

A Profile of the Population Enrolled in New York State's Child Health Plus

Jane L. Holl, MD, MPH¶; Andrew W. Dick, PhD‡; Laura Pollard Shone, MSW*;
Lance E. Rodewald, MD, MS*#; Jack Zwanziger, PhD‡; Dana B. Mukamel, PhD‡; Sarah Trafton, JD‡;
Richard F. Raubertas, PhD||; and Peter G. Szilagyi, MD, MPH*

ABSTRACT. *Background.* The recently enacted State Children's Health Insurance Program (SCHIP), designed to provide affordable health insurance for uninsured children, was modeled in part on New York State's Child Health Plus (CHPlus), which was implemented in 1991. All SCHIP programs involve voluntary enrollment of eligible children. Little is known about characteristics of children who enroll in these programs.

Objectives. To provide a profile of children enrolled in CHPlus between 1993 and 1994 in the 6-county upstate New York study area, and to estimate the participation rate in CHPlus.

Methods. A parent interview was conducted to obtain information about children, 0 to 6.9 years old, who enrolled in CHPlus in the study area. Two school-based surveys and the *Current Population Survey* were used to estimate health insurance coverage. Enrollment data from New York State's Department of Health, together with estimates of the uninsured, were used to estimate participation rates in CHPlus.

Results. Most children enrolled in CHPlus in the study area were white. Although 17% of all children in the study area who were <13 years old and living in families with incomes below 160% of the federal poverty level were black, only 9% of CHPlus-enrolled children were black. Twenty-one percent of enrolled children were uninsured during the entire year before enrollment and 61% of children had a gap in coverage lasting >1 month. Children were generally healthy; only 4% had fair or poor health. Eighty-eight percent of parents of enrolled children had completed high school or a higher level of education. Parents reported that loss of a job was the main reason for loss of prior health insurance for their child. Most families learned about CHPlus from a friend (30%) or from their doctor (26%). The uninsured rate among children in the study area was approximately 4.1%. By 1993, the participation rate in CHPlus was about 36%.

Conclusion. Blacks were underrepresented in CHPlus. Because the underlying uninsured rate was relatively low and parental education and family income

were relatively high, the effects of CHPlus observed in this evaluation may be conservative in comparison to the potential effects of CHPlus for other populations of children. Participation rates during the early years of the program were modest. *Pediatrics* 2000;105:706-710; *SCHIP, children, uninsured, underinsured, health insurance.*

ABBREVIATIONS. SCHIP, State Children's Health Insurance Program; CHPlus, Child Health Plus; SE, standard error.

The State Children's Health Insurance Program (SCHIP), enacted in August 1997, is the largest investment in child health in nearly 30 years. SCHIP was designed to provide health insurance coverage for the estimated 11 million uninsured¹⁻³ children in the United States. An additional 7.9 million children are underinsured² and the SCHIP legislation permits states to use state funds to provide coverage for some underinsured children. New York State has chosen this option. Over the past decade the number of uninsured and underinsured children in the United States has not declined, despite Medicaid expansions and tax credits for health insurance.^{3,4}

In the early 1990s, states began developing health insurance programs for children.⁵ New York State has the largest program—Child Health Plus (CHPlus)—which was implemented throughout the state in 1991.⁶ Several other states also established state-funded programs, including MinnesotaCare, Pennsylvania's Children's Health Insurance Program, and Florida's Healthy Kids Program. In other states, low-income children were offered health insurance programs by private insurers; examples include the Alabama Caring Program and the Western Pennsylvania Caring Program for Children.

In this article we examine results of an evaluation of CHPlus in Monroe County, New York (including the city of Rochester), and 5 surrounding counties, henceforth referred to as the *study area*. We present the demographic and prior health insurance characteristics of the study population, the results of a survey designed to estimate the number of uninsured children in the study area, and an analysis of the *Current Population Survey* to estimate participation rates in CHPlus.

From ¶Children's Memorial Hospital, Department of Pediatrics and Institute for Health Services Research and Policy Studies, Northwestern University Medical School, Chicago, Illinois; Departments of *Pediatrics, ‡Community and Preventive Medicine, and ||Biostatistics, University of Rochester School of Medicine and Dentistry, Rochester, New York; and #National Immunization Program, Centers for Disease Control and Prevention, Atlanta, Georgia.

Received for publication Oct 25, 1999; accepted Dec 6, 1999.

Address correspondence to Jane L. Holl, MD, MPH, Institute for Health Services Research and Policy Studies, Northwestern University, Wieboldt Hall, 339 E Chicago Ave, Rm 717, Chicago, IL 60611. E-mail: j-holl@nwu.edu
PEDIATRICS (ISSN 0031 4005). Copyright © 2000 by the American Academy of Pediatrics.

METHODS

Profile of Children Enrolled in CHPlus

To obtain information about the characteristics of children enrolled in CHPlus, we conducted a parent interview after the child's enrollment. The methodology used to gather this information is described in detail in an accompanying article.⁷ Most outcome measures were stratified by type of prior insurance and gap in coverage. Type of prior insurance was categorized by the extent of services covered. Four categories were created: 1) uninsured; 2) underinsured (plans providing inpatient and/or catastrophic or major medical coverage but limited coverage for ambulatory services); 3) fully insured (plans, such as a health maintenance organization, that provide full coverage of most ambulatory and inpatient services); and 4) Medicaid. Parents then were asked whether their child had experienced a *gap in coverage*—that is, a period of time without health insurance coverage before enrollment in CHPlus. The length of the gap in coverage was recorded in months and was categorized as none, <6 months, and 6 or more months.

The Uninsured Rate in the Study Area

To gather information about the uninsured rate in the study area, we used data from the *Current Population Survey*, and we conducted 2 separate surveys of families in the study area. Estimation of health insurance coverage based on the *Current Population Survey* has limitations. Among these are: 1) the data are not consistent across years because health insurance questions were modified during the study period; 2) lack of health insurance is not asked directly, but rather is determined as a residual category; 3) health insurance questions refer to experiences during the previous 12-month period; 4) the *Current Population Survey* samples are constructed to be representative at the state level, but not for a smaller geographic area such as the study area; and 5) the health insurance questions were not designed to determine enrollment in programs such as CHPlus, and, as a result, CHPlus enrollees could be categorized as uninsured (the residual) or as privately insured. *Current Population Survey* estimates of health insurance coverage rates must be viewed with these limitations in mind. Despite these issues, the *Current Population Survey* is among the most frequently used source of data used to estimate the number of uninsured children,^{1,8,9} and analytic techniques described below can improve the accuracy of *Current Population Survey* data.

We pooled 5 years of data (the 1990 through 1994 cross-sections that contain health insurance data for the period 1989 through 1993) and reweighted by strata using census data to make the data representative of the study area and to bolster sample sizes and increase the precision of estimates. All standard errors are calculated using Huber/White/sandwich estimators to incorporate probability weights.^{10,11} We categorized health insurance coverage in the *Current Population Survey* as employer-based, which includes parents' employer or federal government for US military dependents (Civilian Health and Medical Programs of Uniformed Services) insurance; other privately insured, which includes commercial insurance; Medicaid; and uninsured.

To support the *Current Population Survey* estimates of the uninsured rate, we conducted 2 separate local surveys of health insurance coverage: 1) among children in kindergarten through fifth grade in a rural county in the study area (Livingston County); and 2) among children attending kindergarten or pre-kindergarten programs in the Rochester City School District ([Eighty-five percent of age-eligible children in the city of Rochester attend the Rochester City School District, with the remaining children attending private or parochial schools] Monroe County; personal communication, A. McGowan, Evaluation and Testing, Rochester City School District). At the beginning of each school year, all schools in the study area require parents to complete a health form. We obtained permission from all school districts in Livingston County and the Rochester City School District to include 2 additional questions on the 1993 health form. The first question asked, "Is your child *now* covered by any health insurance (including Medicaid)?" The second question asked, "If yes, what is the name of your child's health insurance?" Analysis of these surveys provided estimates of the uninsured rate in the study area.

Participation Rate in CHPlus

To estimate the participation rate in CHPlus, we first had to estimate the number of CHPlus-eligible children in the study area. Because the 5-year pooled *Current Population Survey* sample of uninsured children is small in the study area, we limited our criteria for CHPlus eligibility to children who were <13 years old and uninsured. Although premium subsidies were linked to income, the only children explicitly excluded from eligibility were those eligible for Medicaid.

We calculated the total number of eligible children by summing the estimated total number of uninsured children and the total number of CHPlus enrolled children. The estimated participation rate, then, is given by the total number of enrolled children divided by the total number of eligible children. We calculate participation rates using each of the 3 estimates of the number of uninsured children in the study area.

RESULTS

Profile of Children Enrolled in CHPlus

Results were obtained by parent interview and are for all children, 0 to 6.9 years old at the time of enrollment in CHPlus ($N = 1853$). Results for older children 7 to 12 years old are not included in this article because we only obtained information for a subset of these children who had asthma; an accompanying article describes that subgroup of children.¹² Table 1 shows demographic characteristics of children enrolled in CHPlus in the study area. Fifty-two percent of CHPlus-enrolled children were male and most children were white.

Although 17% of children who were <13 years old and living in families with incomes below 160% of the federal poverty level were black (according to *Current Population Survey* data), only 9% of CHPlus-enrolled children were black. Similar proportions of CHPlus-enrolled children and children <13 years old and living in families with incomes below 160% of the federal poverty level in the study area were Hispanic (5%). A large proportion of parents of CHPlus-enrolled children in the study area had a high school or higher level of education (88%). Eighty-nine percent of CHPlus-enrolled children had at least 1 employed parent. Sixty-four percent of

TABLE 1. Demographic Characteristics of Children Enrolled in CHPlus in the Study Area

Demographic Characteristics	Number or Percent
All children	5876
Age	
<1 y	14%
1–5 y	45%
6–12 y	41%
Race	
White	85%
Black	9%
Asian	3%
Other	—
Ethnicity—Hispanic	5%
Head of household education level	
<High school	12%
High school or higher	88%
Employment of parents	
Employed full or part-time	89%
Not employed	11%
Family income (% of federal poverty level)	
<160%	64%
≥160%	36%

CHPlus-enrolled children lived in families with annual incomes below 160% of the federal poverty level.

Table 2 shows health insurance characteristics of children enrolled in CHPlus. Twenty-one percent of children in the study area who enrolled in CHPlus were uninsured before enrollment. Nineteen percent were reported to be uninsured since birth in the study area. Sixty-one percent of CHPlus-enrolled children in the study area had a gap of 1 or more months, but only 38% had a >6-month gap in insurance before CHPlus. Thirty-nine percent of children had no gap in coverage, and enrolled in CHPlus immediately after losing or dropping their prior insurance coverage.

Parents in the study area were asked to state the reasons for the loss of their child's prior insurance. Reasons included: loss of parents' job (27%), income too low to afford private insurance but too high for Medicaid (12%), premium of prior insurance too costly (24%), and desire for better/different health insurance (5%).

Parents also were asked about insurance coverage concurrent with CHPlus: 3% of children were reported to be receiving CHPlus and Medicaid simultaneously; 5% had concurrent commercial insurance; and <2% had concurrent full insurance (covering both ambulatory and inpatient care). Thirty-five percent had concurrent inpatient coverage only (at the time of this study, CHPlus did not cover inpatient care, but has since expanded benefits to include inpatient services.¹³)

We asked parents several questions about their child's health status, including general health status, specific questions about functional health, and the presence of specific chronic conditions.⁷ Table 3 shows the health status of this CHPlus-enrolled population. Two-thirds were reported to be in excellent health. Only 4.1% had fair or poor health, which is similar to the health status found on a nationally-representative population of uninsured children.¹⁴ More than two-thirds of children had no chronic conditions, and the proportion of children with 1 or

TABLE 2. Health Insurance Characteristics of Children Enrolled in CHPlus in the Study Area

Insurance Characteristic	Percent
Prior insurance before CHPlus*	
Uninsured	21%
Underinsured†	28%
Medicaid†	16%
Fully insured†	35%
Gap in coverage before enrollment in CHPlus	
None‡	39%
1-5 mo	23%
≥6 mo	38%

* Prior insurance denotes the most recent insurance in the year before CHPlus. If the child had no insurance for the entire year before CHPlus, the prior insurance is uninsured.

† Denotes the most recent insurance during the year before CHPlus, even if there was a gap in coverage before enrollment in CHPlus. The gap in coverage is shown at the bottom of the table.

‡ No gap in coverage includes children who had up to 4 weeks uninsured gap immediately before CHPlus, in order to avoid counting families in transition as truly uninsured.

TABLE 3. Health Status and Chronic Conditions Among Children Enrolled in CHPlus in the Study Area

Characteristic	Percent
Health status	
Excellent	66%
Good	30%
Fair or poor	4.1%
Number of chronic conditions	
None	69%
One	24%
Two	5%
Three or more	1.1%
Health compared with other children	
Resists illness well	84%
Less healthy than other children	4.4%
Usually catches what is going around	36%

more chronic conditions was also similar to findings from national samples.¹⁴ Parents were asked to describe their qualitative impressions of the relative health of their child compared with other children (Table 3) and most parents viewed their CHPlus-enrolled child as relatively healthy.

The Uninsured Rate in the Study Area

The school-based survey about health insurance coverage in Livingston County ($N = 5807$) and in the city of Rochester ($N = 3203$) resulted in response rates of 70% (4066/5807) and 53% (1694/3203) respectively. In Livingston County, 5.3% (standard error [SE]: .5%) of surveyed children were uninsured and in the Rochester City School District 3.8% (SE: .4%) of surveyed children were uninsured. In the Livingston County sample, 9.3% of children were reported to be covered by Medicaid, while in the Rochester City School District sample, >50% of children were reported to be covered by Medicaid.

Using pooled *Current Population Survey* data from 1989 through 1993, we estimated health insurance coverage for children <13 years old in the study area: 4.1% (SE: .9%) were uninsured, 17.5% (SE: 1.7%) had Medicaid, and 82.2% (SE: 1.6%) had some type of private insurance. These results do not sum to 100% because of dual insurance coverage for some children.

In summary, we obtained 3 estimates of the uninsured rate in the study area, which yielded the following results:

1. *Current Population Survey* \Rightarrow 4.1%
2. Livingston County \Rightarrow 5.3%
3. City of Rochester School District \Rightarrow 3.8%

Participation Rate in CHPlus

Based on pooled *Current Population Survey* data (1989–1993), approximately 259 000 children <13 years old resided in the study area. An estimated 4.1% (SE: .9%) were uninsured. Thus, an estimated 10 619 children were eligible for, but not enrolled in CHPlus in the study area. The total number of eligible children, then, is given by 10 619 (eligible but not enrolled) + 5876 (enrolled) or 16 495, and the implied participation rate is 36%. Using the Livingston County and the City of Rochester School District estimates of the uninsured rates, the estimated total

number of eligible children are 19 603 and 15 718, respectively, and the implied participation rates are 37% and 30%, respectively.

An estimated 64 000 adolescents 13 to 19 years old also resided in the area and their uninsured rate was 4.7% (SE: 1.3%) resulting in an estimated 3008 additional adolescents who would have been eligible had CHPlus been expanded to include adolescents (as is the case for SCHIP). In fact, in 1997 CHPlus eligibility was expanded to age 19.¹³

DISCUSSION

New York State's health insurance program for low-income children—CHPlus—enrolled a significant number of age- and income-eligible children who were or would have become uninsured within the study area. The participation rate 2 years after implementation did, however, remain modest.

Enrollment in CHPlus was voluntary and therefore selective. Black children were underrepresented in CHPlus. During the study period, several neighborhood health centers, serving a significant segment of black children in the study area, did not participate in CHPlus. In addition, child advocates, in the community, expressed concerns that parents of children no longer eligible for Medicaid were not receiving assistance or information about CHPlus and may not therefore have known about the program. Indeed, most families reported learning about the program by word of mouth. These findings point to the need for effective, community-based outreach efforts, particularly targeting minority populations. Providing information about SCHIP to outreach workers in community agencies, churches, and stores frequented by underrepresented populations is essential.

Because nearly a third of families indicated that they learned about CHPlus from their physician, health care providers may be an effective source to identify eligible children and enroll them. One possible mechanism to systematically identify uninsured children within a primary care practice is to use a practice's computerized billing file. Using such available technology, providers could identify and contact uninsured patients and inform them about SCHIP programs.

Although few families learned about CHPlus from their prior insurer or employer, most children had an employed parent, and a significant proportion of children became uninsured because their parent lost employer-based health insurance benefits. This suggests that providing information about SCHIP through personnel/benefits offices would be an effective way of disseminating information to potentially eligible families.

Voluntary enrollment in CHPlus did not appear to result in enrollment of either a very high-risk or low-risk patient population. The health status and chronic health conditions of CHPlus-enrolled children were similar to that of the general child population.¹⁴ This may have accounted for the rather modest per-patient health care costs during CHPlus that are described in an accompanying article.¹⁵

This study has some limitations with respect to the

profile of the SCHIP population in other states. The results of this study may have somewhat limited generalizability to large metropolitan areas. The uninsured rate was lower in this study area than in the rest of New York State (4.1% vs 9%). A higher proportion of CHPlus enrollees had prior health insurance during the preceding 12 months than was reported in the Florida Healthy Kids Program.¹⁶ Demographic and health insurance characteristics of children enrolled in CHPlus in the study area, such as a relatively low baseline uninsured rate, relatively few children who were uninsured before enrollment, and high levels of education, employment, and family income, may have contributed to less dramatic effects of CHPlus for this study population than for other populations of children with less favorable characteristics. Thus, the impact of CHPlus noted in this study¹⁷ may in fact underestimate the potential impact in areas having poorer baseline health insurance coverage.

Another limitation of this study and a major problem, in general, is the lack of data that are available to estimate and characterize uninsured populations at local levels. Although we pooled 5 years of *Current Population Survey* data to investigate the demographic characteristics of uninsured children in the 6-county study area, estimates were too imprecise to report.

Finally, national surveys are not ideal for estimating the number of uninsured children in many communities. In the 6-county study area, however, pooled *Current Population Survey* estimates of the uninsured corresponded closely to 2 separate local population-based surveys. One means of monitoring and tracking the implementation of SCHIP is to use a combination of estimates from secondary data and local population-based surveys.

CONCLUSION

In summary, we conclude that, although participation rates in CHPlus were rather modest at the time of the study, children who enrolled in CHPlus tended to be healthy, from working, relatively educated parents who often experienced a job loss, life change, or financial change resulting in loss of prior health insurance coverage. Improved outreach efforts and systematic strategies to reach eligible populations are needed to increase participation in SCHIP programs.

REFERENCES

1. US General Accounting Office. *Health Insurance for Children: Declines in Employment-based Coverage Leaves Millions of Uninsured; State and Private Programs Offer New Approaches*. Washington, DC: US General Accounting Office; 1997. Publication No. GAO/T-HEHS-97-105
2. Short PF, Bantin JS. New estimates of the underinsured younger than 65 Years. *JAMA*. 1995;274:1302-1306
3. US General Accounting Office. *Tax Policy: Health Insurance Tax Credit Participation Rate Was Low*. Washington, DC: US General Accounting Office; 1994. Publication No. GAO/GGD-94-99
4. US General Accounting Office. *Health Insurance for Children: Many Remain Uninsured Despite Medicaid Expansion*. Washington, DC: US General Accounting Office; 1995. Publication No. GAO/HEHS-95-175
5. US General Accounting Office. *Health Insurance for Children: State and Private Programs Create New Strategies to Insure Children*. Washington,

- DC: US General Accounting Office; 1996. Publication No. GAO/HEHS-96-35
6. New York State Public Health Law, Article 25, Title I—A Child Health Insurance Plan (Chapters 922 and 923 of the Laws of 1990) as amended
 7. Szilagyi PG, Shone LP, Holl JL, et al. Evaluation of New York State's Child Health Plus: methods. *Pediatrics*. 2000;105(suppl):697-705
 8. Lewit EM, Baker LS. Health insurance coverage. *Future Child*. 1995;5:192-204
 9. US Bureau of the Census. *Current Population Survey*. Washington DC: US Bureau of the Census; 1994
 10. Huber PJ. The behavior of maximum likelihood estimates under non-standard conditions. In: *Proceedings of the Fifth Berkeley Symposium on Mathematical Statistics and Probability*. Berkeley, CA: University of California Press; 1967:221-233
 11. White H. A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica*. 1980;48:817-830
 12. Szilagyi, PG, Holl JL, Rodewald LE, et al. Evaluation of New York State's Child Health Plus: children who have asthma. *Pediatrics*. 2000;105(suppl):719-727
 13. Trafton S, Shone LP, Zwanziger J, et al. Evolution of a children's health insurance program: lessons from New York State's Child Health Plus. 2000;105(suppl):692-696
 14. Holl JL, Szilagyi PG, Rodewald LE, Byrd RS, Weitzman ML. Profile of uninsured children in the United States. *Arch Pediatr Adolesc Med*. 1995;149:398-406
 15. Zwanziger J, Mukamel DB, Szilagyi PG, et al. Evaluating New York State's Child Health Plus: how much does providing health insurance to uninsured children increase health care costs? *Pediatrics*. 2000;105(suppl):728-732
 16. Shenkman E, Bucciarelli R, Hope Wegener D, Naff R, Freedman S. Crowd out: evidence from the Florida Healthy Kids Program. *Pediatrics* 1999;104:507-513
 17. Holl JL, Szilagyi PG, Rodewald LE, et al. Evaluation of New York State's Child Health Plus: access, utilization, quality of health care, and health status. *Pediatrics*. 2000;105(suppl):711-718

A Profile of the Population Enrolled in New York State's Child Health Plus
Jane L. Holl, Andrew W. Dick, Laura Pollard Shone, Lance E. Rodewald, Jack
Zwanziger, Dana B. Mukamel, Sarah Trafton, Richard F. Raubertas and Peter G.
Szilagyi
Pediatrics 2000;105;706

Updated Information & Services	including high resolution figures, can be found at: http://pediatrics.aappublications.org/content/105/Supplement_E1/706
References	This article cites 9 articles, 5 of which you can access for free at: http://pediatrics.aappublications.org/content/105/Supplement_E1/706#BIBL
Subspecialty Collections	This article, along with others on similar topics, appears in the following collection(s): Advocacy http://www.aappublications.org/cgi/collection/advocacy_sub Child Health Financing http://www.aappublications.org/cgi/collection/child_health_financing_sub
Permissions & Licensing	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: http://www.aappublications.org/site/misc/Permissions.xhtml
Reprints	Information about ordering reprints can be found online: http://www.aappublications.org/site/misc/reprints.xhtml

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN®



PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

A Profile of the Population Enrolled in New York State's Child Health Plus

Jane L. Holl, Andrew W. Dick, Laura Pollard Shone, Lance E. Rodewald, Jack Zwanziger, Dana B. Mukamel, Sarah Trafton, Richard F. Raubertas and Peter G. Szilagyi

Pediatrics 2000;105;706

The online version of this article, along with updated information and services, is located on the World Wide Web at:

http://pediatrics.aappublications.org/content/105/Supplement_E1/706

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 345 Park Avenue, Itasca, Illinois, 60143. Copyright © 2000 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN®

