Deteriorating Mexican-American Child Health? The Role of Health Insurance

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ABSTRACT

Theories explaining the "paradox" of good Mexican-American birth outcomes do not necessarily limit these outcomes to birth, but some research shows that Mexican-American child health may deteriorate. One possible explanation for this change is the group's relatively limited access to health care through their lower rates of health insurance coverage. We look at a national, urban sample of children born to unmarried mothers to explore racial/ethnic differences in health for three-year-olds and the possible role that health insurance coverage may play in mediating those differences. We find that Mexican-American children do not maintain a health advantage relative to whites at three years of age but nor do they exhibit a consistent disadvantage. While controlling for health insurance differences across racial/ethnic groups reduces racial/ethnic health disparities, the overall impact is modest. The implications of these findings for our theoretical understanding of social influences on health are discussed.

INTRODUCTION

Despite a high-risk socioeconomic profile, infants born to Mexican-American women have a similar rate of low birth weight compared to infants born to non-Hispanic whites. This surprising finding is well documented, and together with similar findings regarding other health and mortality outcomes, is termed the "epidemiologic paradox" (Markides and Coreil 1986; Frisbie et al. 1998). While the epidemiologic paradox has garnered significant research interest, less studied is whether this initial health similarity for Mexican-American infants continues to be maintained through childhood. Limited studies show that Mexican-American child health is more consistent with their socioeconomic status than is their infant health, with Mexican children showing poorer health outcomes than their non-Hispanic white counterparts (Flores et al. 1999; Guendelman et al. 1995).

Social science researchers conceptualize the relationship between racial/ethnicity and health as operating through a series of socioeconomic conditions and proximate determinants (Mosley and Chen 1984; Hummer 1996). In the U.S. system, one such proximate determinant is access to health care, which is mediated by a person's health insurance coverage (Scott and Ni 2004). Indeed, studies looking at health insurance coverage and health have found a positive relationship between health insurance coverage and health outcomes (Patrick et al. 1992) and a negative relationship between health insurance coverage and mortality (Rogers, Hummer and Nam 2000).

Severe racial and ethnic disparities exist in health insurance coverage in the United States (see, for example, DeNavas-Walt 2005). Health insurance coverage is lowest for Hispanics compared to other U.S. racial and ethnic groups. In 2004, 33.7 percent of Hispanics were uninsured, compared with 10.3 percent of non-Hispanic whites and 16.6 percent of non-Hispanic

blacks (DeNavas-Walt 2005). Among Hispanics, Mexican-Americans are significantly less likely to be insured than other Hispanic-origin groups (Scott and Ni 2004; Angel et al. 2004; De la Torre et al. 1996).

Although child health outcomes and rates of health insurance clearly vary by race and ethnicity, the role that health insurance plays in explaining disparities in child health outcomes between racial/ethnic groups is unclear. Furthermore, although 40% of all births among Mexican-Americans occur to unmarried women (Martin et al. 2003: Table 14) who are generally disadvantaged in socio-economic status, no research has focused on Mexican-American children born to unmarried women, a group that may be at greater risk of deteriorating health outcomes.

Using national, longitudinal data with an oversample of unmarried, minority mothers to look at child health, this study sets out to answer the following two questions about children born to unmarried women:

1. How does Mexican-American child health compare to the health of non-Hispanic white and black children? In other words, does the Hispanic health advantage at birth persist into early childhood?

2. What role does health insurance coverage play in explaining child health disparities by racial/ethnic group?

PAST RESEARCH

Past research on racial and ethnic variation in health insurance coverage and health outcomes can be organized into three broad categories: racial and ethnic disparities in health, racial and ethnic disparities in health insurance coverage, and, bridging these two, the relationship between health insurance coverage and health outcomes. We begin by covering racial and ethnic disparities in health, focusing on Mexican-American infant and child health.

We then present a conceptual model to explain the relationship between race and health, which leads us into our discussion on the role of health insurance.

Disparities in Child Health by Racial/ethnic Group: A Deteriorating Health Profile for Mexican-American Children?

A large body of research explores pregnancy and infant health outcomes by racial/ethnic group. Consistent findings show that Mexican-American infants do better than their non-Hispanic black (hereinafter "black") infant counterparts and about as well as or better than their non-Hispanic white (hereinafter "white") infant counterparts. These findings are consistent when looking at gestational age, birth weight, fetal growth and fetal and neonatal mortality and are more pronounced when nativity is taken into consideration, with infants born to foreign-born women having lower rates of low birth weight and higher survival rates than infants born to U.S.-born women of the same ethnicity (Frisbie et al. 1997; Gould et al. 2003; Mendoza et al. 1991; Hummer et al. 1999). The relatively favorable birth outcomes of Mexican-Americans have been termed the "epidemiologic paradox" because, as a group, Mexican-Americans hold a socioeconomically disadvantaged position in the United States relative to other groups, and so their positive infant health outcomes defy the normal relationship between socioeconomic status and health.

Various cross-sectional studies show that the immigrant health advantage is stronger for foreign-born individuals with less time spent in the United States, suggesting an acculturation effect (Landale et al. 2000). In other words, foreign-born individuals who have spent more time in the United States show poorer health outcomes than foreign-born individuals with less time in the United States; correspondingly, second-generation, U.S.-born individuals of the same ethnicity do worse than the foreign-born. The implication of these findings is that the protective

source(s) of the epidemiologic paradox disappear(s) or become(s) less consequential in light of immigrant experiences in the U.S. context.

In a unique study on this topic involving Mexican-American children, Guendelman and colleagues (1995) examined a cross-sectional sample of low-income, Mexican-American mothers in San Diego County to determine the extent to which the Mexican-American infant health advantage remained in three-year-olds. Approximately 24 percent of their sample experienced moderate to severe infectious diseases within one year of life, a rate of adverse health comparable to other disadvantaged populations. Large household size (10 or more members) was the strongest predictor of child illness, with an odds ratio of about 4.5 compared to households with 2-4 members. Other significant predictors were mother's history of smoking, mother's history of pregnancy complications, mother's paid employment, mother's perceived need of health care and mother's newcomer status. The authors concluded that selective migration and a healthy cultural orientation may only protect against some outcomes, such as low birth weight, and they emphasized that the conditions of low socioeconomic status strongly influence poor child health. Interestingly, health insurance coverage was not a significant predictor of child health in their study, but this is possibly due to a generous but complicated public health insurance program in San Diego County; indeed, those who perceived barriers to health care were twice as likely to have an ill child as those who did not.

A more recent study considers this question among Mexican-Americans using longitudinal data. Padilla et al. (2002) examined child developmental outcomes and found that advantageous birth outcomes do not predict a positive developmental trajectory for Mexican-Americans. Indeed, their study showed that Mexican-American children scored, on average, 26 points lower (on a 100-point scale) than white children on a standard test of language

development despite their similar rates of low birth weight. To our knowledge, the Guendelman and Padilla studies are the only studies that specifically test the possibility that the Mexican infant health advantage may be a paradox that is limited to birth.

Cross-sectional research on child health by racial/ethnicity has received less attention in the social science world than infant health outcomes, and leaders in the medical field have identified Hispanic child health in particular as a relatively neglected area of medical and public health research (Flores et al. 2002; Zambruna and Logie 2000). However, a review of existing research shows some disadvantage for Hispanic and Mexican-American children. A nationally representative study by Flores et al. (1999) shows that Mexican-American parents are significantly less likely to rank their children's health as excellent or good than white parents. Studies show that both Mexican-American children, in particular, and Hispanic children, in general, are more likely to be overweight and/or obese than white children (Winkleby et al. 1999; Ogden et al. 2002; Strauss and Pollack 2001), a health condition that is associated with an increased risk for asthma (Rodriguez et al. 2002), iron deficiency (Nead et al. 2004), high blood pressure, type 2 diabetes, gallbladder disease, and osteoarthiritis (Must et al. 1999). Indeed, Mexican-American boys have higher levels of systolic blood pressure than white boys, a difference that loses significance when body mass is controlled (Munter et al. 2004). Mexican-American children also have higher levels of glycosylated hemoglobin and higher percentages of energy from fat than white children, both of which are risks for cardiovascular disease (Winkelby et al. 1999). Along with Native American children, Hispanic children have the lowest five-year survival rates for lymphoblastic leukemia of the five major racial/ethnic groups in the United States (Kadan-Lottick et al. 2003).

Despite these relatively poor health outcomes, Mexican-American children have the lowest rates of doctor-diagnosed asthma, compared to white and black children (Rodriguez et al. 2002), a finding that corresponds to a study comparing mothers' reports of child respiratory problems between Hispanic, black and white populations that found no disadvantage for Hispanics relative to whites (Boardman et al. 2001). Furthermore, Mexican-American parents report that their children spend significantly fewer days in bed than white parents (Flores et al. 1999). It is possible that these measures (along with some of those showing disadvantaged health outcomes, such as parental assessments of health) reflect differences in parental responses to and reports of child illness rather than objective measures of health (Roberts 2002).

Taken together, these studies suggest that Mexican-American children may lose the health advantage they exhibit at birth, perhaps within a very short time frame. But the evidence is not fully consistent across outcomes. Before beginning to explore potential reasons for the specific case of Mexican-American child health, it is necessary to conceptualize how racial/ethnicity influences health in the first place.

The Relationship Between Racial/ethnicity and Health

Mosley and Chen (1984) constructed the classic model for understanding socio-economic influences on child health. They developed a framework to guide analysis on child morbidity and mortality in developing countries, arguing that the influence of social and economic conditions on health and mortality must be understood through a variety of proximate factors, including maternal characteristics and environmental conditions. To illustrate their logic, one proximate factor is personal illness control, or the ability of "individuals to take preventative measures to avoid disease" or to take active measures to diagnose or treat disease (1984: 28). A person's personal illness control will inevitably hinge on a variety of socioeconomic determinants,

including individual-level education and occupation, household income or wealth and the community-level influence of the health system, including cost subsidies such as government-funded health insurance.

Hummer (1996) adapts this model to include the important role that race plays in determining socioeconomic conditions and health in the contemporary U.S. context, looking specifically at differences between blacks and whites. He argues that socioeconomic status cannot be separated from race, that socioeconomic differences across groups are a reflection and product of a racist social system. Often when studies "control" for socioeconomic status they effectively ignore this broader relationship. Beyond racial socioeconomic stratification, race influences health through institutional and individual forms of racism, including segregation, organizational participation, government policies and majority group behaviors and attitudes. These conditions, in turn, influence an individual's access to health care, their physical environment, their health and coping behaviors, their stress level and their social roles and support.

As a group, Mexican-Americans are likewise disadvantaged in terms of their socioeconomic status, social integration, political and organizational participation, access to public resources (especially for undocumented migrants) and relationship with the majority group (Saenz, 2004). Adding to this are the cultural, linguistic, and institutional barriers foreign-born Mexican-Americans may face. According to the frameworks developed by Mosley and Chen and by Hummer, Mexican-American infant health should look much worse than it does, which is why, in defiance of this relationship, Mexican-American infant health outcomes are paradoxical (and intriguing).

Researchers have identified two general explanations for the epidemiologic paradox. One is that healthy individuals immigrate and unhealthy immigrants return home, resulting in a selection bias (Palloni and Morenoff 2001; Palloni and Arias 2004). This hypothesis is based largely on the argument that infant health outcomes in immigrant sending countries are much less favorable than the infant health outcomes of migrants who leave, suggesting that migrants are a select group of individuals who are healthier than those they leave behind and those they encounter in the receiving communities. The selection hypothesis takes issue with the second hypothesis, that immigrants are protected by healthy behaviors and social support structures unique to their cultural background (Balcazar et al. 1991; Guendelman 1998), arguing that the same culture should equally protect non-migrants in the sending community. However, it is possible that the two function together to protect immigrants and, specifically, Mexican-origin women (Markides and Eschbach 2004).

While the epidemiologic paradox on Mexican-American birth outcomes and its mechanism have aroused great attention, much less studied is the health conditions of the Mexican-American children, although both evidence and the research framework we reviewed above suggest that their health advantage at birth may begin to be eroded even in very early childhood. Moreover, the mechanisms through which this occurs are not very clear. Guendelman et al.'s study (1995) returns to the social-health paradigm, concluding that social and economic conditions are critical for explaining disadvantaged Mexican-American child health, despite positive birth outcomes that appear resilient to those same conditions. We pick up where Guendelman et al. left off, looking at the health outcomes of a larger, national sample of three-year-old children born to unmarried mothers in large cities, while considering the role of social conditions and economic status on the racial/ethnic health disparities in question.

Following Mosley and Chen's (1984) inclusion of the role of the community health system in influencing personal illness control and Hummer's inclusion of access to health care as an important proximate determinant of health, we focus on health insurance coverage in better understanding Mexican-American child health.

In addition to our theoretical justification for a focus on health insurance coverage, two reasons guide our focus on health insurance. One is that, as documented below, Mexican-Americans are possibly the most disadvantaged racial or ethnic group in the United States when it comes to health insurance coverage. The second reason is that lack of health insurance coverage is a potentially remediable situation through direct public policy intervention. In other words, given an established, positive relationship between health insurance and health, providing universal health insurance coverage is a relatively straightforward intervention. We return to this second issue in our conclusion.

Disparities in Health Insurance Coverage by Racial/ethnic Group

Disparities in health can be partially explained by inequality in access to health care, and access to health care is mediated by health insurance coverage (or lack thereof). The U.S. Department of Health and Human Services (2000: accessed online at http://www.healthypeople.gov/Document/html/uih/uih_bw/uih_4.htm on 10/06/2004) emphasizes this point in its *Healthy People 2010* report, stating that "health insurance provides access to health care. Persons with health insurance are more likely to have a primary care provider and to have received appropriate preventive care such as a recent Pap test, immunization, or early prenatal care. Adults with health insurance are twice as likely to receive a routine checkup as are adults without health insurance."

In 2004, 45.8 million people in the United States, about 15.7 percent of the population, were uninsured (DeNavas-Walt et al. 2004). The percentage and number of children (under Age 18) without insurance was 11.2 percent and 8.3 million. Striking though these figures are, the proportion is much higher for children of racial and ethnic minorities, with 21.1 percent of Hispanic children uninsured, compared to 13.0 percent of black and 7.6 percent of white children.[1]

Health insurance coverage is particularly problematic for immigrants, whose legal status, language ability, and lack of familiarity with the system can impede access (Documet and Sharma 2004). In 2000, about 40 percent of the Hispanic population, the largest growing minority group in the United States, was foreign-born (Thierren and Ramirez 2000). And in 2004, as high as 33.7 percent of the foreign-born population were without health insurance (DeNavas-Walt et al. 2004). Children are a particularly vulnerable subset of this group; in 1995, 27.3 percent of children of immigrants were uninsured (Huang 1997).

The likelihood of health insurance coverage is related to a variety of demographic characteristics. Shi's (2000) review of the health insurance of vulnerable populations shows that age, gender, education, employment status, income and marital status are all important predictors of health insurance coverage. Net of these characteristics, racial/ethnic group membership still significantly predicts insurance coverage; in his study, Hispanics were still 60 percent less likely to be insured and blacks were 30 percent less likely to be insured than whites controlling for socio-demographic variables. This finding could be in part due to inadequate measures of

[1] Moreover, Davis (2000) has argued that the definitions of insurance coverage used by government agencies such as the underestimates the truly uninsured. Individuals who are partially insured or covered by limited plans are considered insured although they are, in fact, underinsured and would prefer more comprehensive coverage.

education or income, but it could also reflect discrimination or institutional or cultural barriers to health insurance for certain racial and ethnic groups.

Among Hispanics, Mexicans-Americans are far more likely to be uninsured than other Hispanic origin groups. Scott and Ni (2004) used the 1998-2001 National Health Interview Survey data to look at Hispanic subgroup differences in access to care for children and found that 30.4 percent of Mexican children (under 18) lacked health insurance coverage, compared with 23.8 percent of Central and South American children, 18.6 percent of other Hispanic children, 11.4 percent of Puerto Rican children and 9.3 percent of Cuban children. Angel et al. (2004) found similar rates looking at 2000 Census data: 26 percent of Mexican-Americans under 18 have no form of insurance compared to 18 percent of Cuban Americans and 11 percent of Puerto Ricans.

The importance of health insurance for health outcomes is a unique feature of a private health care system in which high prices for medical care are a barrier to most individuals without insurance. Protecting low-income families, whose employers may not provide health insurance and who cannot afford it on their own, is a social welfare issue. Medicaid is the U.S. public health insurance program for needy families (Medicare is a similar service for the elderly) and eligibility for Medicaid depends on state and/or county designations but requirements generally include an income cutoff (typically below poverty) and family status (including marital status and having children present). While Medicaid coverage is higher among Mexican-Americans than among whites, the highest rates of Medicaid coverage is among blacks (Angel et al. 2004). These differing rates may reflect need, as in the case of high rates among blacks and low rates among whites, and barriers to access, as in the case of lower rates among Mexican-Americans relative to blacks (Angel et al. 2004).

The Relationship Between Health and Health Insurance

Lack of health insurance may entail negative consequences for health outcomes, especially as it serves as a proxy for access to health care (Trevino et al. 1996). A study of insurance coverage and young adult mortality finds that net of socioeconomic and demographic controls, individuals without private health insurance are 35 percent more likely to die in the follow-up period than young adults with private health insurance, and this disadvantage persists for circulatory, respiratory, social pathology and residual causes of death (Rogers et al. 2000). This study included individuals with Medicaid in the comparison group, which emphasizes the relative advantage that individuals with private health insurance have and does not address the issue of whether health insurance coverage (as indicated by no insurance versus insurance, including both public and private insurance) or severe socioeconomic disadvantage (as reflected by people on Medicaid) is the driving force in the relationship found.

Another study found that, compared to families with health insurance, families without health insurance rated their health lower and were significantly more likely to perceive that one or more members of their family were in need of health services (Patrick et al. 1992). An older study reported that a larger percentage of the uninsured were likely to report fair or poor health (12 percent versus 9 percent of the insured, Freeman et al. 1987). Similar findings were reported by Anderson et al. (1987).[2]

HYPOTHESES, DATA AND METHODS

[2] Importantly, the health-health insurance relationship may not be unidirectional. Individuals with poor health or chronic health conditions may be less likely to qualify for or retain health insurance coverage for a variety of reasons. We can partially control for previous health conditions in the case of three-year-olds by controlling for birth weight and excluding infants with severe disabilities. However, most children receive health insurance through their parents, so in cases where health insurance was denied due to a poor health or chronic health conditions, it is likely that the disqualification would be on the part of the parent, which should not confound the health insurance-health relationship for the child.

Our review of past literature on Mexican-American child health and the role of insurance leads us to make the following two hypotheses in response to the questions we asked in our introduction:

1. Mexican-American child health will show a disadvantage relative to whites and a slight advantage relative to blacks. The unusual health advantage evidenced at birth will not persist into early childhood.

2. Health insurance coverage will partially explain the disparities in health outcomes between Mexican-American, white and black children. Children with private insurance coverage will show the best health outcomes and children with no health insurance coverage will show the worst health outcomes.

Data and Sample

We use the first, second and third waves of the Fragile Families and Child Wellbeing Study, a national, longitudinal survey of predominantly unmarried mothers in 20 cities with populations over 200,000 (see http://www.fragilefamilies.princeton.edu). The Fragile Families Study offers a rare opportunity to explore a variety of social and economic influences on child health, as it obtained an in-depth look at the lives of mothers, fathers and their children at the time of the birth of the child and one year and three years following the birth (and the study is currently administering five-year follow up surveys). The Fragile Families Study purposefully oversampled unmarried mothers because of its specific interest in this vulnerable and policy-relevant population. In this analysis we limit our sample to unmarried mothers. Our variables come solely from the mothers' survey and so include only cases in which mothers are in all three waves and have spent at least some time living with the focal child. We also drop the few cases of multiple births in order to limit the biasing effect of the health complications associated with

multiple births. Our final sample is approximately 3000 mothers (with some variation in sample size due to missing values for our variables).

Measures

Our key dependent variables are six measures of child health status at three years of age: mother's evaluation of child's health, at risk for overweight, doctor-diagnosed asthma, emergency room visits, hospital overnight stay, and visits to the doctor for illness or injury. Mothers were asked to evaluate their child's health with the question, "In general, would you say your child's health is excellent, very good, good, fair or poor?"[3] In this case, we measure the child health evaluation as a dummy variable predicting the likelihood that the mother evaluates her child's health as good, fair or poor, categories that have been shown by our data to significantly differ from very good or excellent health evaluations. We base our overweight variable on actual measurements and weights of each child and comparisons of the resulting body mass index values to Center for Disease Control and Prevention definitions of "at risk for overweight," which includes children at or above the 85 percentile for body mass (Kuczmarski et al., 2002; also see Kimbro, Brooks-Gunn and McLanahan, 2004). We construct the asthma measure as a dummy variable predicting the likelihood that a doctor or other health professional has ever told the mother that their child has asthma. Because the majority of three-year-olds have not visited emergency room (ER) or stayed in the hospital overnight, our ER and hospital visits measures are constructed as dummy variables distinguishing between zero and one or more visits/hospitalization. We measure doctors' visits for illness or injury, a more likely event, as a continuous measure.

[3] This measure has been shown to accurately predict objective health outcomes, such as mortality (Idler and Benyamini 1997), but its interpretation can vary due to cultural and linguistic differences, as has been shown in the specific case of Mexican-Americans (Angel and Gronfein 1988), something we take into consideration in our interpretation of the results.

Our two key independent variables are race/ethnicity and health insurance coverage. We use mother's racial/ethnic self-identification as a proxy for child racial/ethnicity. Mothers racially self-identified as either white, black, Asian-Pacific Islander, Native American or other and were then asked if they were of Hispanic or Latino origin, and, if so, which Latino subgroup they identified as. We categorized Hispanic ethnicity separately regardless of race, such that our racial/ethnic categories are mutually exclusive: non-Hispanic whites, non-Hispanic blacks, and Hispanics. We then separated out Mexican-origin women from the panethnic Hispanic group and further subdivided Mexicans by place of birth. Our final racial/ethnic groups for mothers are: non-Hispanic whites (hereinafter "whites"), non-Hispanic blacks (hereinafter "blacks), foreign-born Mexican-Americans and U.S.-born Mexican-Americans. Because we are talking primarily about their children, however, we refer to the racial/ethnicity of children of foreign-born Mexican mothers as "second-generation Mexican-Americans" and of children born to U.S.-born Mexican mothers as "third-generation-plus Mexican-Americans." We dropped other racial groups and other Hispanics because of the small sample sizes and heterogeneity of the groups.

We use a measure of health insurance coverage taken from a series of questions at the one-year and three-year follow-up interviews. At both waves, the surveys ask first whether the mother or child is currently covered by Medicaid or other public assistance program that pays for medical care, and then asks the mother to specify whether she, the child or both are covered by that plan; the same two questions are asked regarding private health insurance coverage to women who indicated that neither she nor her child were covered by a public assistance program. Correspondingly, we created a five-category measure to indicate the child's insurance history from year one to year three: private insurance at both years is our reference category; we also have children who switch between public and private, children covered by public insurance at

both years, children who were uninsured at one of the years, and children who were uninsured at both years.

Key control variables for the child include birthweight, which is measured as a dummy variable to indicate low birthweight if the child weighed 2500 grams or less at the time of birth, age in months at the three-year interview (ages ranged from six months to sixteen months) and a dummy variable to indicate male sex. Mother's background characteristics include age in years at the time of birth, mother's relationship with father at year three (married versus cohabitating versus not cohabitating), a categorical measure of education (less than high school, high school and more than high school), an annual household income range measure (less than $15,000, $15,001-30,000 and more than $30,000) .

Methods

We use logistic regression models to predict the likelihood of a sub-optimum (good, fair, or poor) health evaluation on the child from the mother, risk for overweight, doctor's diagnosis of asthma, emergency room visits, and overnight stay at the hospital; We use Poisson regression models to estimate mean doctor's visits for illness. For each health outcome, we conducted a set of three models. In our first model, we look at racial/ethnic differences. We then include the health insurance measure in our second model to evaluate its role in affecting health outcomes and in mediating the racial/ethnic differences. Our third model includes the mother's characteristics household income to test whether health insurance is an intermediating factor between mother's socio-economic status and child health. We control for child age (in months), child sex and birthweight in all models.

RESULTS

Table 1 shows descriptive statistics of the socio-demographic, health characteristics and

health insurance coverage of the three-year-olds and their mothers, by racial/ethnic group. Nearly two-thirds of mothers in all racial/ethnic groups were under 25 years of age at the birth of their child except for foreign-born Mexican mothers, of whom fewer than half were under 25. As expected, Mexican-American children have lower rates of low birthweight (5.1 percent for the third plus generation and 6.3 percent for the second generation) than their white and black counterparts (12.1 percent and 13.3 percent, respectively).

We also see in Table 1 a general socioeconomic disadvantage for mothers of Mexican origin. Mexican-origin mothers are more likely to have not completed high school; indeed, over three-fourths of foreign-born Mexican mothers have less than a high school education. Black mothers are most likely to report an annual household income under $15,000 but foreign-born Mexican mothers are least likely to report an income over $30,000. White mothers and mothers of Mexican origin have higher rates of marriage and cohabitation with the child's father within the first three years of their child's life, while black mothers are most likely to be separated from the father of their child.

The descriptive statistics showing racial/ethnic variations in health at year three tell an ambivalent story. Foreign-born Mexican mothers are about twice as likely to give a sub-optimal health rating of their children than other mothers, but their children have the lowest rates of doctor-diagnosed asthma, they are the least likely to have gone to the emergency room, and they have the lowest mean number of doctor's visits in the last year. This record does not necessarily indicate good health given that the latter three measures reflect health care access in addition to health care need. Indeed, a greater percentage of second-generation Mexican-American children have stayed overnight at the hospital than white children, and they are also the most likely to be

at risk for overweight. Black children have the highest rates of doctor-diagnosed asthma, ER visits and hospital overnights.

TABLE 1 ABOUT HERE

A considerably high proportion of all groups are not covered by some sort of insurance in one of the two years of the interview (ranging from 17.8 of black children to 29.4 of second generation Mexican-American children) although the proportion of no health insurance coverage in both of the two years is not very high (between one and five percent). On the other hand, there are racial/ethnic differences, with Mexican-American children well over three times more likely to be uninsured at both one year and three years than white and black children. A much higher proportion of children experiences insurance instability—they were uninsured at one point in time and insured at the other. Second-generation Mexican-American children show the greatest disadvantage in both of these categories; between the two, over one-third of children born to foreign-born mothers are uninsured at some point in their life by year three, compared to one in four white children and one in five black children. White and third-plus generation Mexican-American children are the most likely to be insured privately at both points in time, and black children are most likely to be insured publicly at both points in time.

Table 2 presents the results of the logistic regression models predicting the likelihood that mothers gave a sub-optimum health evaluation of their child, that the child has been diagnosed with asthma and that the child is at risk for or overweight. The first model shows that foreign-born Mexican mothers are significantly more likely to rate their child's health as good, fair or poor compared to white mothers while U.S.-born Mexican mothers and black mothers are not significantly different from the white mothers in rating their child's health. The addition of health insurance in Model 2 only slightly reduces these differences. And public health insurance

and no insurance are associated with higher odds of poor health, although only public health insurance is significant. Compared to children covered by private health insurance in both years, the odds are 50 and 93 percent higher, respectively. This association decreases by almost half for public health insurance but only slightly for no health insurance in Model 3, where socio-economic controls are added, indicating that the association between health and public health insurance seen in Model 2 may reflect the socioeconomic characteristics of the individuals with public health insurance coverage rather than poor care or access associated with public coverage. On the other hand, the racial/ethnic differences remain in Model 3 and Mexico-born mothers are more than two times likely to give a poor health evaluation for their child than the white mothers in that model.

TABLE 2 ABOUT HERE

In the first model showing the likelihood of doctor-diagnosed asthma, the two groups of Mexican-American three-year olds are not significantly different from white children, although the coefficient for the third-generation is a little higher and that for the second-generation is a little lower than the white children. On the other hand, black three-year olds are two times more likely than white three-year-olds to have been diagnosed with asthma. These racial/ethnic patterns generally persist in Model 2 and Model 3 with some reduction of the black-white difference in both models. In Model 2 we see that public health insurance in both years is associated with significantly higher odds of doctor-diagnosed asthma but this association is reduced to non-significance in Model 3, suggesting, again, that it is the socioeconomic characteristics of people on Medicaid that drive this relationship.

The last three columns of Table 2 show the odds ratio of being at risk for overweight. While there is no difference in risk for overweight between black and white three-year-olds, we

see a heightened risk for overweight for both groups of Mexican-American children. They are 50 or 60 percent more likely to be at risk in almost all the three models and this heightened risk does not seem to be related to health insurance and/or socio-economic status. None of the health insurance coefficients are significant in Model 2 or Model 3 and most of the important socio-economic variables are not significant in Model 3. However, it is worth mentioning that the odds of being at risk for or overweight is about 90 percent higher for children who were not covered by health insurance in both year than children who had private health insurance coverage in both years, despite the lack of significance in Model 2 and Model 3. The lack of statistical significance is undoubtedly due to the small sample sizes of people without health insurance at both time points.

TABLE 3 ABOUT HERE

Table 3 report the results of the logistic regression models predicting the likelihood that the focal child had at least one emergency room and the likelihood that he/she stayed at the hospital overnight at least once in the past year. It also presents the Poisson regression results on number of doctor's visits for illness or injury in the past year.

The first column shows that both groups of Mexican-American three-year olds are not significantly different from white three-year-olds in terms of their ER visits. Black three-year-olds are most likely to have visited the ER at least once in the past year. Model 2 shows that the odds of ER visit for children having public health insurance in both years is 54 percent higher than those covered by private health insurance in both years and it helps explain a small portion of the racial/ethnic, especially the black/white, difference. Again we see that that odds diminishes and loses its significance with controls for socioeconomic status in Model 3. Lack of health insurance coverage does not seem to be a significant or substantively important predictor

of ER visits, possibly because some portion of mothers without health insurance for their children relies on the ER as a source of regular care, which would confound the relationship between health insurance and ER visits as an indicator of serious health problems.

The second three columns in Table 3 present the regression results for hospitalization at least once in the past year. Mexican-American three-year olds are, again, not significantly different from their white counterparts, whereas black three-year olds have much higher odds of staying in the hospital overnight at least once. In Model 2 we see that children with public health insurance in both years are significantly more likely to be hospitalized, but they are no longer significantly different from white children once the socioeconomic background variables are controlled in Model 3. Although not significant, the odds ratio for no health insurance coverage is very high, indicating more than two times higher odds of hospitalization than the reference group. The inclusion of health insurance and socioeconomic background in Model 3 reduces only slightly the racial/ethnic differences observed in Model 1.

Poisson regression models are used to predict the mean number of doctor visits for illness and injury in the past year for the three-year-olds, and the exponentiated coefficients are shown in the last three columns of Table 3. The exponentiated coefficients can be interpreted in a similar way to the odds ratios in the logistic regressions. In Model 1, all racial/ethnic groups have a significantly lower mean number of annual doctor's visits for illness or injury than do white three-year-olds. Indeed, second-generation Mexican-American children have the lowest mean number. This general pattern persists across all three models, indicating that the insurance variable and the socio-economic variables do little in explaining the racial/ethnic differences in the mean number of doctor's visits for illness or injury. However, Model 2 shows significant differences across the different insurance groups. Not surprisingly, having private insurance is

related to a higher number of doctor's visits, while being uncovered is related to the fewest number of doctor's visits, with other combinations of insurance coverage falling in between these two extremes. With added controls for socioeconomic status in Model 3, all the health insurance coefficients remain significant and little changed.

CONCLUSION

Regarding the guiding questions of this study and the hypotheses we drew from our literature review, we broadly conclude the following:

1. In our sample of children born to unmarried mothers, Mexican-American three-year olds do not show an advantage relative to their counterparts in other racial/ethnic groups at year three, despite relatively advantaged birth outcomes. For most of the health measures we used, Mexican-American three-year-olds do not vary significantly from white children.

2. Lack of private health insurance coverage, especially at both year one and year three, is generally associated with higher odds of poor health outcomes for the three-year olds in our study. While Mexican-American children, especially second generation Mexican-American children, are the least likely to be covered by any kind of insurance, black children are the most likely to be covered by public health insurance and white children are the most likely to be covered by private health insurance. However, our data suggest that these disparities do not help to explain the racial/ethnic differences in the health outcomes of children born to unmarried mothers at three years of age.

Past studies suggest that the immigrant health advantage exhibited at birth may diminish with time and generations spent in the United States (Landale et al. 2000). Our study of a sample of three-year-olds born to unmarried mothers suggests that this process may start very early in childhood. Despite the fact that Mexican-American infants of unmarried mothers are less likely

to be born at a low birth weight than white infants of unmarried mothers, we do not see that their infant health advantage carries into early childhood, at least not among this group of inner-city children born to unmarried mothers. Mexican-American three-year-olds are more likely to be at risk for overweight, and mothers of second-generation Mexican children are more likely to rate their children's health as less than optimum. However, both second generation and third-plus generation Mexican-American three-year olds do not significantly differ from their white counterparts in terms of doctor-diagnosed asthma, emergency room visits or hospitalization. Black three-year-olds in our sample do retain a significant disadvantage relative to whites on these three measures.

In light of our understanding of the social influences on health, which is largely based on black-white disparities (e.g. Hummer 1996), Mexican-American child health outcomes still present somewhat of a paradox even if they are not quite as stunning as birth outcomes. It begs further exploration of how and why Mexican-American child health is at least somewhat protected from the negative influence typically associated with low education, poverty and lack of health insurance coverage in order to both better understand the social influences on health and promote the retention of positive social influences particular to Mexican-Americans. Future studies should return to the theoretical model Hummer (1996) developed to explain the relationship between race/ethnicity and health outcomes both to test again whether access to care is a significant proximate determinant or if, as our results suggest, other determinants are more important.

Indeed, health insurance seems to play only a very small part in the relationship between race/ethnicity and child health, although our study shows that lack of private insurance is generally associated with adverse health outcomes. Having public health insurance in both years

is associated with higher odds of a mother's less than optimum child health report, doctor-diagnosed asthma, emergency room visits and hospitalizations. However, these associations often disappears when controlling for socio-economic variables (the exception being doctor's visits, reflecting the fact that insurance plays a very proximate role in mediating this outcome), indicating that it reflects the poor socioeconomic characteristics of the individuals with public health insurance coverage rather than poor care or access associated with public coverage. On the other hand, our indicator for having no insurance in both years produced large odds ratios for mother's poor health report on children, risk for overweight and hospitalization in our multiple logistic regression analysis, and their values hardly changed with the inclusion of socio-economic background variables. However, we did not see statistical significance for these results. This is due to the small sample size of children who do not have health insurance in both years. Clearly, studies with larger sample sizes should investigate the long-term health effects of consistent lack of health insurance for children.

While our results seem to suggest that health insurance and socio-economic status may only play a small part in explaining health disparities among racial/ethnic groups, the role that lack of health insurance plays in poor health outcomes is more likely cumulative, such that lack of access to care will have a time-related influence on health. Although we have made an attempt to measure health insurance at two points in time, it is still a very short period of time in terms of the life course. It is important for follow-up studies to examine how the role of health insurance and socioeconomic status play out in later years of life. We hope to update this study with the fourth wave of Fragile Families interviews to look at health outcomes of five-year-olds to test this related hypothesis when that data becomes available.

Finally, our study shows that both groups of Mexican-American children, especially the second generation, are far less likely than white children to visit the doctor for illness or injury. While fewer doctor's visits for illness is used by some studies as a good health indicator, we argue that it could also reflect the lack or difficulty in access to health care. The positive association between stable health insurance and doctor's visit for illness or injury may serve as some evidence that doctor's visits for illness or injury reflect more than just need. In fact, our other three health measures, doctor's diagnosed asthma, emergency room visits, and hospitalization, may also partially reflect access to health care. In other words, children suffering from asthmatic symptoms who have less access to the medical system may be less likely to see a doctor in the first place, and thus the actual asthma cases may be more than reported. Similarly, other health problems may not be detected or treated until an emergency visit or hospitalization is required. This may explain the fact that Mexican-American three-year olds, especially the second generation, have fewer doctor's visits for illness but are not significantly different in emergency room visit and hospitalization than white children.

If our above inference is true, that is, if Mexican-American children visit the doctor fewer times at least partly due to difficulty in health care access and their health outcomes may be worse than they appear to be because of the failure to detect health problems without proper doctors' visits, then our study not only reveals a less optimal health profile in the early childhood for this group of children, especially as compared to their advantage in terms of birth weight, but it also arouses our concern as to what it implies for their future health outcomes.

The importance of this study is partly due to the public policy relevance that health insurance has in U.S. society. Overcoming disparities in health insurance coverage is a remediable condition through a universal health care or health insurance system. Our study hints

at the positive benefit such a system would have on the health outcomes of all racial/ethnic groups. However, the underlying racial stratification system is the bigger culprit for health disparities, and efforts towards equal opportunities for all racial and ethnic groups will create greater equality in health outcomes.

LIMITATIONS

This study relied exclusively on information provided by mothers during the first two waves of the Fragile Families Study. The significant omission, then, is fathers' information. A small portion of children were living with their fathers at year-one, which means that those children were excluded from our analyses. But, more importantly, we were unable to use important characteristics about the fathers to explore their impact on child's health. It would be interesting to explore the impact that father's education, income and involvement in child care has on child health. We hope to incorporate this information in future studies using Fragile Families data.

As mentioned in the section on our sample, we also omitted couples who were married at the time of the birth. Marriage will have important implications for health insurance and health outcomes, and marital patterns vary significantly between racial and ethnic groups. Because of the design of the Fragile Families Study, which purposefully oversampled unmarried parents, we chose to exclusively focus on unmarried parents. However, in doing so, we lost some interesting analytical information about the role of marriage at childbirth. Unfortunately, the relatively small sample size of married parents precludes the kind of detailed comparisons we make in the is paper, particularly with our focus on racial/ethnic minority groups.

Finally, as mentioned throughout this paper, our study is limited to three-year-olds. We hypothesize that the relationships explored throughout this paper—between race, health and

health insurance—will become more pronounced over time. Therefore, the analyses for three-year-olds only hints at what we believe will become pronounced patterns throughout childhood. Furthermore, a large proportion of three-year-olds were covered by health insurance, high rates that we believe might sink over time. For both these reasons, our next steps—to explore these relationships for five-year-olds—will be essential.

BIBLIOGRAPHY

Anderson, R., M. Chen, L.A. Aday. 1987. "Health Status and Medical Care Utilization." *Health Affairs* 6(1): 136-156.

Angel, R.J., J.L. Angel and L. Lein. 2004. "The Health Care Safety Net for Mexican-Americans." Unpublished Manuscript.

Angel, R.J. and W. Gronfein. 1988. "The Use of Subjective Information in Statistical models." *American Sociological Review* 58: 464-473.

Boardman, J.D., B.K. Finch and R.A. Hummer. 2001. "Racial/ethnic Differences in Respiratory Problems among a Nationally-Representative Cohort of Young Children in the United States." *Population Research and Policy Review* 20(3): 187-206.

Cohen, R.A., C. Hao and Z. Coriaty-Nelson. 2004. Health Insurance Coverage: Estimates from the National Health Interview Survey, January-March 2004. Available at http://www.cdc.gov/nchs/nhis.htm.

Davis, J.B. 2000. "Conceptualising the Lack of Health Insurance Coverage." *Health Care Analysis* 8:55-64.

De la Torre, A.R. Fiis, H.R. Hunter and L. Garcia. 1996. "The Health Insurance Status of U.S. Latino Women: A Profile from the 1982-1982 HHANES." *American Journal of Public Health* 86(4): 533-537.

DeNavas-Walt, C, B.D. Proctor and C.H. Lee. 2005. "Income, Poverty, and Health Insurance Coverage in the United States: 2004". *Current Population Reports* of US Census Bureau.

Documet, P.I. and R.K. Sharma. 2004. "Latinos' Health Care Access: Financial and Cultural Barriers." *Health Services Research* 6(1): 5-13.

Flores, G., H. Bauchner, A.R. Feinstein and U.D. Nguyen. 1999. "The Impact of Ethnicity, Family Income and Parental Education on Children's Health and Use of Health Services." *American Journal of Public Health* 89(7): 1066-1072.

Freeman, H.E., R.J. Blendon, L.H. Aiken, S. Sudman, C.F. Mullinix and C.R. Corey. 1987. "Americans Report on their Access to Health Care." *Health Affairs* 6(1): 6-18.

Frisbie, W.P., M. Biegler, P. DeTurk, D. Forbes and S.G. Pullum. 1997. "Racial and Ethnic Differences in Determinants of Intrauterine Growth Retardation and other Compromised Birth Outcomes." *American Journal of Public Health* 87(12): 1977-1983.

Frisbie, W.P., D. Forbes and R.A. Hummer. 1998. "Hispanic Pregnancy Outcomes: Additional Evidence." *Social Science Quarterly* 79: 149-160.

Gergen P. J., McQuillan G. M., Kiely M., Ezzati-Rice T. M., Sutter R. W., and Virella G.A. 1995. "Population-Based Serologic Survey of Immunity to Tetanus in the United States." *New England Journal of Medicine* 332:761-767.

Guendelman, S., P. English and G. Chaves. 1995. "Infants of Mexican Immigrants: Health Status of an Emerging Population." *Medical Care* 33(1): 41-52.

Huang, F. 1997. "Health Insurance Coverage of the Children of Immigrants in the United States." *Maternal and Child Health Journal* 1(2): 69-80.

Hummer, R.A. 1996. "Black-White Differences in Health and Mortality: A Review and Conceptual model." *The Sociological Quarterly* 37(1): 105-125.

Hummer, R.A., M. Biegler, P. deTurk, D. Forbes, P.W. Frisbie, Y. Hong and S.G. Pullum. 1999. "Racial/ethnicity, Nativity and U.S. Infant Mortality." *Social Forces* 77(2): 1083-1118.

Idler, E.L. and Y. Benyamini. 1997. "Self-rated Health and Mortality: A Review of Twenty-Seven Community Studies." *Journal of Health and Social Behavior* 38: 21-37.

Kadan-Lottick, N.S., K.K. Ness, S. Bhatia and J.G. Gurney. 2003. "Survival Variability by Race and Ethnicity in Childhood Acute Lymphoblastic Leukemia." *JAMA* 290: 2008 - 2014.

Landale, N., R.S. Oropresa and B.K. Gorman. 2000. "The Epidemiological Paradox: Infant Mortality and Migration among Puerto Ricans." *American Sociological Review* 65(6): 888-909.

Markides, K.S. and J. Coreil. 1986. "The Health of Hispanics in Southwestern United States: An Epidemiological Paradox." *Public Health Reports* 101: 253-265.

Markides, K.S. and K. Eschbach. 2004. "Aging, Migration and Mortality: Current Status of Research on the Hispanic Paradox." Paper in Review.

Mendoza, F.S., S.J. Ventura, R.B. Valdez, R.O. Castillo, L.E. Saldivar, K. Baisden and R. Martorell. 1001. "Selected Measures of Health Status for Mexican-American, mainland Puerto Rican and Cuban-American Children." *JAMA* 265(2):

Mosley, W.H. and L.C. Chen. 1984. "An Analytical Framework for the Study of Child Survival in Developing Countries." *Population and Development Review* 10: 25-45.

Munter, P. J. He, J. Cutler, R. Wildman and P. Whelton. 2004. "Trends in Blood Pressure Among Children and Adolescents." *JAMA* 291(17): 2107-2113.

Must, A., J. Spadano, E.H. Coakley, A.E. Field, G. Colditz and W.H. Dietz. 1999. "The Disease Burden Associated With Overweight and Obesity." *JAMA* 282:1523-1529.

Nead, K.G., J.S. Halterman, J.M. Kaczorowski, P. Auinger and M. Weitzman. 2004. "Overweight Children and Adolescents: A Risk Group for Iron Deficiency." *Pediatrics* 114(1): 104-108.

Ogden, C.L., K.M. Flegal, M.D. Carroll and C.L. Johnson. 2002. "Prevalence and Trends in Overweight Among U.S. Children and Adolescents, 1999-2000." *JAMA* 288(14): 1728-1732.

Padilla, Y.C., J.D. Boardman, R.A. Hummer and M. Espitia. 2002. "Is the Mexican-American 'Epidemiologic Paradox' Advantage at Birth Maintained through Early Childhood?" *Social Forces* 80(3): 1101-1123.

Patrick, D.L, C.W. Madden, P. Diehr, D.P. Martin, A. Cheadle and S.M. Skillman. 1992. "Health Status and Use of Services Among Families With and Without Health Insurance." *Medical Care* 30(10): 941-949.

Rogers, R.G., R.A. Hummer and C.B. Nam. 2000. "Health Insurance Coverage and Mortality." Chapter 9 in Living and dying in the USA : behavioral, health, and social differentials of adult mortality. San Diego, CA: Academic Press.

Roberts, E. 2002. "Limitations in Measuring Asthma Disparities." *Archives of Pediatric and Adolescent Medicine* 156:729-730.

Rodríguez, M.A., M.A. Winkleby, D. Ahn, J. Sundquist and H.C. Kraemer. 2002. "Identification of Population Subgroups of Children and Adolescents With High Asthma Prevalence: Findings From the Third National Health and Nutrition Examination Survey." *Archives of Pediatric Adolescent Medicine* 156:269-275.

Saenz, Rogelio. 2004. "Latinos and the Changing Face of America". *The American People Series*. Report from the Russell Sage Foundation and the Population Reference Bureau.

Scott, G. and H. Ni. 2004. "Access to Health Care among Hispanic/Latino Children: United States, 1998-2001." *Advance Data From Vital and Health Statistics* 344: 1-20.

Shi, L. 2000. "Vulnerable Populations and Health Insurance." *Medical Care Research and Review* 57(1): 110-134.

Sinaiko, A.R. 1996. "Current Concepts: Hypertension in Children." *New England Journal of Medicine* 335:1968-1973.

Strauss, R.S. and H.A. Pollack. 2001. "Epidemic Increase in Childhood Overweight, 1986-1998." *JAMA* 286:2845-2848.

Thamer, M., R. Christian, A.W. Casebeer and N.F. Ray. 1997. "Health Insurance Coverage among Foreign-Born U.S. Residents: The Impact of Race, Ethnicity and Length of Residence." *American Journal of Public Health* 87(1): 96-101.

Theirren, M. and R.R. Ramirez. 2000. "The Hispanic Population in the United States, March 2000." *Current Population Reports*. Washington, D.C.: U.S. Census Bureau.

Trevino, R.P., F.M. Trevino, R. Medina, G. Ramirez and R.R. Ramirez. 1996. "Health Care Access Among Mexican-Americans with Different Health Insurance." *Journal of Health Care for the Poor and* Underserved 7(2): 112-21.

U.S. Department of Health and Human Services. 2000. *Healthy People 2010: Understanding and Improving Health*. 2nd ed. Washington, D.C.: U.S. Government Printing Office.

Winkleby, M., T. Robinson, J. Sundquist and H. Kraemer. 1999. "Ethnic Variation in Cardiovascular Disease Risk Factors Among Children and Young Adults: Findings from the third National Health and Nutrition Examination Survey, 1988-1994." *JAMA* 281(11): 1006-1013.

Zambruna, R.E. and L.A. Logie. 2000. "Latino Child Health: Need for Inclusion in the U.S. National Discourse." *American Journal of Public Health* 90(12): 1827-1834.

Table 1. Percentage Distribution of Socio-Demographic Characteristics, Child Health Outcomes, and Health Insurance Coverage by Child's Race/Ethnicity

	Third+ Generation Mexican Origin	Second Generation Mexican Origin	White	Black
Demographic Characteristics				
% Mother under 25 at birth	76.7	46.2	65.1	65.6
% Infant Low Birth Weight	5.1	6.3	12.1	13.3
Child Mean Age (months) at year 3	38.8	39.7	38.3	38.4
% Child Female	49.3	51.4	47.8	46.1
Mother's Education				
% Less than high school	45.7	76.1	31.1	36.1
% High school or equivalent	27.4	14.1	35.5	37.5
% Some college or higher	26.9	9.9	33.4	26.3
Parents relationship at year 3				
% Married	21.5	23.1	18.5	7.6
% Cohabiting	25.6	48.3	30.4	21.7
% Other	53.0	28.7	51.2	70.8
Household Income at year 3				
% $15,000 or less	37.9	37.1	28.0	46.9
% $15,000 to $30,000	27.4	36.4	32.0	25.6
% Over $30,000	29.2	16.8	36.3	19.5
Missing	5.5	9.8	3.8	7.9
Mother's Health Evaluation of Child				
% Good/Fair/Poor (vs. Exc/V Good) at Age 3	16.1	26.8	13.6	15.5
% Doctor Diagnosed Asthma at age 3	19.3	11.3	13.9	25.1
% Child overweight or at risk at age 3	42.8	45.4	33.2	31.8
% One or more ER visits in last year	33.5	20.4	31.7	39.2
% Hospital overnights in past year	4.1	3.5	3.2	6.2
Mean Doctor's Visits in past year	2.1	1.1	2.0	1.5
Child's Health Insurance at year 1-year 3				
% Private-Private	19.2	6.3	19.0	11.0
% Private-Public	15.1	9.1	13.8	12.4
% Public-Public	37.9	50.4	42.1	57.8
% None-Private/Public	23.3	29.4	22.2	17.8
% None-None	4.6	4.9	2.9	1.1
N	219	143	347	1402
Percent of total	10.4%	6.8%	16.4%	66.4%

Source: Fragile Families and Child Wellbeing Study

Table 2. Odds ratios predicting a less-than-optimum health report, doctor-diagnosed asthma or risk for overweight by race/ethnicity and sociodemographic characteristics

	Mother's Health Report			Asthma			Risk for Overweight		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Child's Race/Ethnicity [white]									
Third-generation+ Mexican	1.36	1.33	1.26	1.38	1.34	1.27	1.53 *	1.53 *	1.51 *
Second-generation Mexican	2.69 ***	2.49 ***	2.32 ***	0.68	0.65	0.68	1.57	1.62 *	1.67 *
Black	1.11	1.06	0.99	2.03 ***	1.91 ***	1.79 ***	0.97	1.00	1.03
Infant low birth weight [2500+ grams]	1.40 *	1.38 *	1.35 *	1.15 **	1.50 **	1.50 **	0.63 **	0.63 **	0.65 **
Child age at interview	0.97	0.98	0.97	1.00	1.00	1.00	1.04 **	1.04 **	1.04 **
Child sex female [male]	1.38 ***	1.38 ***	1.40 ***	1.59 ***	1.58 ***	1.58 ***	1.00	1.00	1.00
Health Insurance [private-private]									
Private-Public		1.09	0.99		1.26	1.12		0.82	0.82
Public-Public		1.50 **	1.29		1.53 **	1.30		0.82	0.89
None-Private/Public		1.10	0.94		0.92	0.80		0.75	0.79
None-None		1.93	1.75		1.15	1.08		1.86	1.98
Mother's age at childbirth [25+]			0.87			1.10			1.10
Mother's Education [some college plus]									
Less than high school			1.41 **			1.27			1.03
High school or equivalent			1.00			1.15			0.99
Parents relationship at year 3 [married]									
Cohabiting			0.81			1.01			0.86
Other			1.20			1.47 *			0.97
Household Income at Year 3 [>$30,000+]									
<=$15,000			0.99			0.96			0.82
%15,001-$30,000			1.04			0.90			0.98
Missing			1.27			0.80			0.61 **
Observations	2063	2063	2063	2071	2071	2071	1632	1632	1632
-2 Log Likelihood	1778.6	1770.2	1755.1	2062.8	2049.17	2035.54	2042.99	2036.59	2029.7
Degrees of Freedom	20	24	32	20	24	32	20	24	32

Source: Fragile Families and Child Wellbeing Study

* significant at 10%; ** significant at 5%; *** significant at 1%

1. All models control for fixed state effects.

2. Reference categories for predictor variables are in [brackets].

Table 3. Odds ratios predicting one or more emergency room visits, mean doctors visits and one or more hospital overnight stays in past year by race/ethnicity and socio-demographic characteristics

	Emergency Room Visits			Hospital Overnight Stays			Mean Doctors Visits		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Child's Race/Ethnicity [white]									
Third-generation+ Mexican	1.19	1.17	1.14	1.02	0.96	0.97	0.86 **	0.86 **	0.85 **
Second-generation Mexican	0.73	0.69	0.71	1.23	1.05	1.12	0.58 ***	0.60 ***	0.55 ***
Black	1.42 **	1.36 **	1.33 **	2.22 **	2.09 **	2.09 **	0.79 ***	0.78 ***	0.80 ***
Infant low birth weight [2500+ grams]	0.91	0.90	0.90	1.34	1.27	1.28	0.98	0.99	0.99
Child age at interview	0.94 ***	0.94 ***	0.94 ***	0.97	0.98	0.97	0.95 ***	0.95 ***	0.95 ***
Child sex female [male]	1.04	1.03	1.03	1.64 **	1.65 **	1.65 **	1.00	1.00	1.00
Health Insurance [private-private]		1.19	1.13		0.53	0.50		0.83 ***	0.79 ***
Private-Public									
Public-Public		1.40 **	1.31		1.94 *	1.90		0.85 ***	0.82 ***
None-Private/Public		1.09	1.04		1.18	1.15		0.71 ***	0.68 ***
None-None		1.09	1.07		2.52	2.70		0.52 ***	0.48 ***
Mother's age at childbirth [25+]			1.07			1.04			0.99
Mother's Education [some college plus]									
Less than high school			1.05			0.83			1.16 ***
High school or equivalent			1.08			0.80			0.98
Parents relationship at year 3 [married]									
Cohabiting			0.89			0.85			0.90 *
Other			1.02			1.07			0.88 **
Household Income at Year 3 [>$30,000+]									
<=$15,000			1.06			1.08			1.01
%15,001-$30,000			1.00			1.30			1.20 ***
Missing			0.82			1.12			1.03
Constant							2.6 ***	2.6 ***	2.7 ***
Observations	2065	2065	2065	1971	1971	1971	2065	2065	2065
-2 Log Likelihood	2636.2	2628.6	2624.4	807.5	792.9	790.3	9236.8	9193.9	9152.6
Degrees of Freedom	20.00	24.00	32.00	18	22	30	20	24	32

Source: Fragile Families and Child Wellbeing Study

* significant at 10%; ** significant at 5%; *** significant at 1%

1. All models control for fixed state effects.

2. Reference categories for predictor variables are in [brackets].