The Impact of Insurance Lapse among Low-Income Children

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ABSTRACT   *Children living in poverty not only have disproportionately more health problems, but also have disproportionately lower health care service utilization. Change, whether in health care delivery system or in family living situation, may interfere with or jeopardize insurance status and thereby influence access to health care services. We hypothesized that children who have maintained Medicaid insurance compared to those who have not will be more likely to have preventive care visits and less likely to have emergency room visits. We further hypothesized that transient situations such as homeless episodes, foster care placement, and living in more than one location in the same 1-year period will contribute to loss in Medicaid coverage. This retrospective cohort study was conducted at an urban children's hospital outpatient clinic at which 210 family respondents were recruited over a 1-year period. An in-person interview containing several standardized instruments was administered to the caregiver. In addition, children's medical records were retrospectively abstracted from point of study entry to first contact. Findings indicated that children who lost Medicaid coverage, compared to others, had significantly fewer preventive care health visits. There were no differences in emergency room visits. Transient situations did not appear to influence preventive or emergency room care. In addition, the change into a managed-care delivery system also increased loss of coverage. Loss of coverage may be a barrier to preventive care services. To ensure optimal preventive care services, the onus is on the providers and plans to facilitate continued insurance coverage.*

KEYWORDS   *Homeless, Foster care, Managed care, Medicaid, Preventive care.*

INTRODUCTION

Impact of Episodic Medicaid or No Insurance

Medicaid is the governmental public entitlement program that funds health care for eligible low-income individuals; in the United States, almost 33% of the nation's children are eligible.[1] Children in low-income families are at greater risk than children in higher income families for being uninsured as well as for experiencing lapses in their insurance coverage.[2] For many low-income children, Medicaid has served as the health care safety net, ensuring their access to preventive and other health care in the absence of other health coverage. Still, an estimated 6.5 million children who are eligible for Medicaid are uninsured.[1]

   Lack of coverage, whether long term or temporary, is associated with poorer health care access.[2,3] Studies have found that with both Spanish- and English-speaking low-income families, children who were privately insured or continuously insured

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by Medicaid had far better health care utilization and access than did children with episodic Medicaid coverage or no insurance.[2,4] In fact, Latino children with episodic Medicaid coverage demonstrated similar patterns of overall visits, use of public clinics, and fragmented continuity of care when compared to those with no insurance at all.[4]

Medicaid in California and Alameda County

Currently, almost 12% of the US population resides in California,[5] and approximately 36% of California's children are insured by Medicaid.[1] In 1996, most Medicaid recipients in the state's 19 most populous counties were required to join a managed-care plan. Each county implemented one of three basic managed-care Medicaid models: a county with two competing plans (a two-plan model); a single county-organized health system; and a plan covering a specific geographic area (may comprise more than one county).

Alameda County, one of the nine counties comprising the San Francisco Bay area, adopted a two-plan model. Enrollment into one of the two plans was implemented for all Medicaid-insured children with the exception of those in foster care or on Supplemental Security Income. One plan, a public, county-based, managed-care plan in which the primary care provider (PCP) receives a capitated monthly rate for each child, enrolled approximately 70% of eligible families on managed-care Medicaid. The second managed-care plan, operated by a private company, insured the remainder of the managed-care Medicaid recipients. At the time of the study, the private plan provided reimbursement based on a fee-for-service basis for each visit.

Contributors to Lapsed Medicaid Coverage

Both providers and families experienced difficulties during the transition from fee-for-service to managed care. Children could lose Medicaid coverage if eligibility-related paperwork was either not completed or not submitted. Other difficulties included high rates of automatic default assignments (i.e., large numbers of Medicaid recipients were assigned a plan and a PCP); inconsistent default assignments within a single family, with family members assigned to different plans and providers; administrative errors enrolling children who were not required to join managed care (e.g., children with SSI-linked Medicaid and children in foster care); and delays in disenrollment, resulting in obstacles to obtaining medical care with their regular PCPs (e.g., some emergency disenrollments that were supposed to take 72 hours took weeks).[6]

Further complicating matters, default assignments to Medicaid managed-care plans and PCPs often were not discovered until families came to provider institutions. In these cases, there were two possible outcomes: either (1) the child could not be seen for the appointment or (2) the child was seen, but the PCP was not paid by the managed-care plan. Moreover, to continue Medicaid coverage, caregivers were required to complete a six-page form selecting the plan and the PCP within 30 days of receipt of the enrollment packet. If the enrollment forms were not received in time, automatic assignment of eligible members to plans or to PCPs was made without the members' knowledge.[7]

Providers also encountered obstacles with authorization processes for Medicaid eligibility, becoming accustomed to changes in paperwork, and delayed reimbursement for treatment.[2] Other areas of confusion included default assignments into a Medicaid managed-care plan even when a parent reported completing the forms; default assignments within a single family were inconsistent; and some disenrollment procedures took months to accomplish (meanwhile, the child either could not be

seen for the appointment or, if the child was seen, the PCP was not paid by the newly assigned plan). It is unclear how many Medicaid recipients had delays in care or were lost to the program because of the confusion and barriers presented by the transition to managed care.[6,8]

Social Environment

Although many studies have noted the associations among inadequate health care utilization, lapses in health insurance, and fragmented health care,[9–12] other characteristics associated with poverty also have been linked to inadequate health care utilization and status, including periods of homelessness, transiency, substance abuse, poor social support, minority ethnicity or race, and having less than a high school education.[11,13–20] Similarly, characteristics from the neighborhood culture or social environment may be associated with health status or utilization.[21,22] However, few instruments measure neighborhood culture or social environment; consequently, the impact of social and physical neighborhood environments on health care utilization and status is rarely examined.[23]

In 1973, medically underserved areas (MUAs) were created to identify census tracts with residents who are low income and have poor health care utilization. The MUA designation was based on scores assessing four factors: primary care physician-to-population ratio, infant mortality rate, percentage of the population with incomes below the poverty level, and percentage of the population aged 65 years and older.[24] Areas scoring below the county median combined score for the four criteria were designated MUAs. Although the MUA designation has been used to allocate funding by some federal agencies,[25,26] it has been criticized for having few reassessments once the designation has been made.[24]

In contrast to the community-based MUA, quality-of-life (QOL) instruments have been used to measure individuals' perceptions of their quality of life. QOL instruments measure many different aspects of the social environment, including financial, social, physical, and psychological domains, and attribute an overall score. Many studies have examined the impact of QOL on chronic disease, service use, or function.[27–30]

Existing literature has demonstrated the influence of lapse of insurance on health status and the relationship between social environment and health care. This study contributes to the literature by examining the impact of lapse of insurance on health care utilization and the impact of social environment on lapse of insurance in a low-income pediatric population at a time when the health care delivery system was shifting from fee-for-service to managed-care Medicaid. We hypothesized that (1) children who had lapses in their insurance coverage, compared to those who did not, would obtain fewer preventive care visits and have more emergency room visits; and (2) social environment, including transiency caused by homeless episodes and foster care placement, would contribute to lapses in insurance coverage.

METHODS

Sample

For this retrospective cohort study, the target population consisted of families whose young children were insured through the Medicaid program and who had access to a PCP. The sample was drawn from the ambulatory clinics of an urban children's hospital because (1) the clinic had a very large proportion of low-income

children (approximately 75% on Medicaid); (2) all children who obtained care at the clinic had an identified PCP (which eliminated the potential confounder of a family having access solely to the emergency room and not to primary health care); (3) a wide range of insurances was accepted, including both Alameda County Medicaid managed-care plans, fee-for-service Medicaid, and many other private insurers; and (4) all children regardless of insurance status or ability to pay were eligible to receive services. In addition, because of a federal grant, a proportion of children who were homeless, at risk for homelessness, or in foster care were treated at this site.

Procedure

Data collection began in April 1998. To obtain sufficient sample size, participant enrollment continued over a 1-year period. A systematic random sample was selected from the daily appointment list; it contained the child's date of birth, insurer, and request for translation services. The following inclusion criteria were used: child aged birth to 6 years, Medicaid insurance, and no request for language translation services at time of appointment. The study used 6 years of age as the age limit because, under the pediatric periodicity schedule, children younger than 6 years have more recommended visits (e.g., for immunizations and well-child checkups) than older children. Also, failure to achieve those visits would be both easy to identify and potentially deleterious to their health and well-being. The translation requirement was made because the research assistant conducting the interviews was a monolingual English speaker; however, this exclusion decreased representation and hence generalizability to non-English speakers.

Only one child per family unit was eligible. Approximately five caregivers were selected for participation weekly. Participants received a $10 grocery store certificate for their time and transportation. Once a child was identified, the interviewer approached the caregiver and explained the nature of the project and time commitment. Those who agreed to participate signed a consent that had been approved by the hospital's institutional review board.

Of the 291 caregivers who were approached, approximately 27.8% (n = 81) of caregivers refused to participate. One caregiver was mistakenly reinterviewed with a second child. Another 22 were excluded when medical record examination revealed that the children had not obtained at least three visits, and a minimum of three visits was needed to identify a lapse in coverage. As a result, the final sample consisted of 187 children.

Instrumentation

This study used two instruments, an interview survey and a structured medical record abstraction tool. The interview consisted of a 30-minute, in-person questionnaire incorporating demographic variables and established instruments, including the Quality of Life Index (QOLI). Demographic variables included child's age, primary caregiver, age of mother/primary caregiver, type of caregiver (i.e., foster care, biological, step-parent), self-reported ethnicity or race, episode of living in a homeless shelter or other homeless circumstance, and current abode (e.g., apartment, shelter, doubled up with another family).

The QOLI was developed in 1991, has been tested on both men and women with substance use difficulties, mental illness, and dual diagnosis (concurrent mental illness and substance use problem), and has been tested for reliability and validity.[31–33] The scale has nine sections encompassing sections on general life satisfaction; living situation (includes periods of homelessness); daily activities and function; family

relationships; friend relationships; finances; work/school; and legal, safety, and health. This index was chosen because of its history of rigorous testing and breadth of scales relating to the social environments of vulnerable populations.

Based on the child's current address, a variable was created to indicate whether the child was living in a federally designated MUA. Because the MUA designation is made based on census tracts, the first step was to identify the census tract where each child lived. MapInfo®, a geographic information system, was used to identify the census tract of each address. Children were identified as living within an MUA if their addresses were located within a census tract that was listed as an MUA.[34]

In addition to the questionnaire, a medical record abstraction instrument was used to review the medical records and ascertain all ambulatory, urgent care, emergency room, or inpatient hospital visits; the respective diagnoses; and their insurer. In addition to the immunization form, the entire record was reviewed for the immunization history using a standardized instrument resembling the Centers for Disease Control and Prevention tool used in the Kindergarten Retrospective Survey.[35]

Abstraction from the medical record began with the date of caregiver interview and continued retrospectively until the first documented visit to the institution (including inpatient and emergency room visits) for up to 6 years (for clients who were 6 years old). Each visit was identified as an emergency room visit, acute care, hospitalization, or preventive care visit. The American Academy of Pediatrics has established a periodicity schedule for preventive health visits, including immunizations, for children.[36] These guidelines represent the consensus opinion of pediatric experts regarding the appropriate number and timing of preventive care visits for children.[37] In fact, adherence to the academy's recommendation on well-child visits during the first 2 years of life is correlated with a decrease in avoidable hospitalizations among poor and near-poor children regardless of race, level of poverty, or health status.[38]

The insurer for each client visit and its date were noted. In addition, a variable denoting whether the visit took place after 1996 was created. The date was important because the transition from fee-for-service to managed-care Medicaid in Alameda County began in 1996. Because the change in health delivery system structure potentially influenced client behavior, an additional set of analyses was conducted on client visits that took place only after 1996.

Variables

Most variable categories reflected the survey categories. Others were aggregated because of small numbers. For example, child's age was categorized into 2 years or younger versus older than 2 years because of the disproportionate number of preventive care visits (an important dependent variable in this study) for immunizations that are needed when children are younger.

Lapses in coverage were determined based on billing information available for each visit. Because payment under managed care dictates that (1) the child has active Medicaid coverage, (2) the child is enrolled in a specific Medicaid plan, and (3) the provider visited by the child is the PCP of record at the time of the service, the fiscal incentives strongly encourage health care providers to identify the child's insurance status at the time of the visit. This status is determined through reading a magnetic strip card at the point of service, and the status may be confirmed by telephone contact with the local managed-care plan.

Because admission criteria only included Medicaid-insured children at time of interview, the insurer at all subsequent visits was determined. The criterion that the

child needed to have at least three visits was used as this study was assessing a lapse in insurance coverage. Children were categorized as having a lapse in insurance if they had no insurance at a visit.

Insurance was categorized by type, including Medicaid managed care, Medicaid fee for service, other insurer, and none. The "other" category included clients with private insurance or enrolled in the state's Children's Health Insurance Program.

Analysis

Data were analyzed using SAS® Release 8.0 (SAS Institute, Cary, NC). Discrete categorical variables were compared using χ^2 tests of Independence and the Fisher exact test for comparisons between variables yielding sparse cells. Student t tests were used to compare means of continuous variables between groups. Multiple linear regression was used to measure the impact of lapses of insurance and social environment variables on the continuous variable of number of preventive pediatric visits. Logistic regression with stepwise selection was used to determine variables most associated with a lapse in insurance. A maximum of four independent variables (based on calculations for 80% power) was allowed for each regression model. The β coefficient, standard error (SE), and significance level P are presented for multiple linear regression. Significance level, odds ratios (ORs), and 95% confidence intervals (CIs) are presented for logistic regression models. Significance was declared at $P<.05$.

RESULTS

Approximately one third of the children in the sample had experienced lapses in insurance (see Table 1). Almost 15% of the children had transient experiences, including foster care placement or living in a homeless situation; however, there were no differences in the proportion of children who experienced transient experiences between those who experienced lapses in insurance and those who did not. More than three quarters of the 187 caregivers were between the ages of 21 and 39 years, had never been married, self-identified as black/African American, and had completed high school. Fewer than half reported QOLI situations above the mean, and more than half lived in federally designated MUAs. Fewer than three quarters of the caregivers had lived in the same apartment or house for the past 6 months, and almost half reported incomes below $1,000/month. Almost half had been followed in the clinics for more than a year. Fee-for-service Medicaid was still the most frequent insurer of pediatric medical visits, and most children obtained services after the implementation of mandatory Medicaid managed-care enrollment on January 1, 1996.

Approximately 33.2% (n=62) of the 187 children in this sample had lapses in insurance coverage. There were four significant differences between children whose insurance had lapsed and children whose insurance had never lapsed: More caregivers with children whose insurance had never lapsed compared to those whose insurance had lapsed reported higher than the mean score on the family support section of the QOLI (44.8% vs. 13.9%, $P<.05$). Children whose insurance had never lapsed were more likely to have visits covered by Medicaid fee for service compared to children whose insurance had lapsed (66.4% vs. 53.2%, $P<.05$). Children whose insurance had never lapsed were more likely to be younger than 2 years compared to children whose insurance had lapsed (73.6% vs. 35.5%, $P<.001$). Children whose insurance had never lapsed were less likely to have visits after the mandatory Medicaid managed-care date than children whose insurance had lapsed (61.6% vs. 85.5%, $P<.001$).

TABLE 1. Demographic and other characteristics of caregiver by child's insurance status (N = 187)

Demographic characteristics of child or caregiver	Total (N = 187) %	Total (N = 187) N	Lapses in insurance (n = 62) %	Lapses in insurance (n = 62) N	No lapses in insurance (n = 125) %	No lapses in insurance (n = 125) N
Child has transient living situation						
Homeless shelter	7.0	13	9.7	6	5.6	7
Foster care	8.0	15	11.3	7	6.4	8
Neither of above	85.0	159	79.0	49	88.0	110
Caregiver age, years						
<21	11.8	22	17.7	11	8.8	11
21–29	32.1	60	33.9	21	31.2	39
30–39	32.1	60	25.8	16	35.2	44
40–49	9.1	17	8.1	5	9.6	12
50–59	12.3	23	12.9	8	12.0	15
>60	2.7	5	1.6	1	3.2	4
Caregiver marital status						
Married	25.1	47	25.8	16	24.8	31
Separated/widowed/divorced	19.8	37	24.2	15	17.6	22
Never married	55.1	103	50.0	31	57.6	72
Caregiver ethnicity/race						
Black/African American	72.2	135	69.4	43	73.6	92
Latino	9.1	17	6.5	4	10.4	13
White	9.1	17	14.5	9	6.4	8
Other	9.6	18	9.7	6	9.6	12
Caregiver education level						
<12th grade	23.0	43	22.6	14	23.2	29
High school diploma	77.0	144	77.4	48	76.8	96
Caregiver's Quality of Life Index scores above						
the mean	47.1	88	48.4	30	46.4	58
Global Perception	38.5	72	43.6	27	36.0	45
Housing Situation	43.3	81	41.9	26	44.0	55
Daily Living	39.0	73	29.0	18	44.0	55
Family Support*	43.9	82	13.9	26	44.8	56
Social Support	44.4	83	46.8	29	43.2	29
Financial Situation	44.9	84	53.2	33	40.8	51
Environmental Safety	43.3	81	50.0	31	40.0	50
Family lives in medically underserved area						
Yes	54.6	102	54.8	34	54.4	68
No	45.4	85	45.2	28	45.6	57
Family housing stability past 6 months						
Stably housed	72.7	136	66.1	41	76.0	95
Lived in at least two homes	20.3	38	24.2	15	18.4	23
Shelter, transitional or group home	7.0	13	9.7	6	5.6	7
Family monthly income[1]						
<$1,000	42.8	80	38.7	24	44.8	56
$1,000–$1,999	28.3	53	37.1	23	24.0	30
$2,000–$2,999	11.8	22	9.7	6	12.8	16

TABLE 1. *Continued*

Demographic characteristics of child or caregiver	Total (N = 187)		Lapses in insurance (n = 62)		No lapses in insurance (n = 125)	
	%	N	%	N	%	N
$3,000–$3,999	10.2	19	8.1	5	11.2	14
$4,000 or more	7.0	13	6.5	4	7.2	9
Child's usual insurer*						
Medicaid managed care	2.1	4	1.6	1	2.4	3
Medicaid fee-for-service	62.0	116	53.2	33	66.4	83
Other insurer	21.9	41	19.4	12	23.2	29
None	13.9	26	25.8	16	8.0	10
Child's age‡						
2 years or younger	61.0	114	35.5	22	73.6	92
Older than 2 years	39.0	73	64.5	40	26.4	33
Followed in clinics for > 1 year	45.4	85	46.8	29	44.8	56
Most of child's visits were after mandatory Medicaid managed care, January 1, 1996***	69.6	130	85.5	53	61.6	77

*P < .05.
†P < .01.
‡P < .001.
[1]One response is missing.

The number of pediatric emergency room visits, urgent care, and preventive care visits was measured (see Table 2). The mean number of visits was 2.04 (SD=2.42) at the emergency room, 2.96 (SD=2.62) at urgent care, and 6.81 (SD=3.33) for preventive care. The only difference among visits was that children who had lapses in insurance obtained fewer preventive care visits than those who did not (mean=6.06 vs. mean=7.18, respectively; $P < .05$).

Every California county decides how to best structure its managed-care Medicaid system. In Alameda County, children in foster care were able to opt for fee-for-service Medicaid. Consequently, we examined whether they were more likely than others to have fee-for-service Medicaid in this sample, but no association was found (not shown).

Multivariable analyses using multiple linear regression were conducted to determine which variables best explained the number of preventive health visits (continuous

TABLE 2. Health care visits by child's insurance status

	Total (N = 187)		Lapses in Insurance (n = 62)		No lapses in insurance (n = 125)	
	Mean	(SD)	Mean	(SD)	Mean	(SD)
Emergency room visits	2.04	(2.42)	1.94	(2.22)	2.10	(2.52)
Urgent care visits	2.96	(2.62)	3.16	(3.10)	2.86	(2.36)
Preventive care visits*	6.81	(3.33)	6.06	(2.76)	7.18	(3.54)

*P < .05.

variable). We introduced 12 independent variables based on our findings and that of the literature. They included monthly income, child's age, self-reported black/African American race, transient living situation, QOLI score for each domain (i.e., housing situation, daily living, family support, social support, financial situation, environmental safety), Medicaid as the primary insurer, and proportion of visits made after implementation of mandatory Medicaid managed care.

The best model ($P<.0001$), explaining 23% of the variance (R^2), suggested that those who were more likely to obtain preventive health visits were not self-reporting black/African American race ($\beta=-1.06$, SE$=0.53$, $P=.047$); scored higher on the QOLI Financial Situation subscale ($\beta=1.00$, SE$=0.48$, $P=.038$); and had not experienced lapses in their health insurance ($\beta=1.20$, SE$=0.50$, $P<.018$).

Multivariable analyses using logistic regression were conducted to identify the variables that best explained the dichotomous variable of *no* lapse versus had a lapse in insurance coverage. The same 12 variables described above were entered. However, since the OR obtained from the incremental changes of a continuous variable are often small, we dichotomized the predictor variables so the effects within a meaningful context were possible. Consequently, each variable was dichotomized as follows: monthly income below $1,000, child's age as 2 years or older, self-reported black/African American race, transient living situation, Housing Situation QOLI score above the mean, Daily Living QOLI score above the mean, Family Support QOLI score above the mean, Social Support QOLI score above the mean, Financial Situation QOLI score above the mean, Environment Safety QOLI score above the mean, Medicaid as the major insurer, and more than 50% of visits made after the implementation of mandatory Medicaid managed care.

The best logistic regression model, based on fit as indicated by the likelihood ratio ($P<.0001$), showed that individuals who did not have a lapse in insurance compared to those who had a lapse were almost three times more likely to have Medicaid as their major insurer (OR$=2.91$, CI$=1.06$–7.99, $P<.039$); were more than five times more likely to have children who were older than 2 years (OR$=5.13$, CI$=2.49$–10.57, $P<.001$); were three times more likely to obtain a Family Support QOLI score above the mean (OR$=3.37$, CI$=1.51$–7.51, $P<.003$); and only 38% as likely to have obtained an Environmental Safety QOLI score above the mean (OR$=0.38$, CI$=0.18$–0.79, $P=0.010$) (see Table 3).

DISCUSSION

Preventive and Emergency Room Services

In partial support of our first hypothesis, we found that the three variables that best explained preventive care visits were no lapse in insurance, better perception of the family's financial situation, and not self-identifying as black/African American. Lack of insurance posed a barrier. Among low-income families, the uninsured were less likely to obtain preventive health care services,[39] but findings from this study corroborate others indicating that even temporary lapses of coverage are associated with poorer health care access.[2,3]

Preventive care visits also were associated with the caregivers' better perception of the family's financial situation (Financial Situation QOLI score). Poor financial situation or poverty has been linked to disproportionately more health problems and disproportionately poorer preventive health care utilization in children.[40–45] However, unlike other studies, this study employed QOL measures that reflected

TABLE 3. Regression models

	β	SE
Multiple linear regression model predicting number of preventive pediatric visits for total sample (N = 187)		
Black race†	−1.06	0.53
Financial Situation QOLI score†	1.00	0.48
No lapses in insurance†*	1.20	0.50
	OR	CI
Logistic regression model predicting not having a lapse in insurance coverage‡		
Medicaid was the primary insurer†	2.91	(1.06–7.99)
Family Support QOLI score§	3.37	(1.51–7.51)
Environmental Safety QOLI score†	0.38	(0.18–0.79)
Child's Age‖	5.13	(2.49–10.57)

CI, confidence interval; OR, odds ratio; QOLI, Quality of Life Index; SE, standard error.

*Variables introduced into the model: monthly income, child's age, self-reported black race, transient living situation, Housing Situation QOLI score, Daily Living QOLI score, Family Support QOLI score, Social Support QOLI score, Financial Situation QOLI score, Environment Safety QOLI score, Medicaid as the primary insurer, proportion of visits made after implementation of mandatory Medicaid managed care.

†P < .05.

‡Variables dichotomized and introduced into the model: monthly income below $1,000, child's age as 2 or older, self-reported black/African American race, transient living situation, Housing Situation QOLI score above the mean, Daily Living QOLI score above the mean, Family Support QOLI score above the mean, Social Support QOLI score above the mean, Financial Situation QOLI score above the mean, Environment Safety QOLI score above the mean, Medicaid as the major insurer, and more than 50% of visits made after the implementation of mandatory Medicaid managed care.

§P < .01.

‖P < .001.

the participants' self-perception of their situation rather than just whether the family's income was at or below 100% of the federal poverty level. This is a particularly useful approach when *all* children were insured by Medicaid, and consequently *all* were low income.

Also, consistent with other studies, we found that the number of preventive care visits differed by minority status after controlling for income level.[46,47] A number of studies have noted that ethnic and racial minorities have a disproportionately low use of services. One frequent explanation is that ethnic and racial minorities are reticent to use health care services as a result of their experiences with and negative perceptions of health care institutions and providers.[20,48,49]

As part of the first hypothesis, we anticipated that children with lapses in insurance coverage would have more emergency room visits; however, insurance status was not related to nonemergent emergency room use. Although there have been studies in which insurance status was unrelated to number of nonemergent emergency room visits,[50] we expected our findings to reflect most studies' results in which use of the emergency room for nonemergent concerns was higher for families that had very low incomes, contained young children, were unemployed, or were insured by Medicaid.[9,12,51,52] The use of emergency rooms is more common among patients who do not have an identifiable physician[53] or who have poor communication with their physician.[54] It is possible that this study did not find an association between lapse in insurance and higher emergency room use because the ambulatory clinics

where the sample was drawn do not turn children away, thus enabling service through uninsured periods.

Social Environment

The second hypothesis anticipated that social environment variables, such as transient living situations caused by homelessness or living in foster care, would be linked to lapses in insurance coverage. These findings were inconsistent with the large number of studies that noted poorer utilization of acute and preventive health care in transient populations.[14,15,19,55] It is possible that our findings were unique to this sample because this institution has a federally funded program to provide case management and primary health care services for children living with homeless or foster care families; as a result of case management efforts, fewer families living in transient situations experienced lapses in insurance coverage.

However, two other social environment measures, higher self-perception of family support and lower self-perception of environmental safety, were associated with not having a lapse in insurance coverage. We found no specific studies that assessed these QOL measures on pediatric preventive care or lapse in insurance; however, there is an increasing interest on the impact of QOL and health care utilization and perceptions. Some very-low-income caregivers are barely able to provide food and shelter for their families; caregivers who receive more family support may have the emotional and physical resources to consider other needs, such as maintaining insurance status. If a caregiver is immersed in a community in which the pervasive belief is that neither the PCP nor the health institutions are to be trusted, then individuals from those communities are more likely to have poorer health care utilization and more lapses in health insurance.[20,48,49] This reasoning has been suggested to explain the unsuccessful attempts to increase immunization rates through financial incentives or the provision of free care.[56,57]

Lack of environmental safety (e.g., crime in the immediate neighborhood) was negatively associated with not having a lapse in insurance coverage. When we included the QOLI scale for environmental safety, we considered the possibility that families who live in crime-ridden neighborhoods might be hesitant to venture out from their neighborhoods to seek preventive care. Consequently, we anticipated that environmental safety would be positively associated with not having a lapse in insurance coverage. However, our findings showed a negative association. That is, caregivers who lived in unsafe neighborhoods were more motivated than those in safe neighborhoods to maintain insurance coverage and facilitate receipt of health care. It is possible that the residents of these less-desirable neighborhoods are poorer and thus less likely to lose Medicaid because of income fluctuation.

Two other variables, child's age and Medicaid as primary insurer, were associated with not having a lapse in insurance coverage. Children older than 2 years, compared to those younger, were significantly less likely to have lost insurance coverage. Because the bivariate analysis demonstrated there was no difference in follow-up time between the two groups, this finding may be linked to the admission requirements that many schools have for immunizations and health examinations. It also may be that longer term Medicaid recipients, hence those with older children, better understood the expectations of the system than those who had other forms of health insurance.

Having Medicaid as a primary insurer also was associated with not having an insurance lapse (that is, maintaining insurance). Because there was the possibility that follow-up time varied, we compared groups and found no differences in amount of follow-up time between children who experienced lapses in health insurance

and those who did not. Historically, children insured by Medicaid have reportedly received fewer services and obtained poorer health care outcomes; however, a recent study found that those insured by Medicaid demonstrated better access to preventive health care services than those insured by private insurance.[39] On examination of this result, we may be demonstrating the differences between poor and very poor families. Extremely poor families easily meet the stringent income criteria for Medicaid. Others who are low income, but who are not as poor, may become ineligible because their incomes are too high.

Transition From Fee-for-Service to Managed-Care Medicaid

Our finding noted that a proportion of children in the study were on fee-for-service Medicaid despite the fact that the transition to Medicaid managed care was in progress in 1996 and did not become mandatory until July 1, 1996. Moreover, children with complex health and social problems, including those receiving Supplemental Security Income or in foster care, were not compelled to join managed-care plans at all.

There are two separate but related issues involving lapses of insurance coverage among Medicaid-enrolled children. First, the transition from fee-for-service to managed care in California and in Alameda County was often difficult and confusing for families and providers alike. New managed-care plans were created, along with new enrollment processes and educational materials, and Medicaid clients had to learn new methods of obtaining and using their health coverage. Some Medicaid recipients were confused by paperwork related to enrollment.[6] For example, at the time of the study, the county (as mandated by the state) required quarterly Medicaid verification of income and other eligibility information. It appeared that some families interpreted enrollment into a managed-care plan, with its new paperwork, to mean that they no longer had to complete traditional Medicaid forms such as income eligibility verification reports. Failure to return the forms resulted in many eligible families being dropped from Medicaid. Transition to a managed-care delivery system may have introduced a disruptive element into low-income children's relationship with the health care system.

Although some problems related to managed-care enrollment still remain, it appears that the posttransition period has been calmer and less confusing, which may result in fewer lapses in coverage traceable to managed-care enrollment. At the same time, there are aspects to the Medicaid enrollment and redetermination process that can result in coverage instability. For example, during the study period, California's Medicaid program required four redeterminations of financial and other eligibility each year. Failure to return this paperwork for whatever reason resulted in loss of Medicaid and necessitated reapplication. According to the Kaiser Commission on Medicaid and the Uninsured, increased reporting and verification requirements often result in children losing coverage. This was particularly so in 1996, when the federal government did not offer the currently available options for presumptive eligibility and 12-month continuous eligibility for children.[58]

Not everyone agreed that the delivery system change had an impact on care. One study found that the transition from fee-for-service to managed care did not influence the care of most recipients, with the notable exceptions of those living in rural areas, those who needed mental health services, and those who received prescriptions for drugs not included on the managed-care organization's formulary.[2]

Limitations

The timing of this study as well as its examination of the impact of social environment factors, as measured by QOL and satisfaction indicators, offered the opportunity to contribute new information to the literature on the role of insurance coverage in child access to care. The location of the researchers at a pediatric institution with special program emphasis on homelessness and foster care also provided access to and information on underserved and vulnerable populations of children. However, as with all studies, this study had limitations: The sample was selected from only one site; participation was offered only to families whose children were younger than 6 years and insured by Medicaid; and only those children whose parents had not requested translation services were selected into the sample. As a result, the findings may not represent children who have never used preventive services, who have never been insured by Medicaid, or whose English was sufficiently concerning that they requested translation services. Incomplete charts also could influence results. For example, if the child obtained health care elsewhere, we would not have a record of those visits. However, for preventive and acute care, Children's Hospital and Research Center at Oakland (CHO) is one of the very few in the community that will not turn away any client regardless of ability to pay. For emergency room and urgent care visits, CHO is the designated regional pediatric trauma center in our area, thus reducing the chances that uninsured children would have received care elsewhere.

Another possible concern is misclassification of lapsed coverage. Although this is a possibility, children enrolled in Medicaid constitute a large percentage (approximately 75%) of the patient population provided primary and other health care at CHO. As a result, we believe it is unlikely that a child with current Medicaid coverage would have been identified as not having that coverage at the time of the visit. As noted, Medicaid reimbursement presents a strong incentive for the provider to identify the child's insurer.

A last concern is the validity of data abstracted from medical records. Although this study obtained data from the entire medical record rather than just one form or one section, there was no further verification of the information, and the record was only as complete as the providers who entered the information. Still, because this study was conducted from one site, there is no reason to suspect a systematic bias.

CONCLUSIONS

This study examined the impact of loss of coverage on preventive care services and found that there was an increase in lapse of insurance coverage among low-income children when regulations mandated a transition from fee-for-service to managed-care Medicaid. Lapse in insurance coverage was a barrier to preventive care service utilization, but did not result in increased emergency room use. Families whose usual insurer was Medicaid coverage were less likely to have lapses in insurance coverage. Thus, families who vacillate between Medicaid and other insurers may be at higher risk for insurance lapse, and those without insurance are less likely to use preventive care services. The PCPs and health care plans must accept the responsibility of educating Medicaid-insured families on changes in their health care delivery system or insurance coverage to promote access to health care.

ACKNOWLEDGEMENT

California, San Francisco. We also gratefully acknowledge the assistance of Gloria Bocian for the study's fieldwork.

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