollees were also more likely to have received preventive care in the past year (85% established enrollees vs. 61% non-participating), and less likely to report unmet need (5% established enrollees vs. 22% non-participating). Parents of established enrollees reported that they were more satisfied with the quality of their children's health care (92% established enrollees vs. 32% non- participating reported "very satisfied").

Table B.1 (continued)

Authors (Publication Year)	State	Study Sample	Study Design	Outcome Measures Related to Access	Major Findings ^a
Shenkman et al. (2000)	Florida	Sample: Florida MediKids (ages 1-5) and Healthy Kids (ages 5-19) who enrolled or were participating during 2000 n = 2,108 for new enrollees; n = 639 for established enrollees; n = 227 enrollees with inpatient admissions in first 3 months tracked until month 12 Response rate: not reported for new enrollees; 41% for established enrollees^h Study period: 1999 to 2000	Pre/post survey administered at enrollment and after one year on measures of usual source of care, preventive care, and health status. Non-equivalent comparison of new and established enrollees on measures of unmet need	Usual source of care (provider), unmet need (preventive, routine, emergency, surgical, specialty, prescription drug, mental health, and dental), preventive care	Compared to their experience prior to joining SCHIP, established enrollees were more likely to have a usual source of care and to have received well child care (specific percentages not reported), but experienced no appreciable change in health status. Compared to new enrollees, established enrollees had less overall unmet need (reductions reported for all services, for example, unmet need for preventive care was 15% before vs. 1% after for Healthy Kids and 8% before vs. 1% after for MediKids), except for dental care which did not change upon enrollment.

Table B.1 (continued)

Authors (Publication Year)	State	Study Sample	Study Design	Outcome Measures Related to Access	Major Findings ^a
Shenkman (2003)	Texas	Sample: participants enrolled in SCHIP during 2002 n = 500 new enrollees; 5,415 established enrollees Response rate: 64% for new enrollees; 73% for established enrollees Study period: 2002	Retrospective survey of new enrollees on usual source of care. Non-equivalent comparison of new and established enrollees on unmet need and health status measures No significance testing reported	Usual source of care (place, including type), unmet need (preventive, surgical, minor illness, specialty, mental health, dental)	Compared to the experience of children prior to enrolling in SCHIP, new enrollees were more likely to have a usual source of care (84% before vs. 86% after) and that usual source was less likely to be an emergency room office (20% before vs. 2% after) and less likely to be an emergency department (19% before vs. 1% after). Unmet need decreased in all categories. There appeared to be no difference in health status between new and established enrollees (for example, 66% new enrollees vs. 65% established enrollees reported child's health status as "excellent" or "very good"), except on two subscales: emotional behavior and general behavior which both were significantly higher for established enrollees as compared to new enrollees. There were no reported differences in missed school days or restricted activity days.

Table B.1 (continued)

Authors (Publication Year)	State	Study Sample	Study Design	Outcome Measures Related to Access	Major Findings ^a
Slifkin et al. (2002)	North Carolina	Sample: SCHIP participants who enrolled during 1999 (First year of program) n = 987 Response rate: 74% completed second survey Study period: 1999 to 2000	Pre/post parent survey administered to families when newly enrolled in SCHIP and after one year of participation Adjusted for age, prior insurance	Usual source of care (provider, including type), preventive care, unmet need (including prescription drugs, vision), emergency department use	Following enrollment in SCHIP, more children had a usual source of care (88% before vs. 97% after, $p < .05$) and that usual source was more likely to be a private physician or clinic for well-child care (62% before vs. 75% after, $p < .05$) and for acute care (67% before vs. 78% after, $p < .05$). Children with an acute care problem were also more likely to be seen within the same day they requested an appointment (63% before vs. 72% after, $p < .05$). Fewer children reported any unmet need (20% before vs. 2% after, $p < .05$). These improvements were most significant among those who had been uninsured longer than 6 months prior to enrollment and for adolescents. There was no change in the receipt of preventive care (58% before vs. 58% after) or use of the emergency department (overall rate not reported), except among children ages 0-5, for whom preventive care use decreased (82% before vs. 70% after, $p < .05$) and emergency department use increased (23% before vs. 29% after, $p < .05$). However, children of all ages were more likely to have received a regular check-up (percent increase varies by age). Although children who had Medicaid coverage prior to SCHIP enrollment reported greater access to care on all measures in the year before SCHIP compared to previously uninsured children, all differences by prior insurance status were ameliorated after one year's enrollment in SCHIP.

Table B.1 (continued)

Authors (Publication Year)	State	Study Sample	Study Design	Outcome Measures Related to Access	Major Findings ^a
Stevens et al. (2006)	California	Sample: children (ages 0-19) surveyed by the 2001 California Health Interview Survey who were participating in SCHIP or income-eligible for SCHIP, but uninsured between November 2000 and October 2001 n = 1773 (n = 1190 for Healthy Family enrollees; n = 583 for Healthy Family eligible but not enrolled children) Response rate: 33% for children; 24% for adolescentsⁱ Study period: 2000 to 2001	Non-equivalent comparison group of SCHIP participants and children estimated to be income-eligible for SCHIP but who were uninsured at the time of the survey Adjusted for: age, gender, race/ethnicity, family poverty status, parent education level, language spoken, single-parent household, and health status (for primary care outcomes)	Usual source of care (place); provider visits (physician and dental)	Compared to children who were income-eligible for SCHIP but uninsured, SCHIP enrollees were more likely to have a usual source of care ($p < .01$) and equally likely to have had a physician visit and report excellent or very good health status. SCHIP enrollees were also more likely to have had a dental visit ($p < .01$).

Table B.1 (continued)

Authors (Publication Year)	State	Study Sample	Study Design	Outcome Measures Related to Access	Major Findings ^a
Szilagyi et al. (2004)	New York	Sample: participants who enrolled in SCHIP between 2001 and 2002 n = 2,290 Response rate: 87% completed second survey Study period: 2001 to 2002	Pre/post parent survey administered to families when newly enrolled in SCHIP and after one year of participation. Comparison group of newly enrolled children surveyed one year after initial sample was used to control for historical trends Adjusted for age, income, prior insurance, race/ethnicity, region, special needs	Usual source of care (place, including type and volume), outpatient visits (any, mental health, specialty, acute, preventive, dental), unmet need (any, mental health, specialty, acute, preventive, dental, prescriptions, vision, emergency), emergency department use	Following enrollment in SCHIP, more children had a usual source of care (86% before vs. 97% after, $p < .001$). Although the type of the usual source of care did not change, more children used their usual source of care for all outpatient visits (40% before vs. 77% after, $p < .001$). Overall, unmet need decreased (31% before vs. 19% after, $p < .001$) preventive care use improved (74% before vs. 82% after, $p < .001$), and the percent of children with any outpatient visit increased (82% before vs. 89% after, $p < .001$). Emergency department use, specialty care, and parent- reported health status did not change. The greatest improvements occurred among those with the poorest access at baseline such as children who had been uninsured greater than 12 months, children of minority race or ethnicity, and children from families below 160% of FPL. Parents rated the quality of their children's health care as higher (8.0 before vs. 8.7 after, on a 10- point scale, $p < .001$).

Table B.1 (continued)

Authors (Publication Year)	State	Study Sample	Study Design	Outcome Measures Related to Access	Major Findings ^a
Wooldridge et al. (2005)	10-state estimate	Sample: SCHIP participants in California, Colorado, Florida, Illinois, Louisiana, Missouri, New Jersey, New York, North Carolina, and Texas who were enrolled or participating during 2002 n = 8,500 (n = 3,106 for recent enrollees; n = 5,394 for established enrollees) response rate: ranged from 65% to 78% for recent enrollees; ranged from 66% to 79% for established enrollees	Non-equivalent comparison of recent and established enrollees Adjusted for: age, race/ethnicity, language, gender, health status, income, family size, parental education, parental employment status, parental attitudes towards medical care, insurance status during the six months prior to enrollment	Usual source of care (type, same provider, dental), provider visits, preventive care (well-child, dental, specialty, emergency department), unmet need (physician, prescription, dental, specialist, hospital, more than one unmet need)	Analysis by prior insurance status of recent enrollees shows significant differences by prior insurance status. Compared to established enrollees, recently enrolled children who had been uninsured prior to SCHIP were less likely to have a usual source of care (70% before vs. 91% after), less likely to have had a well-child check-up (33% before vs. 45% after), more likely to have had an emergency room visit (24% before vs. 18% after), and more likely to have had more than one unmet need (33% before vs. 18% after). Unmet needs for prescription drugs, specialty care, and dental care were also reduced. Compared to children who have been enrolled in SCHIP 6 months or longer, recently enrolled children who had been insured prior to SCHIP were equally likely to have a usual source of care (91% before vs. 91% after), more likely to have had a well-child checkup (58% before vs. 45% after), more likely to have had an emergency room visit (31% before vs. 18% after), and more likely to have had more than one unmet need (23% before vs. 18% after). Unmet needs for dental care were also reduced. See Kenney et al. (2005) for specific findings for the 10-state estimate on outcome measures related to access.

^aThe significance level of a reported effect is given in parentheses after the effect, when available.

^bWe calculated an adjusted response rate for Kempe et al. (2005) of 52% based on a reported 77% response rate to the first survey and a 68% response rate to the second survey (.77*.68 = .52).

^cDefined as "did not [see] a provider as soon as wanted [or needed]" in this study.

^dThe MRMB (2004) survey was conducted in three waves. The first survey was mailed to 20,000 new members, of which 10,241 returned a completed survey (first wave response rate = 51%). One year later, a second survey was mailed to the 6,6881 members still enrolled in the program. Of these, 6,005 returned a completed survey (second wave response rate = 87%). A third survey was mailed to the 4,952 members still enrolled in the program. Of these, 3,738 returned a completed survey (third wave response rate = 76%). Thus, we calculate the overall response rate among persons not lost to be 24% (3,738/(20,000-3,360-1,053)).

^eDefined as "forgone care" in this study.

Table B.1 (continued)

^fSample size and response rates are reported for the entire sample, which included all children enrolled in Medicaid and SCHIP. Results, however, are only reported for SCHIP populations enrolled in MediKids and Healthy Kids.

^gExact percentages are not reported.

^hResponse rate for established enrollees reported in Shenkman et al. "Quality of Care in the Children's Health Insurance Program in Texas." Gainesville, FL: Institute for Child Health Policy. July 2002.

ⁱResponse rates are reported for entire sample, which included all children surveyed in the CHIS (sample size: 19,485). More detail available at www.chis.ucla.edu. Sample size for SCHIP and SCHIP-comparison populations provided by author (personal communication with G. Stevens, August 14, 2006). Response rate not available for SCHIP and SCHIP-comparison populations.