Scientific Article

Impact of the Iowa S-SCHIP Program on Access to Dental Care for Adolescents

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Abstract

Purpose: This study examined whether providing insurance through Iowa's State Children's Health Insurance Program, S-SCHIP, had an impact on dental care access for adolescents that was similar to children of other age groups.

Methods: Using a pretest, post-test panel study design, an 80-item questionnaire was mailed to the parents of one S-SCHIP enrollee per household at enrollment. A similar instrument was mailed after 1 year. A mixed-mode data collection process was used. Children were compared by age groups (1 to 6, 7 to 12, and 13 to 18). Statistical tests evaluated differences in: (1) demographics between age groups at baseline; (2) outcomes at follow-up; and (3) differences between matched-pair responses prepost.

Results: Baseline and follow-up responses were received from 39% of sampled children (N=1,399). After 1 year, access to and utilization of dental services improved for all age groups. Adolescents, however, were least likely to have had an annual dental visit; 1 in 6 still had unmet dental need or delays. Relative to other health services, dental care was reported to be the highest area of unmet need at both baseline and follow-up, especially for adolescents.

Conclusions: Iowa's S-SCHIP program was found to improve dental care access for children of all ages. Nonfinancial barriers, however, still exist for a significant number of adolescents. (*Pediatr Dent.* 2005;27:47-53)

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The use of dental services among the nation's poor and uninsured remains low,[1] despite findings that such disadvantaged children are more likely to have a higher prevalence of caries and more unmet treatment needs than their higher-income counterparts.[2] In fact, according to data gathered in the National Health Interview Survey (NHIS) from 1993 to 1996, dental care was reported to be the most prevalent unmet health need among children. [3]

One recent measure designed to improve lower-income children's access to primary health care services is the State Children's Health Insurance Program (SCHIP or Title XXI or the Social Security Act). Enacted in 1997, SCHIP includes provisions to find and provide children in families earning up to 200% of the federal poverty level (FPL) with public health insurance (ie, children in families that earn too much to be eligible for traditional Medicaid but too little to afford private insurance).[4] As of July 2001, all states but one had opted to include dental benefits.[5]

Since its inception, however, there have been only a few studies investigating the effectiveness of SCHIP programs in bringing about the intended improvements in access to and use of health care, especially dental services. Earlier programs in Pennsylvania and New York that expanded health insurance coverage to lower-income children found improvements in dental care access.[6-8] North Carolina's SCHIP program, NC Health Choice, was found to increase the percentage of children who had received dental care in the previous year.[9] Similarly, children in Iowa's separate SCHIP program, the Healthy and Well Kids in Iowa program (referred to as "hawk-i"), were significantly more likely to have a regular source of dental care and less likely to have been delayed or stopped from receiving dental care.[10]

Thus far, there have been no published studies evaluating the impact of Title XXI SCHIP programs on adolescents. There is some evidence that adolescents may be at greatest risk of having problems accessing health care services and that the number of uninsured adolescents was increasing prior to the beginning of SCHIP. [11-16] In one of the few studies evaluating the impact of providing health insurance by age of the child, Keane et al found that, in a pre-SCHIP health insurance program in Pennsylvania, access to care—including unmet need/delays for dental care and dental utilization—was improved for children of all ages but less so for adolescents.[17]

Iowa S-SCHIP program

Iowa has a "combination" SCHIP program. The first part is an expansion of Iowa's existing Medicaid program (M-SCHIP), serving children in families with incomes up to 133% of the federal poverty level (FPL). The second part is a "separate" SCHIP program (S-SCHIP), providing coverage to children in families with incomes from 134% to 200% of the FPL. The Iowa Department of Human Services contracts with private health plans to provide covered services, including dental, to S-SCHIP-enrolled children.

The purpose of this investigation was to determine the effect of the Iowa S-SCHIP program on access to dental care for adolescents. The main research questions in this study included:

1. Was access to and use of dental services similar for children in different age groups in the year prior to enrollment?
2. Was the change in dental care access following provision of insurance similar across age groups?
3. Was the dental impact by age similar to that for other health care services?

Methods

To evaluate the effect of providing health insurance through the Iowa S-SCHIP program, a longitudinal pretest/post-test panel study design was used. [18] A baseline survey, concerning access to care and health status for the year prior to joining S-SCHIP, was conducted regarding 1 randomly selected child in each household. A follow-up survey, very similar to the baseline survey, was conducted after the child had been in the program for 1 year regarding access to care and health status for the time while in S-SCHIP. These data are part of a broader study evaluating the impact of the S-SCHIP program for the Iowa Department of Human Services. Approval from the Institutional Review Board at The University of Iowa was received for this study.

Both survey instruments were developed by researchers at The University of Iowa Public Policy Center at the request of and in consultation with the S-SCHIP Clinical Advisory Committee. The questions were developed after review of existing documents such as:

1. National Health Interview Survey (NHIS)[19];
2. Consumer Assessment of Health Plan Study (CAHPS)[20,21];
3. SCHIP Program Evaluation Guidelines established by the American Academy of Pediatrics[22];
4. enrollee surveys used to evaluate the Iowa Medicaid program.[23]

The 60-item baseline survey included questions pertaining to:

1. demographics;
2. health status of the child;
3. access to service areas including:
   a. dental care;
   b. medical care;
   c. behavioral and emotional health care;
   d. prescription medicine;
   e. vision care.

The follow-up survey asked the same questions, as well as questions about health plans within S-SCHIP and the impact of having insurance. There were 8 dental-specific questions on the survey regarding access to and use of dental services.

A modified Dillman method[24] was used to conduct both the baseline and 1-year follow-up questionnaires:

1. prenotification postcard was sent, addressed to the parent or guardian of 1 randomly chosen child per household;
2. about 1 week later, a cover letter was sent along with a questionnaire and business reply envelope;
3. 1 week after the letter and questionnaire, a reminder postcard was sent to each household;
4. 3 weeks after the postcard, a second letter, questionnaire, and business reply envelope were sent to nonrespondents.

Telephone surveys were conducted with families that did not respond to the mailed survey. Calls were made until: (1) a telephone questionnaire was completed; (2) refusal was obtained; or (3) 10 failed contact attempts had been made.

During the period from July 1, 2000 through July 1, 2001, children from 3,738 families were enrolled in S-SCHIP. This approximates the second operating year of the program. Sixty-six percent (2,467) of the families responded to the mail or telephone version of the baseline survey, while 50% (1,869) responded to the follow-up. To strengthen the analysis, the authors considered only data relating to children about whom both baseline and follow-up surveys were received (N=1,457; 39% response rate). In addition, since the analysis focused on age categories, 58 surveys had to be excluded due to failure to report the child's age. Nonresponse bias tests indicated that respondents were more likely to:

1. be from larger families;
2. report their race/ethnicity as white;
3. be lower income than the overall population of children in S-SCHIP.

Dental-related questions in the survey included:

1. unmet need for dental care (ie, stopped from receiving dental care in the previous year)[19];
2. why they had unmet need;
3. presence of a chronic dental condition.

To evaluate the impact of S-SCHIP on adolescents, children were placed in the following categories based on their age at the end of the first year of enrollment: (1) ages 1 through 6; (2) ages 7 to 12; and (3) 13 years of age or younger.

Chi-square tests were conducted to:

1. determine whether the demographic characteristics were similar for children in the different age groups;
2. evaluate if differences existed by age of the child regarding the year in which they were enrolled in S-SCHIP related to:
   a. access to and use of dental services;
   b. need and unmet need for dental and all of the other service areas.

McNemar's test for correlated proportions (for binomial responses) and the Wilcoxon signed rank test (for multinomial responses) were used to evaluate differences between the baseline and follow-up survey. All tests were considered significantly different if the probability of the difference occurring by chance was less than 5% ($P<.05$). Analyses were conducted using SPSS for the Macintosh version 6.1 (SPSS, Chicago Ill.).

Table 1. Demographics of Survey Respondents at Baseline

	Age 1-6		Age 7-12		Age 13-18		All children	
Factor	%	(N)	%	(N)	%	(N)	%	(N)
Gender								
Male	57%	(322)	52%	(242)	51%	(155)	54%	(719)
Female	43%	(246)	48%	(227)	49%	(147)	46%	(620)
Race*								
White	86%	(523)	88%	(444)	93%	(299)	88%	(1266)
African American	5%	(29)	4%	(22)	4%	(12)	4%	(63)
Latino	7%	(42)	5%	(27)	2%	(5)	5%	(74)
Other	2%	(13)	3%	(13)	2%	(7)	2%	(33)
Size of household								
Number of adults*								
1	23%	(136)	36%	(176)	44%	(137)	32%	(449)
2	73%	(424)	60%	(294)	50%	(156)	63%	(874)
3+	4%	(23)	4%	(17)	6%	(19)	4%	(59)
Number of children*								
1	41%	(237)	28%	(139)	38%	(117)	36%	(493)
2	39%	(226)	39%	(191)	37%	(114)	38%	(531)
3	15%	(86)	22%	(105)	20%	(61)	18%	(252)
4+	6%	(34)	11%	(54)	6%	(20)	8%	(108)
Parent education								
Less than high school graduate	10%	(59)	11%	(51)	8%	(24)	10%	(134)
High school grad.	37%	(215)	33%	(162)	42%	(131)	37%	(508)
Some college	31%	(181)	34%	(167)	29%	(92)	32%	(440)
College graduate	21%	(124)	22%	(108)	22%	(68)	22%	(300)
Overall health status*								
Excellent	51%	(300)	40%	(198)	31%	(99)	43%	(597)
Very good	35%	(208)	42%	(208)	41%	(130)	39%	(546)
Good	12%	(68)	16%	(80)	23%	(74)	16%	(222)
Fair	2%	(12)	1%	(5)	4%	(13)	2%	(30)
Poor	<1%	(1)	<1%	(1)	0%	(0)	<1%	(2)

* Significantly different between age categories at baseline, $P<0.05$

Results

The demographic characteristics of the children by age at the time they joined the program is shown in Table 1. There was no significant difference in the gender of the children (46%=female) or education of the parent who completed the survey (54%=attended some college) by age. Adolescents, however, were more likely to be white (93% vs 88% and 86%) and live in single-parent households (44% vs 36% and 23%). The overall health status of older children was also viewed as less favorable by their parents/guardians. Adolescents were significantly less likely to have their health rated as excellent than children age 12 and under.

After 1 year of enrollment in S-SCHIP, there were improvements in access to and utilization of dental services among children in all age groups (Table 2). For example, there were significantly fewer children with unmet need or delays for dental care in all age categories. The reasons for unmet need for dental care changed dramatically from baseline to follow-up (Figure 1). In the year prior to enrolling in S-SCHIP, cost was by far the most common reason a child was stopped from seeing the dentist. After receiving insurance, other reasons became more important including the ability to find a dentist who accepts patients insured through the S-SCHIP program.

Even though the proportion of children who reportedly had a chronic dental condition (ie, lasted at least 3 months) was higher among children in the 2 older age categories, improvement was found for children of all ages. There was, however, some variation by age regarding the level of access and utilization of dental services after being in the program for a year. As shown in Figure 2, among children who had been to a dentist at least once, the percent with a dental visit in the previous year went up for all children.

Adolescents, however, were least likely to have received dental care during the year in which they were enrolled in S-SCHIP and were most likely not to have had a dental

Table 2. Impact on Access to and use of Dental Services

	Age 1-6		**Age 7-12**		**Age 13-18**		**All children**	
Factor	Base-line	Follow-up	Base-line	Follow-up	Base-line	Follow-up	Base-line	Follow-up
Regular source of dental care								
Yes	72% (408)	83%* (471)	90% (440)	92%* (451)	84% (256)	91%* (279)	81% (1149)	88% (1245)
No	28% (160)	17%* (97)	10% (51)	8%* (40)	16% (50)	9%* (27)	19% (270)	12% (174)
Need for dental care								
Yes	32% (186)	42%* (241)	65% (318)	66%* (321)	62% (189)	57%* (175)	51% (720)	54% (764)
No	68% (393)	58%* (338)	35% (169)	34%* (166)	38% (117)	43%* (131)	49% (707)	47% (663)
Unmet need for dental care								
Yes	16% (92)	6%* (36)	30% (147)	10%* (49)	26% (80)	10%* (31)	23% (332)	9% (123)
No	84% (485)	94%* (541)	70% (344)	90%* (442)	74% (225)	90%* (274)	77% (1096)	91% (1305)
Delays for dental care								
Yes	17% (97)	7% (41)	35% (170)	11% (55)	32% (95)	11% (33)	27% (377)	10% (135)
No	83% (469)	93% (525	65% (314)	89% (429)	69% (207)	89% (269)	73% (1030)	90% (1272)
Unmet need or delays for dental care								
Yes	23% (129)	10%* (56)	44% (212)	16%* (80)	35% (106)	16%* (49)	33% (467)	14% (195)
No	77% (443)	90%* (516)	57% (275)	84%* (407)	65% (196)	84%* (253)	67% (949)	86% (1221)
Percent reporting a chronic dental condition	8% (45)	5% (30)	16% (78)	9% (45)	14% (45)	7% (21)	12% (171)	7% (101)

Bold-Significantly different from baseline to follow-up within age category, $P<0.05$
*Results at follow-up significantly different between age categories, $P<0.05$

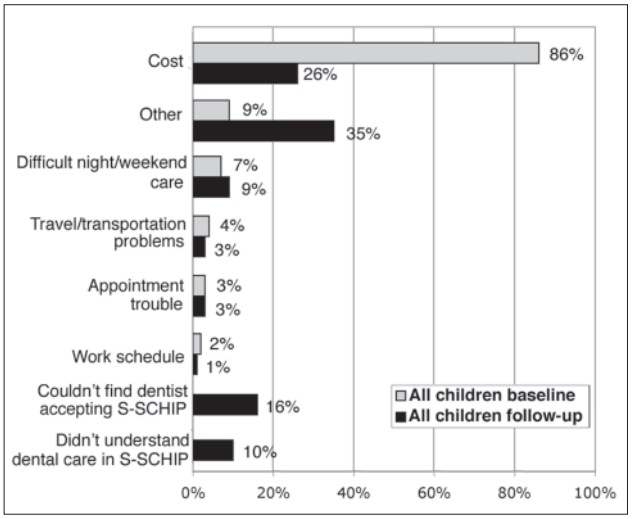

Figure 1. Reasons for unmet need for dental care.

visit in the previous 2 years. Both the oldest and youngest children were significantly more likely to have a regular source of care. Need for dental services rose only among the 1- to 6-year-olds after 1 year of enrollment.

Need and unmet need for dental care was compared to the other service areas by age of the children in Table 3. At both baseline and follow-up, need for care was reported to be highest for pharmaceuticals, medical care, and dental care. After 1 year in the program, children in the 2 oldest age categories were more likely to have needed care in all areas except specialty care and pharmacy, where there was no difference by age.

Unmet need was significantly higher for dental care both before and after the program, compared to all other areas. This was particularly true for adolescents. At baseline, 26% of adolescents reportedly needed dental care in the previous year, but had been unable to get it; the next largest amounts of unmet need for adolescents was 18% for vision care and 17% and medical care. Dental care was the only area where there were differences in unmet need by age.

Discussion

Prior to the implementation of SCHIP, there were questions about whether development of child health insurance programs would lead to improvements in low-income children's access to and use of health services. Dental care was of particular importance, since it was the area with the most unmet need among low-income children.[3] This study found similar improvement in access to and use of dental services for all children, as was found in the North Carolina SCHIP program and early SCHIP type programs in Pennsylvania and New York.[7-10] As in the other studies, the percentage of children with a regular source of dental care and an annual dental visit increased while the percent with unmet need for dental care decreased significantly.

This study focused on adolescents, because of previous research indicating that the number of uninsured adolescents prior to SCHIP enactment was increasing.[13] Adolescents were also one of the groups least likely to utilize health care services, making them more susceptible to deficiencies in access to necessary health services, including dental care.[12,14-16] In one study, the lack of health insurance was found to be related to the receipt of preventive dental visits, indicating the potential for SCHIP programs to have a positive impact on access to dental care for adolescents.[17]

The results for adolescents were similar to those found by Keane et al in the pre-SCHIP-health insurance program in Pennsylvania, where unmet need/delays for dental care and dental utilization was improved for children of all ages. Adolescents, however, lagged behind.[18] After being insured for 1 year, adolescents as a group were least likely to report having had a dental visit in the previous year. In fact, they were most likely not to have had a visit in more than 2 years. At follow-up, nearly 1 in 6 adolescents were found to have unmet need or delays for dental care. Thus, a substantial number of adolescents are still not receiving an annual dental visit, as recommended in professional handbooks such as the American Academy of Pediatric Dentistry's clincial guidelines on infant oral healtchare.[16]

This study's results also indicate that, while substantial improvements in access to dental care can occur when the financial barrier to care is reduced, nonfinancial barriers are not eliminated—as shown in Figure 2. These can include issues such as the availability of providers who accept the SCHIP insurance, location of such providers, transportation problems, and language/cultural barriers. Furthermore, improvements were not consistent for children of all ages. Additional issues for adolescents include the transitioning of control over the teen's appointment-making/keeping process and competing priorities such as work and sports activities.

Since SCHIP programs vary significantly between states, results may or may not be applicable to all SCHIP programs. There may be differences related to the model of SCHIP program (ie, M-SCHIP vs S-SCHIP), the dental

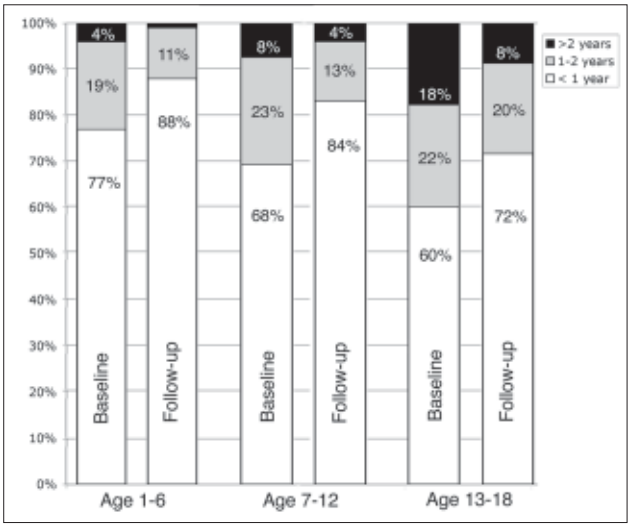

Figure 2. Time of last dental visit.

Table 3. Need/Unmet Need for Health Services

Factor	Baseline Need		Follow-up Need		Baseline Unmet Need		Follow-up Unmet Need	
Dental								
Ages 1-6 *†	32%	(186)	42%	(241)‡	16%	(92)	6%	(36)‡
Ages 7-12†	65%	(318)	66%	(321)‡	30%	(147)	10%	(49)‡
Ages 13-18†	62%	(189)	57%	(175)‡	26%	(80)	10%	(31)‡
All children†	51%	(720)	54%	(764)	23%	(332)	9%	(123)
Medical								
Ages 1-6†	66%	(383)	65%	(380)‡	11%	(64)	3%	(15)
Ages 7-12†	66%	(322)	67%	(327)‡	14%	(67)	3%	(16)
Ages 13-18†	70%	(215)	74%	(227)‡	17%	(53)	5%	(15)
All children†	66%	(954)	68%	(970)	13%	(184)	3%	(46)
Specialty								
Ages 1-6	39%	(110)	40%	(113)	6%	(33)	1%	(8)
Ages 7-12	37%	(89)	42%	(99)	6%	(31)	2%	(12)
Ages 13-18	40%	(68)	45%	(76)	7%	(23)	3%	(9)
All children	39%	(276)	42%	(298)	6%	(87)	2%	(29)
Vision								
Ages 1-6	11%	(65)	13%	(77)‡	3%	(20)	1%	(8)
Ages 7-12*†	37%	(179)	42%	(206)‡	12%	(61)	5%	(22)
Ages 13-18*†	54%	(167)	48%	(147)‡	18%	(58)	6%	(20)
All children†	30%	(431)	32%	(451)	10%	(139)	3%	(50)
Behavioral/emotional								
Ages 1-6	7%	(43)	7%	(41)‡	3%	(19)	1%	(8)
Ages 7-12*	20%	(97)	16%	(80)‡	8%	(41)	2%	(11)
Ages 13-18	22%	(68)	22%	(69)‡	10%	(31)	2%	(5)
All children†	15%	(217)	14%	(197)	6%	(91)	2%	(24)
Pharmacy								
Ages 1-6†	74%	(432)	76%	(444)	9%	(53)	6%	(34)
Ages 7-12*†	66%	(322)	73%	(354)	12%	(58)	5%	(23)
Ages 13-18†	70%	(216)	74%	(228)	15%	(46)	6%	(18)
All children*†	71%	(1,011)	75%	(1,066)	11%	(157)	5%	(75)

*Need=significantly different from baseline to follow-up within age category; $P<.05$
†Unmet need=significantly different from baseline to follow-up within age categories; $P<.05$
‡Need and unmet need=results at follow-up significantly different between age categories, $P<.05$

delivery systems used, and the demographic characteristics and previous dental experiences of the enrollees. In addition, although the overall response rate was reasonable, the inclusion of only those children for whom the authors had both baseline and follow-up information may have introduced a bias. Nonresponse bias tests indicated that the bias should have been minimal and the results conservative, but this type of bias is difficult to evaluate unequivocally. The survey is based on self-report and does not evaluate issues such as health status from a clinical perspective. Additionally, since no control group was used, some secular trends could have affected care for all children. The authors are unaware, however, of any such trends in Iowa that would have had this effect on access and health status.

Future studies could focus on dentists' attitudes toward and participation in SCHIP programs, especially as they compare to their perceptions and participation in Medicaid. Interviews or surveys with adolescents concerning their knowledge and attitudes about SCHIP dental programs and their role in appointment scheduling and other determinants of dental utilization could also provide useful information about program design from the consumer perspective.

Conclusions

After 1 year of enrollment in the Iowa S-SCHIP program, there was substantial improvement in access to and use of dental services for children of all ages. Adolescents, however, were least likely to have had a dental visit during their first year in the program, and 1 in 6 had unmet need or delays for dental care. Options for improving the use of dental care by this transitioning adolescent population through the S-SCHIP health plans should be considered to maintain optimal oral health into young adulthood.

Disclaimer

This article is the result of academic research and does not necessarily represent the views of the Iowa Department of Human Services.

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