

**The State of the
State Children's Health Insurance Program:
Does SCHIP Coverage Grant Children Access to Care and
Keep Them Out of Emergency Rooms?**

Sloane Frost
Submitted 24 April 2008

Advised by Professor John Kuder

Abstract

The goal of this study was to identify whether government health insurance programs, namely Medicaid and SCHIP, are successful in granting children access to a usual source of care (USC) and preventing non-emergent use of emergency rooms. By examining the 2003 National Survey of Children's Health, variables were extracted to measure type of insurance and possible explanations for children's use of health services. Four regressions were performed to determine which variables were most significant for both the full sample of 102,353 children and the subpopulation of asthmatic children used as a proxy for those with chronic illness.

The overall results of this analysis show that while SCHIP and Medicaid are comparable to private insurance in granting access to a USC, they are not as successful in keeping children out of emergency rooms. Children with a usual source of care, asthma and government insurance were more likely than similar children with private insurance to use the emergency rooms for non-emergent care. This indicates that there appears to be a discrepancy between the quality of care received by children with government insurance and those with private insurance.

Table of Contents

Abstract.....	1
Table of Contents	2
Introduction.....	3
State Children's Health Insurance Program Explanation	4
Review of Literature	9
Hypotheses.....	13
Data and Methods	14
Dependent Variables.....	15
Independent Variables	16
Reporting of Results	18
Descriptive Statistics.....	18
Regressions	19
Analysis of Results	21
Conclusions and Recommendations	28
Works Cited	32
Appendix A	35
Appendix B	36
Appendix C	40
Appendix D	43
Appendix E	45

In the United States, the provision of health insurance is shared by both public and private entities. In 2004, 198.3 million Americans were covered by private health insurance, and 48.5 million of these were children. In the same year, 77.2 million people were covered by either Medicare or Medicaid, and of those, 20.3 million were children (Census Bureau, 2006). This substantial coverage can primarily be attributed to Title XXI of the Social Security Act, added as part of the Balanced Budget Act (BBA) of 1997.¹ This new section was designed to provide states with federal funding for constructing insurance plans for children that were neither covered by family insurance nor able to qualify for Medicaid. Eligibility standards were allowed to differ by state, but federal funding, administered by the Centers for Medicare and Medicaid Services, could only go to children under the age of nineteen who were not covered by Medicaid and whose families were at or below 200% of the federal poverty line (Centers for Medicare and Medicaid Services, 2005). This began the program currently known as the State Children's Health Insurance Program, or SCHIP.

This Congress, specifically the House and Senate leadership, periodically decides whether to refund the program as it is, make significant changes, or not renew the current design. This past summer, HR3963, a reauthorization of SCHIP that extended coverage for five years, was passed through the House. The Senate passed the legislation and sent it to the President two days later. It was vetoed on October 3rd, and the House failed to override this veto. In the imminent debates on reform, a key variable will likely be whether or not eligible children are getting care through SCHIP that is commensurate to private insurance and better than no insurance at all. This paper will analyze whether children who receive public forms of health insurance (SCHIP and Medicaid) coverage

¹ For a transcript of the legislation, see: <http://hippo.findlaw.com/SubtitleJ.html>

are getting better access to primary care physicians than they would with private insurance or no insurance. Data on the number of children who visit physicians will be compared with visitation rates of other insured and uninsured groups of children in order to determine if SCHIP makes a difference in granting children access to care. Access to primary care is commonly held as a standard indicating whether or not children will be healthy in the long run or have better access to medical care than their uninsured peers, so it stands to reason that if an insurance program does not enable such care, it is not succeeding.

If the key goal of SCHIP is to ensure that the children of working poor families receive adequate health care, the legislation should be structured to accomplish this goal. The first step in answering this question is to determine whether or not children have a primary provider from whom they receive care as opposed to an emergency facility. This study will attempt to answer that question so that current government insurance can be improved and future policy will adequately address the needs of the target population.

SCHIP Background

When SCHIP began, 660,000 children were enrolled at a total cost of \$121.2 million (Center for Children and Families, 2006). At that time, thirty-two states did not have a specific program for children's insurance. The states that did develop plans qualifying under SCHIP administered them either through Medicaid, organized a separate department, or combined an established Medicaid program with a new one. States were allowed to make this decision based on how best to increase access to care for low-income children (Centers for Medicare and Medicaid Services, 2005). Today, seventeen

states have programs that are extensions of Medicaid, another eighteen have separate CHIP, and twenty-one have some combination that is allowed under Title XXI (Ibidem).

When SCHIP began, the federal government legislated funding to be borne both by the state and the federal government. By 2007, the federal government had spent over \$6.3 billion on approximately 6.2 million children enrolled in SCHIP across all fifty states, the District of Columbia, and five territories (Center for Children and Families, 2006). From its inception through September 30, 2005, states had spent a total of \$10.1 billion on their respective programs (United States Senate Finance Committee, 2006). Many states derive most of their resources from general revenues, earmarked taxes, or other transfer programs from the county level (National Conference of State Legislatures, 2000).

The formula used to calculate the amount of federal funds each state receives has not changed since the BBA in 1997, and this directly relates to spending decisions by state leaders. A specific amount is allotted in each fiscal year, and the CMS decides how to divide it amongst the states. The two factors used are the “Number of Children” and “State Cost Factor”, established after fiscal year 2001. The former is a combination of the number of total low-income and uninsured low-income children in the state. The latter is based on the annual wages that health care workers receive in that state each year (Centers for Medicare and Medicaid Studies, 2005). Regardless of what the formula computes, federal matching rates cannot exceed 85% of what the states pay, and the lowest reimbursement rate in fiscal year 2002 was 65% in ten states. In order to prevent extreme fluctuation of the formula over time, statisticians place limits above and below certain levels. This protects against exorbitant differences between states. To prevent

excess overhead, the BBA also capped administration costs at a maximum of ten percent, meaning that only a certain amount of the federal funding could be used to manage or recruit for the program (National Governor's Association, 2007). These formula requirements have not changed with the development of SCHIP, so states are forced to redistribute coverage each year if more children enroll. With the standing goal of improving children's access to care, the way in which states receive funding directly affects each enrolled child. When state administrators discuss expanding their programs, fiscal concerns limit the number of children and the types of services that can be covered. States keep the main goal of expanding access to care for low-income children, but they are limited by the total pool of federal funds available and their individual shares.

There is no uniform way in which the federal matching portion of SCHIP funding is allocated because each state program covers varying subsets of the target population. For example, Minnesota insured children up to 275% of the poverty line prior to Title XXI, so their initial expenditures were used to insure the parents and caretakers of these children (Bamrucker, 2006). The highest rate of coverage is in New Jersey where children remain eligible if their parents' incomes are below 350% of the federal poverty line. Although the initial standards set by the federal government were uniform, Section 1115 of the Social Security Act gives the executive branch the discretion to change CHIP provisions if it is deemed to be in the best interests of the program (Kaiser Family Foundation). Federal funding that was not used in the previous year is also reallocated to the states. Each state may keep its funds for three years, but in the fourth year that excess money is redistributed to other states that have spent all of their previously received funds.

Over the past ten years, SCHIP has grown in every state. More children are eligible, and more funds are being spent, both by the states and the federal government. President Bush's fiscal year 2007 budget allotted \$5 billion for the total SCHIP grant, and his projections indicate a constant level through 2012. However, CMS statistics indicate that \$12 billion is necessary to fund SCHIP over the next five years because of natural population growth and states' efforts to cover more children (Kennedy, 2006). Despite the fact that many states are currently able to break even, as the third year of rollover funding elapses and coverage increases, states are facing deficits in their programs. Before 2007 is over, FamiliesUSA, a 501(c)(3), estimates that seventeen states will exhaust their funding and have a deficit of over \$900 million, leaving 640,000 children without healthcare (FamiliesUSA, 2006). By 2012, the CMS estimates that thirty-six states will not be able to fund their own programs resulting in 1.5 million children losing insurance (Kennedy, 2006). Evidently, SCHIP financing and spending issues will need to be addressed in future debate.

In an effort to remedy the situation, experts were called to testify on the financing of SCHIP during Senate Reauthorization Hearings. Senators Hatch and Kennedy both emphasized the necessity of SCHIP in taking care of children, lauded its successes, and asked for legislation to increase future appropriations. Dr. McClellan, the most recent CMS administrator, also praised the current and future capacities of SCHIP. His testimony also discussed the cost-sharing component of SCHIP where states are allowed to charge limited co-pays under certain conditions, but these are also regulated. Dr. McClellan added that SCHIP does not discourage employer-provided healthcare, as no

child may be eligible for SCHIP if he had insurance in the previous six months (McClellan, 2006).

Since SCHIP began, members of various non-profit organizations also weighed in on both sides of the debate. A FamiliesUSA report stated that data indicates SCHIP has been very successful because SCHIP-covered children were “three times more likely to have a usual source of care than are uninsured children”, and these state-covered children are “one-and-a-half times more likely than uninsured children to receive well-child care, see a doctor during the year, and get dental care” (FamiliesUSA, 2006). It would appear that SCHIP is doing an excellent job if enrollment in the program is increasing, more children are seeking care, and the targeted population of children is receiving care. This aspect of the debate is critical.

However, concerns about patterns of SCHIP spending still exist. Some groups’ concerns about SCHIP funding include the expansion of Health Insurance Flexibility and Accountability (HIFA) waivers that allow states to use SCHIP funding for childless adults (Broderick, 2004). This type of provision eliminates the “C” from SCHIP and causes much concern for policy activists. It would seem that this spending trend would interfere with the effort to give children a usual source of medical care.

Such waivers also result in more disparity between states. Per capita spending by states in 2003 varied between Minnesota at \$6.05 and New Mexico at \$17.49 (Rehnquist, 2002). Across the country, average per capita spending was \$10.80. Clearly, something must account for the differences in spending. If states are allocated funds based on the population of uninsured children, there might not be such a high variance in spending. The spending data indicates that states insure their populations differently, so there is a

possibility for health care and access inequalities that the federal government is helping to fund.

It is also more difficult for states to ensure that children are getting medical attention when there is little communication between SCHIP administrators and the families. A report released by the Office of the Inspector General in September 2002 highlighted the flaws in the application process. Many states received “poor” grades in the renewal department. Of the fifty states and the District of Columbia analyzed at the time of the report, thirty-three states’ instructions were difficult to read and not “user-friendly”, twelve states did not issue cards with expiration dates to SCHIP program participants, twenty did not notify parents if their child’s SCHIP application was denied, and fourteen of the states’ websites contained no information about renewing insurance (*Ibidem*). These represented barriers to enrolling children in SCHIP, and similar problems continue in the system today.

Furthermore, some components of SCHIP are not accomplishing the goals they were originally established to achieve. Although numbers of children enrolled in SCHIP are climbing steadily, so is the number of adults using funding intended for children. The problem lies in the states being able to efficiently allocate their limited resources and ensure that the original goals of the program are met. The job of Congress and the Senate Subcommittee on Health Finance in particular is to formulate changes to SCHIP that will grant low-income children the medical care originally intended through SCHIP.

Literature Review

The purpose of health insurance is to protect individuals from the cost of unexpected, catastrophic care; to cover the costs of general health care; and to increase

the likelihood of primary care. It is generally recognized that having health insurance and more contact with a doctor will prevent a person from requiring emergency care (Smith et al, 2007). The long-term effects of being uninsured are also well documented: adults who have been without insurance for longer periods of time tend to be more ill when they do get treatment and lose between 15% and 20% of annual earnings due to illness (Hadley, 2003). If children remain uninsured later in life, they are more likely to develop such diseases as Type II Diabetes or obesity (Halfon and Hochstein, 2002). Other negative consequences of being uninsured, such as higher rates of disability and mortality, can have far-reaching effects for children when they become adults (Palloni, 2006). There is an effective consensus within the research and health communities that children who are uninsured face a statistically somber future.

Beyond simply having insurance, having a usual source of care contributes to a child's well being (Rosenbach et al, 1999). A usual source of care (USC), as defined by the CDC to be a person or place that is visited when one feels sick or needs health advice, is necessary to maintain a better level of general health. This USC acts as a primary caregiver for adults and children, and it is less expensive to use these services than to visit an emergency care facility. In fact, in a study conducted on the utilization of emergency services by adults, those with a USC were less likely to have visited an emergency department than those who did not have a USC (Weber et al, 2005). Disease and illness prevention goals are achieved by utilizing this USC and having insurance, and the combination is necessary for optimal health outcomes (DeVoe et al, 2003).

However, there is not yet consensus over whether the binary variable of insurance is enough to predict whether a child will indeed adequately utilize primary care. Under

the New York SCHIP, enrolled adolescents were 80.3% more likely to have a usual source of care than before they were enrolled in the program (Klein et al, 2007). However, once differences in racial groups were eliminated, approximately 42% of health care needs were still unmet after one year of being enrolled. In the Denver area, it was found that children with SCHIP coverage were much more likely to see a doctor when they were well and to receive attention from specialty physicians (Eisert and Gabow, 2002). For adults, the stability of coverage, scope of the insurance, and requirements of the plan may determine whether an adult, even one with private insurance, has a USC (Williams, 2002). This indicates that simply providing children with access to SCHIP may enable them to have a USC, but it is not the sole influence.

Other studies on regions that are more rural, for example, show that other factors are significant in determining whether a child will have a USC. Although rural children may be insured, they are less likely to visit primary care physicians (Probst et al, 2005). This is important because it indicates that the entire rural subset of American children may not see as significant a benefit from SCHIP insurance as non-rural children.

Another prominent variable in determining usage of primary care is language. According to a study in *The Journal of Pediatrics*, 19% of school-age children spoke a language other than English at home in 2003 (Flores, 2006). If parents are unable to understand the requirements for health insurance or utilization, it is very unlikely that their children will be able to reap the benefits of any health program. A study performed in California sought to determine whether language differences were as significant as SES factors in having a USC, and they found that this was indeed the case (Ponce and

Black). Language barriers therefore present a formidable problem for health care utilization among some of the children who may need it the most.

Although this study does not discuss it, the experience that parents of children have had with his or her primary caregiver in the past will also determine the rate of future visits and consequential level of care. If a parent had a poor experience in prior health visits, he or she is unlikely to take the child for more visits. Even if an interpreter is present, evidence indicates the actual quality of received health care may not be as high as when children speak the same language as their providers due to a lack of answered questions (Green et al, 2005). This may result in health outcomes similar to those of uninsured children.

Certain subpopulations are in greater need of a USC regardless of income, language spoken, or other factors. One of these groups is those with chronic diseases, and it is particularly important that children with special health care needs have a USC because utilizing emergency services more than their peers without chronic health conditions is significantly more expensive. The best way to measure the success of a health program in improving care for these children is to measure health outcomes and use of services; which includes health status, usual source of care, and use of preventive services versus emergency services (Szilagyi, 2003). Asthma is a common condition used to measure children with chronic health needs because it is the most common chronic disease in children and the leading cause of emergency department costs. According to the Asthma Clinical Research Centers, there are 3.8 million children that had an asthma attack last year, and \$11.5 billion was spent on health care associated with asthma. In a study of pediatric avoidable hospital conditions, asthma was the most

common diagnosis at 43% of hospital admissions cases. Among patients for whom doctors and parents agreed that the admission was avoidable with preventive care, 0% of children actually had a primary care physician (Flores et al., 2003). This demonstrates a pressing need for children with asthma to get appropriate medical attention before they must visit an emergency room and consume a tremendous amount of resources.

This paper will examine the effect of many of these variables on the rate of children having a USC. By using a nationally representative data set on children's health, we are able to distinguish which variables play a larger role in either facilitating or preventing children from accessing health care. A nation-wide view of SCHIP success can be measured by the USC variable, and it will indicate whether or not SCHIP as a whole is succeeding in providing health care to needy children in America. Measuring the rate of non-emergent use of emergency services is a secondary indicator of having good primary care.

Hypotheses

The general hypotheses on SCHIP coverage follow simply from the literature: first, a child with SCHIP is more likely than his or her uninsured peers and less likely than his privately insured peers to have a usual source of care, but this is not the sole predictor. SCHIP evaluations and general theories indicate that children from lower-income families will still have difficulties finding a USC regardless of their insurance status. The second hypothesis is that children with chronic diseases, such as asthma, an important sub-population of those in need of health care, are also more likely to have a usual source of care if they have SCHIP than no insurance. Finally, it is hypothesized that children with asthma and a usual source of care are not as likely as those with asthma

and no usual source of care to visit an emergency room, which further reflects the value of a USC in avoiding excessive, inefficient medical treatment.

Data and Methods

In order to analyze the role of these variables in the ability of children to access health care, it is necessary to utilize a data set that covers a large subset of American youth. The Maternal and Child Health Bureau of the Health Resources and Services Administration sponsors information in the CDC's National Survey of Children's Health that addresses these variables. Administered from January 2003-July 2004, the NSCH surveyed 102,353 parents and guardians to collect information on various health-related factors of children aged 0-17 in the household. Data was gathered from a combination of phone interviews and approximately 2,000 individual interviews per state.² Survey variables were then adapted to measure the desired questions.

There is no one way in which to analyze the aspects of health care that determine insurance, utilization, or access. There are, however, a multitude of factors that can be combined to address as many potential explanations as possible. Because children are embedded in families, data at the household and family level are often used as proxy reporting for certain statistics such as: income, area of residence, and type of insurance. These measures are useful in determining outside resources for health care, because if a family has more disposable income, it is likely that they also have more money to spend on health services. Furthermore, as the literature indicates, lower-income families are generally less able to take time off from work to take their children to see doctors, and income measurements will help address this issue. Because the survey used phone

² For more information on design and operation of the NSCH, please visit http://www.cdc.gov/nchs/data/series/sr_01/sr01_043.pdf

interviews, responses came from guardians and parents that were determined to be most knowledgeable about the subject child. These parents were asked about their level of education, language spoken, whether or not they needed an interpreter, and what kind of insurance they had. These factors were used in the different regressions as constants so that the variables of interest would be tested. Other factors, such as the number of visits to emergency rooms that were non-emergent, were extrapolated from data asking similar questions.

Dependent Variables

Four regressions were used to test hypotheses for which two main dependent variables were used. Both dependent variables were designed to measure the success of SCHIP and health access, and they first did this by measuring the rate at which children visit a usual source of care (USC). This rate may be operationalized as the number of times that a child visits a health care provider per year, whether it is in a clinic or private office, excluding emergency room or hospital stays. In the NSCH, this question was asked as: “A personal doctor or nurse is a health professional who knows your child well and is familiar with your child’s health history. This can be a general doctor, a pediatrician, a specialist doctor, a nurse practitioner, or a physician assistant. Do you have one or more persons you think of as [CHILD]’s personal doctor or nurse?” By formulating the question in this way, surveyors were simultaneously able to gauge perception of USC. As discussed previously, it is commonly held that a personal primary source of care is necessary to improve health outcomes, so having a USC is in effect a proxy for the delivery of this type of health care. This variable was used for the first and second regressions.

For the third regression, the dependent variable measured the number of non-emergent emergency room visits. The question in the survey asked: “[During the past 12 months/Since [his/her] birth], how many times did [S.C.] go to a hospital emergency room about [his/her] health? This includes emergency room visits that resulted in a hospital admission.” The next question asked how many of these visits were due to an accident, injury, or poisoning. The scaled variable used in the regression was calculated to measure emergency room visits that were not due to the previous three reasons, therefore this effectively measured non-emergent use of emergency rooms.³

Independent Variables

For each regression, the intervening variables of education, language, and income level were kept as constants. These variables represent many of the competing arguments on why SCHIP coverage may or may not be successful in granting children access to care. Education was measured by asking the respondent about the highest level of education achieved in the household, language was measured by a binary variable of the primary language spoken at home, and the income level was measured by poverty level classifications up to 400% of the federal poverty line. These variables may ameliorate or exacerbate the effect of the other independent variables, so they are included in order to determine strength of effect and how it can be attributed.

It is important to note that the variable used to measure SCHIP insurance included those covered by Medicaid as well. In some states, Medicaid and SCHIP administration

³ This variable measured the number of times that a child visited the emergency room not due to an accident, injury, or poisoning by subtracting the responses to this question (S4Q05R) from the question ascertaining total number of visits (S4Q04R). The end value therefore captured the number of times a child visited an ER for purposes that could have been addressed by a USC, such as developing an illness. Since emergency rooms are not preventive and generally result in much higher costs, their usage should be limited to cases where a patient needs immediate attention for an accident, injury, or poisoning. Other needs are better addressed by visiting a USC or other caregiver.

is done through a joint organization, and in others it is separate. Because the survey was performed on a national level, the question targeting SCHIP coverage was inclusive of Medicaid, and some respondents were not able to answer more specifically than to say that the child had some form of government insurance. Although it would be ideal to have a variable strictly measuring SCHIP coverage, this would prohibit a national analysis and possibly omit important response data. While a survey comparing various populations within certain states would be able to address similar issues, it would not have as large a population or as strong a comparison for generalizability. The variable was, however, still able to measure the usage of care by children who had government insurance, and both programs have similar goals.

In the first regression, the goal was to determine the effect of the type of insurance on USC rates. Here, the variable measuring non-emergent emergency room visits was inserted as a constant so as to account for any children that use the emergency room as their main source of care. The other independent variables were the general health status of the child, which was measured on a scale of “poor” to “excellent”, and designed to account for the theory that parents only take sick children to see doctors.

In the second regression, the goal was to analyze more specifically whether children with chronic diseases were more likely to have a USC. The binary variable measuring children who had been diagnosed with asthma was used to represent this population for reasons previously discussed. The other variable of interest not previously discussed is health status of the child, which acted as a control variable. Variables representing the type of insurance coverage were also used to explain the likelihood of children having a USC.

The third regression tested only the asthmatic children in the population to analyze which factors predicted their rate of non-emergent emergency room visits. The independent variables were the explanatory measurements of education, language, and poverty, and the variables of interest were those measuring the type of insurance coverage within this subpopulation.

The fourth regression was designed to build on this relationship. It used the same variables but only measured cases within the population of asthmatic children that also reported having a USC. This analyzed whether insurance type still impacted non-emergent emergency room visits when the child had a USC. The question discussed was whether there was a difference in USCs that prevented children's illnesses from progressing to the point where they had an asthma attack or other medical emergency.

No significant multicollinearity was present with the variables. There was a correlation between poverty and insurance status, but this was -.554 for government insurance and .601 for private insurance. Because the poverty measurement was used to account for other qualities not measured by insurance status, it was left in the equations. There was a strong correlation between the variable measuring whether or not the child had asthma and USC usage for those with asthma, but this was expected.

Reporting of Results

Descriptive Statistics

The variables all had very interesting distributions. In 92.2% of the households surveyed, English was the primary language spoken. When asked if the patient needed an interpreter when visiting the doctor, only 1.9% responded in the affirmative. At least one person in 74.3% of the households had more than a high school education, and only

4.6% of households did not have anyone with a high school education. Of all households, 32.4% were classified as at or below 200% of the federal poverty line, and 36.1% of households were between 200% and 400% of the federal poverty line. This indicates that at least one third of children would qualify for government insurance, whether it is Medicaid or SCHIP, but only 22.1% of children reported receiving SCHIP or Medicaid coverage. Other insurance data seemed representative of the population at large: only 7.7% of children, 7,884 in total, had no insurance at all. The vast majority (69.1%, or 70,727) of children were covered by at least some form of private insurance. Asthmatics with a USC were slightly more likely to have private insurance and higher education levels, but other characteristics were similar.

Responses about health characteristics were very positive. Respondents categorized the child's health status as "excellent" in 63.8% of responses, 23.4% were "very good", 10.4% were "good", 2.1% were "poor", and only 0.3% of children were in "poor" health. Approximately 11.9% of children were diagnosed with asthma at some point in their lives, and this is consistent with other national health statistics. Children are also utilizing care services well. A vast majority, 85.5%, of children responded as having someone they consider a USC, and 95.4% of children never used the emergency room for non-emergent situations. The next largest group, 2.2% of the population surveyed, visited the emergency room twice for non-emergent care. Overall, 4,718 children used the emergency room for non-emergent care in 2003, and the regressions will show more information about this population. The subpopulations of those with asthma and those with asthma and a USC displayed similar patterns overall.

Regressions

The first regression of insurance coverage on USC showed most variables to be significant. At an alpha level of .05, the level of poverty, educational attainment, and emergency room visits were all significantly positively correlated with having a usual source of care. If the family spoke a language other than English, the probability of a child in that household having a USC decreased significantly. This was the only significant negative correlation of the regression. Both forms of coverage showed an increase in the likelihood of having a USC over being uninsured, and both variables were significant in the regression. The only variable that was not significant was the health status of the child, and this was highly insignificant.⁴ Please see Appendix E on page 44 for tables on all regression coefficients.

The second regression also tested the relationship to USC, but this controlled for children with asthma. This equation tested whether there was a particular relationship between USC and health status or health condition, and all variables were significant. There was a slight negative relationship between general health status and USC, but at an alpha level of 0.75, this was not significant. The other health proxy, asthma, was positively correlated with having a USC and significant. A negative relationship similar to the previous regression also existed here such that speaking a language other than English corresponded with a decrease in the likelihood of having a USC. The level of poverty had a positive effect on USC, as did having asthma and higher educational

⁴ This regression was run a second time using each state as an independent variable. As discussed in the literature review, states administer their programs differently, so this regression controlled for the child's residence. The only change was that the sign of the health status variable became slightly positive, but it remained insignificant.

attainment. Both children covered by government and those with private insurance were also more likely to have a USC.

The final two regressions included only cases where the child had asthma, so the sample size was significantly smaller (102,353 children in the first two regressions versus 12,202 in the third regression and 10,811 in the final regression). The third regression looked specifically at the relationship of non-emergent visits to emergency rooms and the type of insurance. This regression used the control variables of education, poverty, and language along with a new set of insurance variables that were calculated within the subpopulation of asthmatic children. Please see Appendices C and D, beginning on page 40, for these values. Poverty was significant and negatively related to non-emergent emergency room visits. Education was insignificant at an alpha value of .05, and language spoken was also insignificant, but both were negatively correlated with increased visits. It is particularly interesting that having government insurance was highly significant, and it was the only variable that corresponded to an increase in the number of non-emergent emergency room visits for asthmatic children. Private insurance was also significant, but having private insurance meant a decrease in the number of these visits.

The final regression analyzed a subset of this population by specifically looking at children with asthma that also had a USC. The same concepts were measured here, but the variables were recalculated for the subpopulation. The results in this regression were similar to the third regression where the only insignificant variable was language, and it was negatively correlated with non-emergent emergency room visits. The control variables of education and poverty level were both significant and negatively correlated

as well. A similarly noteworthy relationship with insurance types was seen: children who had asthma and a USC were likely to have more non-emergent emergency room visits if they had Medicaid or SCHIP insurance and fewer if they were privately insured.⁵

Analysis

The first hypothesis, which was tested by the first two regressions, was mostly supported. In the first regression, all variables except health status were significant. The control variables met the hypothesis: higher education, speaking English at home, and higher income were all associated with an increased likelihood of having a USC. The insurance variables did not support the hypothesis because while having insurance certainly positively impacts the likelihood of having a USC, there is no appreciable difference between insurance types. This relationship is particularly encouraging for SCHIP policy because it indicates that SCHIP and Medicaid are just as successful in getting children to see physicians as are private insurance organizations. However, this relationship does not capture the quality of the USC or the relationship of doctor with patient, so it is possible that there is a difference in the type of USCs that government and privately insured children have. At minimum, parents and children that have a USC have a health care provider whom they can consult, and this is the primary reason for measuring the variable. If any kinds of preventive care or health improvements are delivered, than the goal of the USC is met. It is very important that policy continue to address this need and ensure that children and parents have incentives to maintain relationships with USCs.

⁵ The final regression was also run a second time using each state as a separate independent variable to control for the child's residence. The only difference was that the variable measuring household education became insignificant, meaning that the education level of the household no longer had predictive value for non-emergent use of emergent care by asthmatic children with a USC.

Policies need also look at other variables, because as the hypothesis suggested, the insurance variable did not represent the sole reason for children having USC's. The variable measuring language was still a strong predictor of a child having a USC, and those that did not speak English at home had a much greater likelihood of not having the USC. Educational differences were significant as well, and this is consistent with the area of literature suggesting that less education predicts an inability to understand SCHIP requirements, maintain enrollment, or maximize use of available services. Further education on specific SCHIP policies relevant to these enrollees might improve rates of USC usage. Since SCHIP administration funds are capped, these data indicate that spending patterns should be adjusted in order to more appropriately address implementation problems and mitigating factors that prevent full usage of health care.

In the second regression, the hypothesis being tested was that children with chronic diseases were more likely to visit USC's when they had private versus SCHIP insurance. In this regression, the relationship between children's health and USC was much stronger, and it was significant at an alpha level of .01. It is noteworthy that the only insignificant variable in the first regression, children's health status, was more significant in the second regression. In this regression, better health status was negatively associated with having a USC. This variable, when asthma is controlled for, indicates that parents do not use the health of their children as a primary reason for taking them to see physicians or nurses. It is possible that they either do not see the need for preventive care or do not view it as a necessity until the child is more ill. Conversely, the variable measuring asthma diagnoses was positively associated with the dependent variable, indicating that a specific diagnosis was more likely to propel a child to have a USC than

simply poorer health. The general study population was 85.5% likely to have a USC, but asthmatics were 89% likely. Perhaps some of the reasons were explained by other independent variables in the regressions. Other potential explanations include convenience of care and trust with physician that may have varied when parents felt that their child needed more specialized care, and neither of these explanations was measured in this data set. Regardless, this is a stunning differential that must be addressed because it indicates that children with poorer health are less likely to have a USC than their peers diagnosed with chronic conditions. There are a variety of explanations for why children have USCs, but these should equally apply to those with chronic conditions and those with poor health, especially across insurance lines.

The final two regressions focused on children with asthma. The third regression specifically tested the hypothesis that a child with asthma and private insurance was less likely to use emergency services for non-emergent care than a child with asthma and government insurance. The main explanatory relationship in the third regression was therefore between a subset of the population representing children with asthma and the rate of non-emergent emergency room visits. This is a similar way of measuring whether those with chronic diseases have proper care because asthmatics are a proxy for children with chronic diseases, and one expects that asthmatics would not use the emergency room for non-emergent care if their insurance is adequate. The regression showed that if a child had asthma and Medicaid or SCHIP, he or she was more likely to utilize emergency services for non-emergent care. Children with private insurance did not exhibit the same behavior, so the hypothesis was supported. The government insurance variable was the

most significant variable of those regressed here, which means that it is more statistically important than having private insurance, education, income, or language.

The final regression also tested asthmatics, but it specifically focused on those who reported having a USC. In this regression, the hypothesis was that if an asthmatic child had a USC and private insurance, he or she would use emergency rooms for non-emergent care less often than an asthmatic peer with a USC and government insurance. The goal was to shed light on a particular aspect of the relationship between children with chronic diseases, USCs, and non-emergent emergency care more specifically than the previous regression. The fact that children with private insurance did utilize this kind of preventable, expensive care less often indicated a substantial gap in chronic health care provision, possibly due to a difference in quality of USCs.

Regardless, the relationship determined between asthmatics and unnecessary emergency care is very important for future policies. When a disease that is as serious and dangerous as childhood asthma results in much more emergent care, the results go beyond direct adverse effects for the children. First, the issue of prevention is not prioritized. This has the potential to carry over to other parts of a child's life where he or she will not seek a USC and will instead incur future losses. Next, it means that emergency room resources are devoted to preventable cases, which clearly does not fit their purpose. There is likely a difference in the types of USCs being visited by children with private insurance if these children are less apt to seek emergency services for non-emergent care, so the USC here is more successful. Addressing this difference is the first step to ensure parity in quality of care. Moreover, as mentioned by a previous study, these children are not in school when they are hospitalized or spending time in an

emergency room, and this can have a significant impact on their education if it happens often. For these reasons, the SCHIP and Medicaid programs must act to correct the problem and ensure that preventive care is emphasized in coverage.

Generally, the control variables of education, language, and family income had significant impacts on the respective dependent variables. Any insurance plan or public health initiative should take these into consideration when deciding who to target and how. Most parents know how to access a USC as evidenced by the fact that a clear majority reported having one, so before states expand their eligibility levels, perhaps they should ensure that those with educational and language barriers understand current policy and have comparable access to services. Fully one third of those in the sample said they were only sometimes able to get an interpreter when necessary and one ninth were never able to do so. These are other statistics that are valuable to policy and may not be expressed well in a regression, but they help explain the results of this analysis and provide further research questions and policy priorities.

The secondary independent variable of child health status also had interesting effects in the regressions. It was not consistent in its predictive ability, which indicates that generally healthier children do not utilize primary care services more frequently than their peers with worse health status. While this is comforting in the sense that children of varying health levels seem equally comfortable accessing a USC, perhaps children that are more vulnerable should be more likely to have a USC. This would indicate that they have a place to go for care, and it may decrease non-emergent emergency room usage as well. One limitation of this research is that the interview did not address reasons for this discrepancy.

The main independent variables of type of insurance coverage also played a significant role in predicting USC and non-emergent emergency room visits. In the two regressions where their influences on health care access were used as primary independent variables, a significant relationship was shown. In the first regression, both insurance variables were the strongest predictors of whether a child would have a USC. These results show that it is indeed very important to have proper insurance in order to get improved access to care. Perhaps one of the most interesting results of this analysis was the positive coefficient on Medicaid and SCHIP insurance relating that variable to higher rates of non-emergent emergency room visits seen in the third and fourth regressions. Private insurance was more successful at keeping children with chronic diseases out of emergency rooms and getting them to USCs, and part of this result may be due to the access to specialists that it provides better than SCHIP coverage. Although this specific relationship can be investigated further, the overall impact of private insurance seems more favorable for those with chronic illnesses. Both are important predictors of having a USC, which again shows some success in the SCHIP program and its ability to at least allow children to feel as though they have a primary source of care. However, the arguably more important outcome of care preventing non-emergent emergency room visits is not the same.

It is indeed a limitation of this study that SCHIP was not the direct measurement of government care. Perhaps future analysis can target this specific type of insurance within the states that offer it separately. The variable used here was best for a national analysis, but a case study may indicate whether different types of SCHIP administration are better at achieving the program's goals. A case study would also be beneficial in

understanding community-level reasons for not utilizing USCs or the usage of clinics versus doctor offices. It may also be that if different chronic conditions were studied, there would be different results. Illnesses such as Type 1 Diabetes have similar impacts on child health, but they are less pervasive in the population. A study further analyzing the ability of insurance to grant access to specialty care would answer some of the questions from these data as well as identify potential outreach efforts for SCHIP. Such disparities in access to care are crucial to improving health outcomes.

In determining the relationship of health insurance to USC rates, the quality of USC was not analyzed. Future research may take one component of this population, such as a group of children living in households with less education, and compare their satisfaction with USC coverage for those with higher rates of education. This may determine precisely how effective USCs are in addressing the needs of their patients. If a causal relationship could be determined, this would augment the impact of the findings in the final two regressions.

Conclusions

Overall, most regressions had significant explanatory variables in the relationship to having a USC and preventable emergency care. The majority of children reported having a USC, and this is very important to improving health care in America. However, this statistic is irrelevant if the children do not feel comfortable with their USC, have trouble communicating, or receive inadequate primary care. When the data show that children at highest need – those with chronic conditions and government insurance – still use emergency rooms for non-emergent care at higher rates than their privately-insured peers, there is a problem with the delivery of primary preventive care. This impacts the

general health of the child when symptoms progress to the point of hospitalization, and it is very costly for the family and government in both monetary and non-monetary resources.

SCHIP and Medicaid are slightly more successful in providing a USC, but privately insured children are less likely to use preventable emergency services. There is a gap in this finding that indicates either an inability on the part of government-provided services to fully address health care needs or the presence of intervening variables, such as education or income level, that prohibit people from fully utilizing available services. When children are constrained by their family resources, all of these factors are important for health administration and the goals of public policy. While some of these circumstances are immutable, the role of SCHIP should be to minimize their effect on the child's health. Since this is not happening, there is a clear need for policy improvements.

These data therefore teach many lessons for future policy efforts. SCHIP covered children should have just as high quality USCs as their privately insured peers, so an evaluation of these providers is necessary in order to determine how they deliver care and how to improve communication with patients. Perhaps incentives need to be enacted that place more interpreters in the necessary settings or encourage facilities to start educational outreach programs for communities. If the issue is that parents are unable to follow through with health recommendations, then stronger relationships need to be built between the USCs and their patients. This would require a restructuring of the funding regulations, but it may also significantly reduce money spent on emergency rooms and avoidable health episodes. Private insurance companies are significantly better at keeping their enrollees out of emergency rooms, and these methods should be

investigated to determine how or if they may be applied for SCHIP enrollees.

Subsequent savings would be very important as they can be reinvested in the program.

It does not appear from the data that the control variables were the most important determining factors in granting access to care for children, so the next step in policy is to improve SCHIP administration and quality of care with regard to USCs or practitioners in general. If done properly, this can begin to compensate for income and education disparities within the population.

Recommendations

The State Children's Health Insurance Program is a very critical piece in the effort to improve access to and quality of health care for children. It is successful, but it is limited in its ability to provide better health outcomes for its target population. This can be improved by improving quality of care, communication between the USC and patient, and increasing follow-up efforts to ensure that children and parents maintain healthy habits that keep them out of emergency rooms. When SCHIP policy is next debated, one key component should be an examination of the funding structure to improve the specific aspects of the program that are lacking, such as in specialty care for children with chronic diseases that will prevent them from utilizing emergent care. A method or standard for evaluating the quality of USCs is also critical to improving their effectiveness, so an evaluation system should be put in place to determine which USCs used by SCHIP enrollees are most successful and what best practices they use. Further research may determine more specific aspects of health care delivery or of the program itself that need to be improved, but for now there are general steps to be taken as well. SCHIP has the potential to improve access to care for its target population, but it cannot

do so without quality evaluation of USCs and preventive measures that make better health care providers available and keep children out of the emergency room.

It is unlikely that all disparities in health care will be eliminated by the improvement of SCHIP and government insurance for children, but the goal of these programs must be to make as many improvements as possible. This analysis sets clear possibilities for improvement, and further research will demonstrate steps to implement these changes.

Works Cited

- American Academy of Child & Adolescent Psychiatry. (2004). AACAP SCHIP Update – February 2004. Washington, DC: Christine Broderick.
- American Lung Association. (2007). Asthma Clinical Research Centers.
<http://www.lungusa.org/site/pp.asp?c=dvLUK9O0E&b=37101#3>
- Bamrucker, Evelyn P. “State Children’s Health Insurance Program (SCHIP) Overview of Program Rules Testimony Before the Senate Finance Health Subcommittee” (Washington: 25 July 2006).
- Bureau of Census. (2006). Statistical Abstract of the U.S., 2007: The National Data Book. (U.S. Census Bureau Table No. 144). Washington, DC.
- Center for Children and Families. (2006). Federal SCHIP Expenditures by State, 1998-2007.
- Centers for Medicare and Medicaid Services. (2005). “State Children’s Health Insurance (SCHIP)”. Washington, DC.
- DeVoe, Jennifer E., Fryer, George E., Phillips, Robert, & Green, Larry. (2003). Receipt of Preventive Care Among Adults: Insurance Status and Usual Source of Care. *American Journal of Public Health, 93*(5), 786-791.
- Eisert, Sheri & Gabow, Patricia. (2002). Effect of Child Health Insurance Plan Enrollment on the Utilization of Health Care Services by Children Using a Public Safety Net System. *Pediatrics 110*(5), 940-945.
- FamiliesUSA. (2006). SCHIP 101: What Is the State Children’s Health Insurance Program, and How Does It Work?. Washington, DC.
- Flores, Glenn. (2006). Lost in Translation? Pediatric Preventive Care and Language Barriers. *The Journal of Pediatrics 148*, 154-157.
- Flores, Glenn, Abreu, Milagros, Chaisson, Christine E., & Sun, Donglin (2003). Keeping Children Out of Hospitals: Parents’ and Physicians’ Perspectives on How Pediatric Hospitalizations for Ambulatory Care-Sensitive Conditions Can Be Avoided. *Pediatrics 112*(5), 1021-1030.
- Green, Alexander R., Ngo-Metzger, Quyen, Legedza, Anna T.R., Massagli, Michael P., Phillips, Russell S. & Iezzoni, Lisa I. (November 2005). Interpreter services, language concordance, and health care quality. *Journal of General Internal Medicine 20*(11), 1050-1056.

- Hadley, Jack. (2003). Sicker and Poorer—The Consequences of Being Uninsured: A Review of the Research on the Relationship between Health Insurance, Medical Care Use, Health, Work, and Income. *Medical Care Research and Review* 60(3), 3S-75S.
- Halfon, Neil & Hochstein, Miles. (2002). Life Course Health Development: An Integrated Framework for Developing Health, Policy, and Research. *The Milbank Quarterly* 80(3), 433-479.
- Kaiser Family Foundation. (2001). Section 1115 Waivers in Medicaid and the State Children's Health Insurance Program: An Overview. Washington, DC.
- Klein, Jonathan D., Shone, Laura P, Szilagyi, Peter G., Bajorska, Alina, Wilson, Karen, & Dick, Andrew W. (2007). Impact of the State Children's Health Insurance Program on Adolescents in New York. *Pediatrics*, 119(4), e885-e892.
- National Conference of State Legislatures. (January 2000). State Children's Health Insurance Program (SCHIP): Funding Information. Retrieved March 8, 2008, from <http://www.ncsl.org/programs/health/allot.htm>.
- National Governor's Association. (April 9, 2007). Policy Position. Retrieved October 22, 2007, from <http://www.nga.org/portal/site/nga/menuitem.8358ec82f5b198d18a278110501010a0/?vgnextoid=20da9e2f1b091010VgnVCM1000001a01010aRCRD>.
- Smith, Sharon. R., Wakefield, Dorothy B., & Cloutier, Michelle M. (2007). Relationship Between Pediatric Primary Provider Visits and Acute Asthma ED Visits. *Pediatric Pulmonology* 42, 1041 – 1047.
- Szilagyi, Peter G. (2003). Care of Children with Special Health Care Needs. *Health Insurance for Children* 13(1), 137-151.
- Office of the Inspector General. (2002). State Children's Health Insurance (SCHIP) Renewal Process. Washington, DC: Department of Health and Human Services, Janet Rehnquist.
- Palloni, Alberto. (2006). Reproducing Inequalities: Luck, Wallets, and the Enduring Effects of Childhood Health. *Demography* 43(4), 587–615.
- Ponce, Ninez & Black, Jeanne. The Role of Race, Ethnicity & Language in Access to Basic Health Care for Californians. Retrieved March 8, 2008, from <http://www.ucop.edu/cpac/documents/raceandaccessbrf.pdf>.
- Probst, Janice C., Moore, Charity G., & Baxley, Elizabeth G. (2005). Update: Health Insurance and Utilization of Care Among Rural Residents. *The Journal of Rural Health*, 21(4), 279-287.

United States Senate Committee on Finance, Subcommittee on Health Care. (2006). CHIP at 10: A Decade of Covering Children. Washington, DC: Senator Edward M. Kennedy.

United States Senate Committee on Finance, Subcommittee on Health Care. (2006). CHIP at 10: A Decade of Covering Children. Washington, DC.

United States Senate Committee on Finance, Subcommittee on Health Care. (2006). CHIP at 10: A Decade of Covering Children. Washington, DC: Mark B. McClellan, MD, Ph.D.

Weber, Ellen J., Showstack, Jonathan A., Hunt, Kelly A., Colby, David C., & Callaham, Michael L. (2005). Does Lack of a Usual Source of Care or Health Insurance Increase the Likelihood of an Emergency Department Visit? Results of a National Population-Based Study. *Health Policy and Clinical Practice, Annals of Internal Medicine* 45(1), 4-12.

Williams, C.H. (September 2002). From Coverage to Care: Exploring Links Between Health Insurance, a Usual Source of Care and Access. Robert Wood Johnson Foundation; Princeton, NJ.

Appendix A: Frequencies of Dependent Variables

All Cases:

USC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	14864	14.5	14.5	14.5
	1	87489	85.5	85.5	100.0
	Total	102353	100.0	100.0	

NonemergentERVisits

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	97635	95.4	95.4	95.4
	1	876	.9	.9	96.2
	2	2228	2.2	2.2	98.4
	3	819	.8	.8	99.2
	4	376	.4	.4	99.6
	5	419	.4	.4	100.0
	Total	102353	100.0	100.0	

Cases with Asthma:

NonemergentERVisits

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	10900	89.3	89.3	89.3
	1	190	1.6	1.6	90.9
	2	547	4.5	4.5	95.4
	3	258	2.1	2.1	97.5
	4	117	1.0	1.0	98.4
	5	190	1.6	1.6	100.0
	Total	12202	100.0	100.0	

Cases with Asthma and USC:

NonemergentERVisits

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	9658	89.3	89.3	89.3
	1	178	1.6	1.6	91.0
	2	478	4.4	4.4	95.4
	3	226	2.1	2.1	97.5
	4	103	1.0	1.0	98.4
	5	168	1.6	1.6	100.0
	Total	10811	100.0	100.0	

Appendix B: Frequencies of Independent Variables (All Cases)

Summary Table:

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
What is the highest level of education attained by anyone in your household	101921	1	3	2.70	.549
What is the primary language spoken in your home	102292	1	2	1.08	.267
In general, how would you describe [S.C.]'s health?					
Would you say [his/her] health is excellent, very good, good, fair, or poor?	102321	1	5	1.52	.788
Has a doctor or health professional ever told you that [S.C.] has asthma?	102135	0	1	.12	.324
Derived. Poverty level of this household based on DHHS guidelines	92939	1	8	5.66	2.447
govt	102353	0	1	.22	.415
PrivateInsurance	102353	0	1	.69	.462
Uninsured	102353	0	1	.04	.195
USC	102353	0	1	.85	.352
NonemergentERVisits	102353	0	5	.11	.562
GovtAsthmaUSC	102353	0	2	.04	.220
PrivateAsthmaUSC	102353	0	2	.08	.299
UninsuredAsthmaUSC	102353	0	2	.00	.076
Valid N (listwise)	92432				

Individual Tables:

What is the highest level of education attained by anyone in your household

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<HS	4661	4.6	4.6	4.6
	HS	21238	20.7	20.8	25.4
	>HS	76022	74.3	74.6	100.0
	Total	101921	99.6	100.0	
Missing	DK	324	.3		
	Refused	105	.1		
	System	3	.0		
	Total	432	.4		
Total		102353	100.0		

In general, how would you describe [S.C.]'s health? Would you say [his/her] health is excellent, very good, good, fair, or poor?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	65252	63.8	63.8	63.8
	Very Good	23903	23.4	23.4	87.1
	Good	10680	10.4	10.4	97.6
	Fair	2189	2.1	2.1	99.7
	Poor	297	.3	.3	100.0
	Total	102321	100.0	100.0	
Missing	DK	26	.0		
	Refused	5	.0		
	System	1	.0		
	Total	32	.0		
Total		102353	100.0		

Has a doctor or health professional ever told you that [S.C.] has asthma?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	89933	87.9	88.1	88.1
	Yes	12202	11.9	11.9	100.0
	Total	102135	99.8	100.0	
Missing	DK	210	.2		
	Refused	8	.0		
	Total	218	.2		
Total		102353	100.0		

What is the primary language spoken in your home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	English	94380	92.2	92.3	92.3
	Any other language	7912	7.7	7.7	100.0
	Total	102292	99.9	100.0	
Missing	DK	51	.0		
	Refused	9	.0		
	System	1	.0		
	Total	61	.1		
Total		102353	100.0		

[During the past 12 months/Since [S.C.]'s birth], did you [or [S.C.]] need an interpreter to help speak with his or her doctors or nurses?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	5990	5.9	75.8	75.8
	Yes	1910	1.9	24.2	100.0
	Total	7900	7.7	100.0	
Missing	Don't Know	10	.0		
	Refused	1	.0		
	System	94442	92.3		
	Total	94453	92.3		
Total		102353	100.0		

When you [or [S.C.]] needed an interpreter, how often were you able to get someone other than a family member to help you speak with the doctors or nurses? Would you say never, sometimes, usually, or always?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	254	.2	13.4	13.4
	Sometimes	601	.6	31.8	45.2
	Usually	170	.2	9.0	54.2
	Always	865	.8	45.8	100.0
	Total	1890	1.8	100.0	
Missing	Don't Know	20	.0		
	System	100443	98.1		
	Total	100463	98.2		
Total		102353	100.0		

Derived. Poverty level of this household based on DHHS guidelines

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	LESS THAN 100% POVERTY LEVEL	11307	11.0	12.2	12.2
	100% TO BELOW 133% POVERTY LEVEL	5995	5.9	6.5	18.6
	133% TO BELOW 150% POVERTY LEVEL	3037	3.0	3.3	21.9
	150% TO BELOW 185% POVERTY LEVEL	6341	6.2	6.8	28.7
	185% TO BELOW 200% POVERTY LEVEL	3477	3.4	3.7	32.4
	200% TO BELOW 300% POVERTY LEVEL	17828	17.4	19.2	51.6
	300% TO BELOW 400% POVERTY LEVEL	15712	15.4	16.9	68.5
	AT OR ABOVE 400% POVERTY LEVEL	29242	28.6	31.5	100.0
	Total	92939	90.8	100.0	
	Missing	System	9414	9.2	
Total		102353	100.0		

GovernmentInsurance

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	79729	77.9	77.9
	1	22624	22.1	22.1
Total		102353	100.0	100.0

PrivateInsurance

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	31626	30.9	30.9
	1	70727	69.1	69.1
Total		102353	100.0	100.0

Uninsured

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	98285	96.0	96.0
	1	4068	4.0	4.0
Total		102353	100.0	100.0

Appendix C: Frequencies of Independent Variables (All Cases with Asthma)

Summary Table:

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
What is the highest level of education attained by anyone in your household	12162	1	3	2.69	.549
What is the primary language spoken in your home	12197	1	2	1.05	.215
In general, how would you describe [S.C.]'s health? Would you say [his/her] health is excellent, very good, good, fair, or poor?	12195	1	5	1.99	.955
Derived. Poverty level of this household based on DHHS guidelines	11159	1	8	5.44	2.552
GovernmentInsurance	12202	0	1	.28	.451
PrivateInsurance	12202	0	1	.65	.477
USC	12202	0	1	.89	.318
NonemergentERVisits	12202	0	5	.28	.920
Valid N (listwise)	11126				

Individual Tables:

What is the highest level of education attained by anyone in your household

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<HS	520	4.3	4.3	4.3
	HS	2788	22.8	22.9	27.2
	>HS	8854	72.6	72.8	100.0
	Total	12162	99.7	100.0	
Missing	DK	28	.2		
	Refused	12	.1		
	Total	40	.3		
Total		12202	100.0		

What is the primary language spoken in your home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	English	11604	95.1	95.1	95.1
	Any other language	593	4.9	4.9	100.0
	Total	12197	100.0	100.0	
Missing	DK	4	.0		
	Refused	1	.0		
	Total	5	.0		
Total		12202	100.0		

In general, how would you describe [S.C.]'s health? Would you say [his/her] health is excellent, very good, good, fair, or poor?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Excellent	4487	36.8	36.8	36.8
	Very Good	4269	35.0	35.0	71.8
	Good	2581	21.2	21.2	93.0
	Fair	735	6.0	6.0	99.0
	Poor	123	1.0	1.0	100.0
	Total	12195	99.9	100.0	
Missing	DK	7	.1		
Total		12202	100.0		

USC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1391	11.4	11.4	11.4
	1	10811	88.6	88.6	100.0
	Total	12202	100.0	100.0	

Derived. Poverty level of this household based on DHHS guidelines

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	LESS THAN 100% POVERTY LEVEL	1691	13.9	15.2	15.2
	100% TO BELOW 133% POVERTY LEVEL	765	6.3	6.9	22.0
	133% TO BELOW 150% POVERTY LEVEL	364	3.0	3.3	25.3
	150% TO BELOW 185% POVERTY LEVEL	779	6.4	7.0	32.3
	185% TO BELOW 200% POVERTY LEVEL	430	3.5	3.9	36.1
	200% TO BELOW 300% POVERTY LEVEL	2051	16.8	18.4	54.5
	300% TO BELOW 400% POVERTY LEVEL	1828	15.0	16.4	70.9
	AT OR ABOVE 400% POVERTY LEVEL	3251	26.6	29.1	100.0
	Total	11159	91.5	100.0	
	Missing	System	8.5		
Total		12202	100.0		

GovernmentInsurance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	8725	71.5	71.5	71.5
	1	3477	28.5	28.5	100.0
	Total	12202	100.0	100.0	

PrivateInsurance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	4290	35.2	35.2	35.2
	1	7912	64.8	64.8	100.0
	Total	12202	100.0	100.0	

Uninsured

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	11913	97.6	97.6	97.6
	1	289	2.4	2.4	100.0
	Total	12202	100.0	100.0	

Appendix D: Frequencies of Independent Variables (Cases with Asthma and USC)

Summary Table:

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
What is the highest level of education attained by anyone in your household	10783	1	3	2.71	.530
What is the primary language spoken in your home	10807	1	2	1.04	.200
Derived. Poverty level of this household based on DHHS guidelines	9916	1	8	5.57	2.500
GovernmentInsurance	10811	0	1	.27	.445
PrivateInsurance	10811	0	1	.67	.469
Valid N (listwise)	9894				

Individual Tables:

What is the highest level of education attained by anyone in your household

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<HS	403	3.7	3.7	3.7
	HS	2320	21.5	21.5	25.3
	>HS	8060	74.6	74.7	100.0
	Total	10783	99.7	100.0	
Missing	DK	17	.2		
	Refused	11	.1		
	Total	28	.3		
	Total	10811	100.0		

What is the primary language spoken in your home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	English	10354	95.8	95.8	95.8
	Any other language	453	4.2	4.2	100.0
	Total	10807	100.0	100.0	
Missing	DK	3	.0		
	Refused	1	.0		
	Total	4	.0		
	Total	10811	100.0		

Derived. Poverty level of this household based on DHHS guidelines

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	LESS THAN 100% POVERTY LEVEL	1356	12.5	13.7	13.7
	100% TO BELOW 133% POVERTY LEVEL	636	5.9	6.4	20.1
	133% TO BELOW 150% POVERTY LEVEL	306	2.8	3.1	23.2
	150% TO BELOW 185% POVERTY LEVEL	679	6.3	6.8	30.0
	185% TO BELOW 200% POVERTY LEVEL	375	3.5	3.8	33.8
	200% TO BELOW 300% POVERTY LEVEL	1852	17.1	18.7	52.5
	300% TO BELOW 400% POVERTY LEVEL	1671	15.5	16.9	69.3
	AT OR ABOVE 400% POVERTY LEVEL	3041	28.1	30.7	100.0
	Total	9916	91.7	100.0	
	Missing	System	895	8.3	
Total		10811	100.0		

GovernmentInsurance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	7873	72.8	72.8	72.8
	1	2938	27.2	27.2	100.0
	Total	10811	100.0	100.0	

PrivateInsurance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	3541	32.8	32.8	32.8
	1	7270	67.2	67.2	100.0
	Total	10811	100.0	100.0	

Uninsured

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	10621	98.2	98.2	98.2
	1	190	1.8	1.8	100.0
	Total	10811	100.0	100.0	

Appendix E: Regressions

Regression #1: The Effect of Coverage and Non-emergent Emergency Room Visits on Usual Source of Care

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.608	.010		157.395	.000
	What is the highest level of education attained by anyone in your household	.047	.002	.072	19.586	.000
	What is the primary language spoken in your home	-.112	.005	-.082	-23.650	.000
	In general, how would you describe [S.C.]'s health?	.000	.002	-.001	-.320	.749
	Would you say [his/her] health is excellent, very good, good, fair, or poor?					
	Derived. Poverty level of this household based on DHHS guidelines	.017	.001	.119	27.639	.000
	PrivateInsurance	.162	.004	.214	37.531	.000
	GovernmentInsurance	.170	.005	.202	36.889	.000
	NonemergentERVisits	.007	.002	.012	3.605	.000

a. Dependent Variable: USCplus1

Regression #2: The Effect of Asthma and Health Status on Usual Source of Care

Coefficients^a

Model		Unstandardized Coefficients		Beta	t	Sig.
		B	Std. Error			
1	(Constant)	1.607	.010		157.169	.000
	What is the highest level of education attained by anyone in your household	.047	.002	.072	19.604	.000
	What is the primary language spoken in your home	-.109	.005	-.080	-23.009	.000
	In general, how would you describe [S.C.]'s health?	-.003	.002	-.006	-1.778	.075
	Would you say [his/her] health is excellent, very good, good, fair, or poor?					
	Derived. Poverty level of this household based on DHHS guidelines	.017	.001	.118	27.340	.000
	PrivateInsurance	.161	.004	.213	37.314	.000
	GovernmentInsurance	.169	.005	.201	36.707	.000
	Has a doctor or health professional ever told you that [S.C.] has asthma?	.031	.003	.029	8.961	.000

a. Dependent Variable: USCplus1

Regression #3: The Effect of Insurance Type of Asthmatics on Number of Non-emergent ER Visits

Coefficients^a

Model		Unstandardized Coefficients		Beta	t	Sig.
		B	Std. Error			
1	(Constant)	.569	.079		7.172	.000
	What is the highest level of education attained by anyone in your household	-.035	.018	-.021	-1.954	.051
	What is the primary language spoken in your home	-.034	.043	-.008	-.797	.425
	Derived. Poverty level of this household based on DHHS guidelines	-.028	.005	-.079	-6.282	.000
	GovernmentInsurance	.176	.038	.086	4.636	.000
	PrivateInsurance	-.076	.037	-.039	-2.051	.040

a. Dependent Variable: NonemergentERVisits

Regression #4: The Effect of Insurance Type of Asthmatics with USC on Number of Non-emergent ER Visits

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	.661	.089		7.434	.000
	What is the highest level of education attained by anyone in your household	-.039	.020	-.022	-1.997	.046
	What is the primary language spoken in your home	-.052	.049	-.011	-1.073	.283
	Derived. Poverty level of this household based on DHHS guidelines	-.034	.005	-.094	-7.085	.000
	GovernmentInsurance	.150	.043	.072	3.459	.001
	PrivateInsurance	-.099	.042	-.050	-2.361	.018

a. Dependent Variable: NonemergentERVisits