SCATTERING OF PRIMARY CARE: DOCTOR SWITCHING AND UTILIZATION OF HEALTH CARE BY CHILDREN ON FEE-FOR-SERVICE MEDICAID

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ABSTRACT

Objective. To determine whether children on fee-for-service Medicaid who switch primary care doctors use less health care and are less up to date with preventive care visits than children who do not switch primary care doctors.

Design. Retrospective cohort study using Medicaid claims data.

Setting. 51,027 children enrolled on Medicaid in Monroe County, New York.

Patients. 14,187 children enrolled continuously on fee-for-service Medicaid between January 1992 and December 1994.

Main Outcome Measures. Utilization of primary care, emergency department (ED) services, and specialty care and proportion up to date with preventive care visits according to American Academy of Pediatrics guidelines.

Results. During the 2-year study period, 22% of children switched primary care doctors. Compared with children who did not switch primary care doctors, those who switched

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had more primary care visits (4.7 vs. 3.2 visits/year, $P < .01$), age-adjusted preventive care visits (1.2 vs. 1.0 visits/year), ED visits (0.72 vs. 0.47 visits/year, $P < .01$), and specialist visits (0.99 vs. 0.31, $P < .01$). On multivariate analysis, doctor switching was associated with increased odds of being up to date with preventive care visits (odds ratio [OR] = 1.7; 95% confidence interval [CI] 1.3 to 2.1). However, on multivariate analysis stratified by age, the association was significant only for older children (ages 11 to 14). Altogether, 68% of all children and 44% of infants less than 1 year old made the recommended number of preventive care visits during the study period.

Conclusions. All groups of children received less preventive care than recommended by the American Academy of Pediatrics. Children who switched primary care doctors had higher utilization of health care, including primary care, ED, and specialty care. Contrary to expectations, they were more likely to be up to date with preventive care visits. The heavy utilization of health services by doctor switchers indicates that this subgroup of children on Medicaid may not be at risk for poor access to health care, but additional research is needed to determine whether the quality of care is related to doctor switching.

INTRODUCTION

The goal of routine preventive care for children is to prevent illness and promote healthy development; however, not all children receive an equal amount of preventive care. Groups at risk for inadequate preventive care include African-American and Hispanic children,¹⁻³ those living in poverty, and those without a regular source of medical care.^{4,5} Medicaid has improved access to health care for many poor children and has increased poor children's utilization of health services.^{2,5-7} However, Medicaid does not guarantee these children adequate preventive care or access to the same sources of care as children with private insurance.^{1,5,8}

In the 30 years since Medicaid was initiated, a series of expansions has increased Medicaid coverage for poor children and youth, leading to concerns about cost containment. As a result, most states have enrolled beneficiaries in managed-care organizations⁹; this includes provisions for linking recipients to primary care gatekeepers.¹⁰ The intention has been to cut costs by controlling excess utilization of specialist and emergency department (ED) care while improving access to primary and preventive care. However, initial studies of the impact of managed care have failed to show significant savings or consistent improvements in access to primary care.^{9,11}

Continuity of care should lead to better preventive care. A child lacking an identifiable medical home is likely to be in the care of providers unfamiliar with the child's medical history in settings such as the ED, where there is no access to immunization and well child care visit records. The lack of a regular provider to remind patients about upcoming visits may reduce compliance with recommended preventive care visits. While few studies have explored this issue, there is some evidence that having a regular source of care is associated with earlier receipt of care¹² and better access to preventive care.⁸

Previous studies have assessed continuity of care by asking people to identify a regular source of care.^{4,5,12,13} This approach has serious limitations because responses are subjective and are susceptible to recall and selection biases. One study using national survey data found that not having a regular source of care was an unreliable indicator of poor continuity of care among adults.¹³

The goal of this study was to measure the association between one measure of continuity of care—whether a child switched primary care doctors—and utilization of health care services and preventive visits. We studied children on Medicaid, a population susceptible to poor continuity of care. Our main objectives were to (1) describe the patterns of doctor switching among children on fee-for-service (FFS) Medicaid and (2) examine the association between doctor switching and utilization of primary care, ED, and specialty services and being up to date with preventive care visits. We also examined the interaction between the presence of a chronic medical condition (asthma) and the association between doctor switching and being up to date with preventive care visits.

METHODS

STUDY DESIGN

The study was approved by the University of Rochester Institutional Review Board and the Monroe County Department of Social Services. This was a retrospective cohort study utilizing 2 years of enrollment files from the New York State Medicaid Management Information System and adjudicated claims files for the same period.¹⁴ The setting was Monroe County, New York, an urban and suburban region with a total population of 705,522 and a child population (0 to 18 years) of nearly 180,000. The study population included 51,027 Monroe County children aged 0–18 years who were enrolled continuously on Medicaid during 1991 and 1992. More than 80% resided in the city of Rochester, and 87% were on FFS Medicaid at the beginning of the study period.

SELECTION OF SUBJECTS

We analyzed utilization by children who were 0 to 16 years old on January 1, 1992 (birth dates from January 1, 1975, to December 31, 1991), were enrolled continuously in FFS Medicaid, and had two or more primary care visits during the 2-year study period. We excluded children born during the study period or those aged 19 years or greater during any part of the period (the latter group might have lost Medicaid eligibility). Subjects had to have at least two visits for primary care in order to be a candidate for doctor switching (see definition below). We used the same selection criteria for control children, those

who did not switch doctors. Among potential study subjects, 75 were excluded because they received services from a provider whose specialty could not be determined.

DESCRIPTION OF VARIABLES

We analyzed the claims records of visits to a specific provider on a specific date. When there were multiple claims for a single visit, all claims were consolidated into a single record that incorporated diagnosis codes from all claims for that visit: Visits were to either “physicians,” who included nurse practitioners and nurse midwives, or EDs. Visits for diagnostic procedures, rehabilitation services, and mental health or substance abuse services were excluded. Physician visits were divided into primary care or subspecialty care visits. Primary care included pediatrics, family practice, general medicine, family planning, and human immunodeficiency virus (HIV) primary care services. Obstetrics-gynecology was considered a specialty because most of these visits were for prenatal care. Physician specialty was determined by name recognition or reference to the *Medical Directory of New York State*¹⁵ or the *Directory of Physicians in the United States*.¹⁶ If the provider’s specialty was missing or coded as “other,” then the subject was excluded from the study.

Primary source of care was defined as the type of provider site—whether hospital outpatient department, community health center, or office-based physician—that the subject attended most frequently.

Physician visits were categorized as preventive care or nonpreventive care visits. The type of care was determined by the primary and secondary diagnosis codes. We used a definition of preventive care that included visits for which either (1) any of the primary or secondary ICD-9CM (*International Classification of Diseases, Ninth Revision, Clinical Modification*) codes were within the categories of well child care, general physical exam, or Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) visits; or (2) all primary and secondary ICD-9CM codes indicated immunizations or lead screening. All other services were considered nonpreventive care.

To be up to date with preventive care visits, a subject had to have made an adequate number of preventive care visits during the 2-year study period based on age at the start of the study period. The requisite number of visits was determined using the American Academy of Pediatrics (AAP) recommendations for health supervision visits by 1, 2, 4, 6, 9, 12, 15, 18, and 24 months of age, annually until age 6, and then biannually.¹⁷ A grace period of 2 months was allowed before counting a child as having missed a specific visit.

We defined a *doctor switch* as a primary care visit for which the previous primary care visit was to a different provider site or physician group within the 2-year study period. Primary care visits to different physicians or nurses within the same provider group did not constitute a doctor switch. A child who made one doctor switch during the study period was called a "single switcher," and one who made more than one switch was called a "multiple switcher." The sequence of different providers seen by multiple switchers was examined to determine whether these children returned to providers seen previously.

We used asthma as an indicator of chronic disease in our evaluation of the relationship between doctor switching and chronic illness. Asthma constitutes approximately half of all chronic disease diagnoses in children.¹⁸ Subjects were considered to have a diagnosis of asthma if they had at least one primary or secondary diagnosis code consistent with asthma at a visit to either a physician or ED during the study period.

STATISTICAL ANALYSIS

Statistical analysis was carried out using SPSS (SPSS, Inc.; Chicago, Illinois). Proportions were compared using the chi-square statistic. The rate of preventive care utilization within doctor-switching categories was adjusted to the age distribution of the study population. A direct method was used in which age-specific utilization rates were multiplied by the proportion of all study subjects of that age and then summed across all ages to determine the adjusted rate. Since health services utilization measures did not have a normal distribution, we applied the Mann-Whitney rank sum test to determine statistically significant differences in utilization rates between categories of subjects. Dunn's test for multiple comparisons was used to test for differences in service utilization across multiple doctor-switching categories.^{19(p568)}

We used regression modeling with factors that were associated significantly in bivariate analysis with being up to date with preventive care visits. All factors found to be significant were also identified as potential confounders or effect modifiers of the relationship between doctor switching and being up to date with preventive care visits. Therefore, a logistic regression model was developed into which all main effects were forced. Interactions between doctor switching and the main effects were entered individually into this model and examined for statistical significance with a likelihood ratio test. Interactions between doctor switching and age, gender, and race were found to contribute significantly to the model and were retained in the model. One model was stratified on having the diagnosis of asthma. Another model was stratified on age categories.

RESULTS

STUDY POPULATION

Of the 51,027 children enrolled in the Medicaid program in Monroe County, New York, in January 1992, 14,187 (28%) were enrolled continuously in FFS Medicaid for the 2-year study period and had made two or more primary care visits. Table I presents the demographic characteristics of the study population.

There were 3,070 children (22%) who switched primary care doctors at least once during the study period. In comparison to nonswitchers, those who switched doctors were more likely to be Caucasian, female, and older (Table I). The mean number of switches among those who switched at least once was 2.3 (SD = 2.3). After their first switch, 92% of multiple switchers returned to a provider previously seen at least once.

TABLE I Demographic Factors and Health Care Utilization by Switchers* Versus Nonswitchers of Primary Care Doctors

Factor	All Subjects	Switchers	Nonswitchers	P†
Number (%)	14,187 (100)	3,070 (21.6)	11,117 (78.4)	—
Demographic factor				
Age (mean)	5.6	7.0	5.2	<.01
Gender, %				
Female	50.1	53.1	49.3	
Males	49.9	46.9	50.7	<.01
Race, %				
African-American	51.9	47.8	53.1	<.01‡
Caucasian	26.6	30.4	25.5	<.01‡
Hispanic	19.1	19.7	18.9	ns‡
Other	2.4	2.1	2.5	ns‡
Health care utilization				
Physician visits/year, mean	4.0	5.7	3.5	<.01
Primary care visits/year, mean	3.5	4.7	3.2	<.01
ED visits/year, mean	0.52	0.7	0.47	<.01
Specialty care visits/year, mean	0.46	0.99	0.31	<.01
Preventive care visits/year, mean	1.1	1.0	1.1	.01
Up to date with preventive care, %	67.5	70.7	66.6	<.01
Primary source of care, %				
Hospital outpatient department	48.3	41.9	50.0	<.01‡
Community health center	45.5	44.2	45.8	ns‡
Office-based physician	4.3	6.6	3.6	<.01‡

ns = not significant.

*Refer to text for definition of doctor switchers.

†Comparison of means by Mann-Whitney rank sum test; comparison of frequencies by chi-square test (not adjusted for age).

‡Adjusted for multiple comparisons.

UTILIZATION OF HEALTH CARE

Subjects who switched primary care doctors averaged more total physician visits, primary care visits, ED visits, and specialty care visits per year than those who did not switch (Table I). On average, doctor switchers had fewer preventive care visits per year than nonswitchers. Since switchers were older, utilization rates were adjusted for age. The result was that doctor switchers showed greater utilization of preventive care than nonswitchers (1.2 versus 1.0 visits/year; not shown in Table I).

Hospital-based outpatient departments were the most common primary source of care (Table I). The rate of provider switching was 34% for those who usually attended office-based physicians, 21% for those who relied on community health centers, and 19% for those who relied on hospital clinics ($P < .01$ by chi-square analysis).

Much of the difference in utilization of services was accounted for by subjects who switched providers multiple times. Children who switched once averaged more ED visits per year than nonswitchers, while those who switched multiple times had more ED and primary care visits per year than nonswitchers (Table II). Multiple switchers made significantly more ED, primary care, and preventive care visits than single switchers ($P < .01$ in each case; results not shown). When rates of preventive care utilization were adjusted for age, single switchers had higher rates than nonswitchers (1.1 vs. 1.0 visits/year), while multiple switchers had the highest utilization rate (1.3 visits/year; results not shown).

Age adjustments for variables in Tables I and II did not change the results; thus, demographic and utilization factors are presented for the entire sample without adjusting for age.

TABLE II Utilization of Health Care by Extent of Primary Care Doctor Switching* (Not Adjusted for Age)

Factor	Nonswitcher	All Switchers	Single Switchers	Multiple Switchers
Number (% of total)	11,117 (78.4)	3,070 (21.6)	1,454 (10.2)	1,616 (11.4)
ED visits/year (mean)	0.47	0.72	0.58	0.85
<i>P</i>	Reference	<.01	<.01†	<.01†
Primary care visits/year, mean	3.3	4.7	3.3	6.0
<i>P</i>	Reference	<.01	<i>ns</i> †	<.01†
Preventive care visits/year, mean	1.1	1.0	0.95	1.1
<i>P</i>	Reference	.02	<.01†	<i>ns</i> †

ns = not significant.

*Refer to text for definition of doctor switchers.

†Adjusted for multiple comparisons; comparison groups = 3.

PREVENTIVE CARE VISITS

Overall, 68% of subjects made the recommended number of preventive care visits during the 2-year study period. A greater proportion of males than females were up to date with preventive care (69% vs. 67%, $P = .01$). The probability of being up to date with preventive care was lowest for children less than 1 year old (44%) and 16 years old (40%). The proportion of children up to date was 63% for Caucasian children, 68% for African-American children, and 73% for Hispanic children.

Switching of primary care doctors was associated positively with being up to date with preventive care visits on bivariate analysis (Table I). Age, race, gender, and primary source of care modified this relationship. A multiple logistic regression model that included these demographic and utilization variables, as well as the number of primary care visits, showed that children who switched primary care doctors had 1.7 times the odds of being up to date with their preventive care visits than those who did not switch (95% confidence interval [CI] 1.3 to 2.1; Table III). When the logistic regression model was stratified on age categories, the association between doctor switching and being up to date with preventive care visits was significant only for children aged 11 to 14 (odds ratio [OR] = 1.9; 95% CI 1.1 to 3.1; results not shown). The logistic model also showed that younger age, being African-American or Hispanic, and having more primary care visits were significant predictors of being up to date with preventive care visits (Table III). However, even controlling for these factors, doctor switchers were still more likely to be up to date with recommended preventive care visits.

Models in which doctor switchers were subclassified into single and multiple switchers showed that multiple switchers (OR = 1.2; 95% CI 1.1 to 1.4), but not single switchers (OR = 0.95; 95% CI 0.85 to 1.1), were more likely than nonswitchers to be up to date with preventive care visits.

ASTHMA AND UTILIZATION OF HEALTH CARE

The prevalence of a diagnosis of asthma was 8.2%. In comparison to children without asthma, those diagnosed with asthma averaged significantly more ($P < .01$ for all comparisons) physician visits (6.9 vs. 3.7), ED visits (1.1 vs. 0.5), and primary care visits (6.0 vs. 3.3). Their age-adjusted rate of preventive care (1.1 visits/year) was similar to those for children without asthma (1.0 visits/year), but children diagnosed with asthma were slightly less likely to be up to date with preventive care visits (67.6% vs. 69.8%, $P = .02$). Children diagnosed with asthma were more likely than those without asthma to switch primary care doctors at least once and were approximately 85% more likely to have switched providers multiple times (OR = 1.9; 95% CI 1.6 to 2.2).

TABLE III Multiple Logistic Regression Predicting Probability of Being Up to Date with Recommended Number of Preventive Care Visits

Predictor	Odds Ratio	95% Confidence Interval
Age, years*		
2-5.9	2.5	2.2-2.8
6-10.9	3.1	2.7-3.5
11-14	2.3	2.0-2.7
15-16	1.2	0.95-1.5
Gender*		
Female	0.97	0.89-1.1
Race*		
African-American	1.5	1.4-1.7
Hispanic	1.7	1.5-1.9
Other	0.92	0.71-1.2
Number of primary care visits*		
4-7	1.8	1.7-2.0
8+	2.8	2.5-3.1
Switched primary care doctor*	1.7	1.3-2.1
Primary source of care*		
Hospital outpatient department	0.85	0.79-0.92
Office-based physician	0.95	0.79-1.1

*Reference groups were as follows: age, 0-1.9 years; gender, male; race, Caucasian; number of primary care visits, 2-3; switched primary care doctor, nonswitchers; primary source of care, community health center.

The same multiple regression model used for all subjects was run with the addition of a variable designating the presence of asthma. The diagnosis of asthma did not alter the likelihood of being up to date with preventive care visits among switchers.

DISCUSSION

Switching of primary care providers by children on Medicaid is believed generally to be common and to lead to poorer continuity of care and preventive health care. In this study, one of five children on FFS Medicaid switched the site of their primary care during a 2-year period. More than half of the subjects switched providers more than once. The large majority of these returned at some point to a primary care provider they had seen previously. Thus, children on FFS Medicaid who have a tendency to switch providers seem to receive care concurrently from several distinct providers rather than to seek care from a series of new providers.

A significant proportion of children in all groups received less preventive care than recommended by AAP. Most notably, less than half of all infants were up to date with the recommended number of preventive care visits. This is consistent with the 1987 National Medical Expenditure Survey, which showed that less than 50% of preschool children on Medicaid met AAP recommendations for well child visits.² Our finding that Caucasian children had less preventive care differs from previous studies, which reported that African-American children were less likely to receive adequate early preventive care³ and that Hispanic children were less likely to be in compliance with AAP well child care guidelines.² These differences may be due to the fact that, in this study, all children were covered by Medicaid; in other studies, racial disparities in preventive care were noted across the entire population.

Contrary to our expectations, we found that switching primary care doctors was associated with being more, rather than less, up to date with the recommended number of preventive care visits. Children who switched providers multiple times were the most likely to be up to date. These multiple switchers were represented among disproportionately children aged 11 to 14, the only age group in which the association was significant statistically.

The positive association between doctor switching and being more up to date with preventive care visits could be explained by the nonindependence between our definition of doctor switcher and levels of health care utilization. Each primary care visit presented the opportunity for a doctor switch, so the cumulative probability of making a switch would depend on the number of primary care visits. Doctor switchers, in fact, did make more primary care visits than non-switchers. However, they had higher utilization of not only primary care, but also of all types of services. Moreover, this association remained after multivariate analysis that controlled for the number of primary care visits.

Children who switched doctors utilized primary care, specialty care, and EDs more often than nonswitchers. Those who switched multiple times used such services even more, explaining the observation that these children were even more up to date with preventive care. There appears to be a subgroup of families on Medicaid with a utilization pattern that includes more frequent visits and a tendency to switch from one health care provider to another, resulting in scattering of their primary care.

Could the presence of a chronic medical condition be the factor that distinguished this subgroup of families? We used a diagnosis of asthma as an indicator of chronic illness. Children diagnosed with asthma did have heavier overall utilization of outpatient services and also switched providers more frequently.

However, they did not differ from those without asthma in their age-adjusted utilization of preventive care.

In comparison to previously reviewed analytic measures of continuity of care,^{20,21} doctor switching is a simple, objective method that allows easy identification of a potentially vulnerable subgroup of poor children. Population-based studies, which rely on survey questions to assess continuity of care,^{4,5,12,13} produce subjective data susceptible to recall and selection biases. Our method avoided those biases. We also avoided bias due to loss to follow-up by excluding children not continuously enrolled on Medicaid. However, by excluding this group, as well as those in managed-care programs, we may have introduced some selection bias. Since all of the children studied were on FFS Medicaid, our results are not necessarily generalizable to the large number of children who are now under Medicaid managed care. Similar studies should be conducted for children covered by Medicaid managed care.

One limitation of using doctor switching as a measure of continuity of care is that it categorizes children based on a phenomenon that may not be specific enough to identify those who really have poor continuity. In fact, this study did not find that doctor switching was a marker for being behind in preventive care visits. Another limitation of our data was its inability to provide information on the content or quality of preventive care visits. Although children who switched primary care doctors were equally or more up to date with their number of preventive care visits than non-switchers, we cannot be sure that they received adequate preventive care during these visits. Switching doctors impedes proper record keeping and could result in missed vaccinations or screening tests. Moreover, since we used a liberal definition of preventive care, some subjects may have received specific services, such as lead screening, without receiving comprehensive preventive care at all of their visits.

Due to limitations of our data, we did not control for certain factors known to be associated with utilization of health services. These include a child's general health status, birth order, family size, mother's education, mother's utilization of health services, mother's marital status, and mother's age.^{2,3,22-24} We also could not assess factors such as patient values and care-seeking behaviors, that influence continuity of care.²⁰ Even when universal access exists, adverse socioeconomic factors may result in poorer continuity of care.²⁵

Problems with the use of Medicaid claims data for epidemiological and health services research have been identified^{14,26-28} and include inaccuracy of data, missing data, and lack of standardized reporting conventions.²⁷ However, we found that demographic variables were complete for all records in the enrollment file,

and diagnosis codes were present for all claims records once they were restricted to the relevant categories of services. Lack of standardized reporting is a concern, since it is possible that variations in diagnosis coding among providers could lead to differential rates of preventive care dependent on the type of provider.

Finally, generalizability could be limited by the nature of health services in Rochester. The Rochester area is known to have a well-integrated health care system with good access to care for inner-city residents.²⁹ Therefore, utilization rates for outpatient services are probably higher than in other Medicaid populations.

CONCLUSION

Our findings have several research and policy implications. Children who switch primary care doctors appear to be overall heavy utilizers of health services. Contrary to common belief, these doctor switchers may not constitute a subgroup at risk for poor access to care. It is assumed that linking Medicaid beneficiaries to primary care gatekeepers as part of managed-care reform will reduce scattering of primary care, improve continuity of care, and result in better preventive care. However, using switching of primary care doctors as an indicator of poor continuity of care, we were unable to find a link between scattering of primary care and being behind in recommended preventive care visits. Finally, we should be concerned that less than one-half of children on Medicaid under 1 year of age met recommendations for preventive care visits, since preventive care may be of greatest importance to infants. Efforts to provide routine preventive care for these vulnerable children need to be strengthened, while research should examine the barriers to receiving preventive care, as well as methods to overcome these barriers. While doctor switching may not be a marker for inadequate preventive visits, adequate preventive care should be a minimum expectation for all children.

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