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Fulda, Kimberly G., *Unmet Health Care Needs Stratified by Socioeconomic Status: Results of the National Survey of Children with Special Health Care Needs*. Doctor of Public Health (Clinical Research), December 2006, 200 pp., 15 tables, 4 figures, references, 73 titles.

The purpose of this research study was to identify factors that affect unmet health care needs for children with special health care needs (CSHCN) and to identify how these factors vary by socioeconomic status. Data were obtained from an already existing, publicly available database from the National Survey of Children with Special Health Care Needs, 2000 – 2002, available through the Centers for Disease Control and Prevention. Approximately 750 CSHCN from each of the 50 states and the District of Columbia were included. Survey data represented parent report responses on health care and health care needs for CSHCN. Responses for 38,866 CSHCN up to 17 years of age were included in the analysis. Four hypotheses were tested: having received all needed routine, preventive care; having received all needed care from a specialist; having received all needed mental health care or counseling; and having received comprehensive, coordinated care in a medical home. Within each of the four hypotheses, four models were presented for socioeconomic status (SES): < 133 % of the federal poverty level (FPL); 133 – 199% of the FPL, 200 – 299% of the FPL, and \geq 300% of the FPL. Age, severity of the CSHCN's condition, sex, race, ethnicity, maternal education, insurance status / type, geographical region of the household, relationship of the respondent to the CSHCN, the total number of adults in the household, and the total

number of kids in the household were all significant predictors of having received all needed care in at least one SES stratum for the four hypotheses. Analyses revealed there are disparities among SES strata for unmet health care needs for CSHCN.

UNMET HEALTH CARE NEEDS
STRATIFIED BY SOCIOECONOMIC STATUS:
RESULTS OF THE NATIONAL SURVEY
OF CHILDREN WITH SPECIAL HEALTH CARE NEEDS

DISSERTATION

Presented to the School of Public Health

University of North Texas
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CHAPTER I

INTRODUCTION

Rationale

Approximately 13% of children in the United States met the Maternal and Child Health Bureau's definition of children with special health care needs (CSHCN) in 2001 – 2002 (van Dyck, Kogan, McPherson, Weissman, & Newacheck, 2004). In 1994, the estimate of CSHCN was 12%, however, another 6% were presumed to meet this definition (Newacheck et al., 1998). The prevalence is generally higher for older children, males, African Americans, and children in lower socioeconomic status (SES) households. Males are approximately 33% to 50% more likely to be CSHCN, and children in lower SES households are about 33% more likely (Newacheck et al., 1998; van Dyck et al., 2004). Approximately 18% of CSHCN experience unmet needs for health care services, while 22% have difficulty obtaining needed referrals to a specialist (van Dyck et al., 2004). At least 60% of CSHCN are limited in the activities they can accomplish, and about 21% of families with CSHCN experience financial difficulties (Jackson Allen, 2004). In 2000, health care expenditures for CSHCN were 3 times higher than expenditures for other children. Additionally, CSHCN were admitted to the hospital 4 times more often, spent 7 times more days in the hospital, and had over 2 times more doctor visits than other children. The out-of-pocket medical expenditures for

CSHCN were 2 times more than other children, with 55% of expenditures for dental procedures paid out-of-pocket (Newacheck & Kim, 2005).

Purpose of the Study

The purpose of this research study was to identify factors that affect unmet health care needs for children with special health care needs and to identify how these factors vary among different socioeconomic levels.

Research Question

One overarching research question linked the individual hypotheses and identified the overall intent of this dissertation proposal.

Among children with special health care needs, how do factors affecting unmet health care needs vary by socioeconomic status?

Hypotheses

Hypothesis 1.

Children with special health care needs receiving all needed routine preventive care is dependent upon income stratification with each stratum affected by demographic characteristics, geographical location of household, severity of condition, and social factors.

Hypothesis 2.

Children with special health care needs receiving all needed care from a specialist is dependent upon income stratification with each stratum affected by demographic characteristics, geographical location of household, severity of condition, and social factors.

Hypothesis 3.

Children with special health care needs receiving all needed mental health care or counseling is dependent upon income stratification with each stratum affected by demographic characteristics, geographical location of household, severity of condition, and social factors.

Hypothesis 4.

Children with special health care needs receiving comprehensive, coordinated care in a medical home is dependent upon income stratification with each stratum affected by demographic characteristics, geographical location of household, severity of condition, and social factors.

Delimitations

No additional control on inclusion or exclusion of participants was utilized. The National Survey of CSHCN included interviews of children less than 18 years of age.

Limitations

There are limitations associated with this research project. The National Survey of Children with Special Health Care Needs relies on parent-reported information from a parent or guardian most familiar with the child's health care. Recall bias may be present given that some of the questions are relevant to health care provided within past 12 months. Additionally, the parent or guardian may not accurately portray relevant information due to misperceptions of condition severity or need for care. Youngblade and Shenkman (2003) demonstrated, however, substantial agreement (85%; kappa = 0.70) between parent and adolescent identification of CSHCN using the CSHCN Screener. Of the 15% of matched parent/adolescent pairs that did not agree, parents were more likely to identify a chronic condition when the adolescent did not, particularly for mental health conditions.

The National Survey of CSHCN is a random digit dial telephone survey. There is a chance that households without a telephone and therefore not eligible for study participation may be different from study participants. This potential exclusion of households will be partially controlled for by weighting of the sample. Differences may exist between subjects with missing data and subjects without missing data. The National Survey of CSHCN was conducted with the use of a Computer Assisted Telephone Interview (CATI) to diminish the potential for missing data (Blumberg et al., 2003). Analyses will be performed to identify any potential differences between subjects with and without missing data. Differences may also exist between respondents and non-

respondents. Finally, this is cross-sectional survey which excludes inference of cause/effect relationships. A temporal relationship cannot be established.

Assumptions

There are limited assumptions implied by using data from a publicly available national database. All responses are parent report. It is assumed the interviewees responded honestly and to the best of their knowledge. It is also assumed that the interviewer correctly entered all responses.

Definition of Terms

- Children with special health care needs (CSHCN) – The Maternal and Child Health Bureau (MCHB) defined children with special health care needs as: “Children with special health care needs are those who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally” (McPherson et al., 1998).
- Medical home – The American Academy of Pediatrics has set a guideline that all infants, children, and adolescents should receive accessible, family centered, continuous, comprehensive, coordinated, compassionate, and culturally effective care provided by a primary care physician. This idea of a medical home can occur at any location such as a clinic or physician office (American Academy of Pediatrics [AAP], 2002).

Importance of the Study

This study will contribute valuable information for identifying and improving quality of health care for CSHCN. CSHCN require individual attention and present increased demands on health care providers and the health care system. There are various federal, state, and local programs that provide services relevant to ensuring CSHCN receive adequate health care. Previous research aimed at identifying inadequacies in the available programs has included socioeconomic status (SES) and have found that SES influences unmet health care needs for CSHCN. The intent of this research study was to identify if demographic characteristics, geographical location of household, severity of condition, and social factors affect CSHCN receiving all needed routine preventive care, specialty care, mental health care, and access to a medical home. Furthermore, this study was designed to identify how each of these factors varied among different SES strata. Identifying how these factors change among SES strata is important for targeting programs to individual CSHCN characteristics specifically related to SES.

CHAPTER II

REVIEW OF THE LITERATURE

Chapter II provides a review of the literature on children with special health care needs (CSHCN). It begins with a brief overview of disparities in health care for CSHCN followed by a description of the development of the Maternal and Child Health Bureau and the current accepted definition of CSHCN. It is important to understand this definition to have a clear picture of how the subsequent concepts apply to this population. The effects of socioeconomic status on health care and access to care for CSHCN are discussed, as the analysis of this project is stratified by socioeconomic status. The importance of preventive care, specialty care, mental health care, and access to a medical home for CSHCN is detailed. These discussions are followed by a review of the literature on the impact of race / ethnicity, health insurance, Medicaid, State Children's Health Insurance Program, severity of condition, language, maternal education, single parent households and family size, and geographical location on CSHCN.

Disparities in Health Care for Children

The Agency for Healthcare Research and Quality (AHRQ) develops and presents the National Healthcare Quality Report (NHQR) and the National Healthcare Disparities Report (NHDR). The 2003 AHRQ and NHRQ present the following principal findings:

“high-quality health care is not a given in the US healthcare system”; “gaps in healthcare quality are particularly acute for certain racial, ethnic, and socioeconomic groups”; “quality of care and disparities in quality of care are particularly pronounced for preventive services”; and “improvement in quality and disparities is possible” (Kelley, Moy, Stryer, Burstin, & Clancy, 2005). Findings of these reports demonstrate disparities in child health for issues such as being uninsured (41% of Hispanic children versus 17% of non-Hispanic white children), having public health insurance (46% of black children versus 39% of Hispanic children, versus 21% of white children), and emergency department visits per 100 population (54 for black children versus 34.6 for white children) (Dougherty, Meikle, Owens, Kelley, & Moy, 2005).

National surveys provide additional insight into disparities that exist for children. Disparities in health care status and health care access for children have been identified for race, ethnicity, age, socioeconomic status, geographical location, and health insurance coverage (Newacheck, Hughes, Hung, Wong, and Stoddard 2000; Newacheck, Hung, Park, Brindis, & Irwin, 2003; Shi & Stevens, 2005a; Zambrana & Logie, 2000). These disparities may become even more pronounced for CSHCN (Mayer, Skinner, & Slifkin, 2004; Newacheck, McManus, Fox, Hung, & Halfron, 2000; van Dyck, Kogan, McPherson, et al., 2004).

History of Governmental Programs for Maternal and Child Health

The Children’s Bureau was created on April 9, 1912, to “investigate and report on all matters pertaining to the welfare of children and child life among all classes”

(Hutchins, 1994). This was the first time the United States government emphasized the welfare of children, and all states were members of the Children's Bureau by 1933. Political turmoil among pediatricians followed policies set by the Children's Bureau leading to the resignation of pediatricians from the American Medical Association to form the American Academy of Pediatrics (AAP) in 1930. The Children's Bureau advocated for policies to improve maternal and child health through programs maintained at the state level with monetary support from the federal government. This forced the federal and state governments to share in the responsibility of taking care of the nation's children and providing community services. A proposal developed by the Children's Bureau Chief in 1934, Katherine Lenroot, along with a retired Bureau Chief, Grace Abbott, and Martha Eliot was in part presented in the 1934 Annual Report of Frances Perkins, the first woman Cabinet member and Secretary of Labor. This proposal included "welfare services for children needing special care, and maternal and child health services including services for crippled children" (Hutchins, 1994). Together, these proposals formed Title V of the Social Security Act enacted on August 14, 1935, providing federal grants for states with programs directed towards maternal and child health. The Social Security Act accentuated the need of society's help to improve maternal and child health (Hutchins, 1994). Later, the Maternal and Child Health Bureau (MCHB) was established on May 15, 1990. The MCHB was created within the Health Resources and Services Administration (HRSA) of the Public Health Service (Hutchins, 1994).

Defining Children with Special Health Care Needs (CSHCN)

Having an accepted definition of Children with Special Health Care Needs (CSHCN) is necessary to ensure appropriate programs and services are available at the national, state, and local level. As previously discussed, Title V of the Social Security Act provides federal funds matched by state funds to support programs for CSHCN. Changes in policies for education and changes in the epidemiology of child health, however, are examples of issues that have triggered complex systems for supplying these programs and services. These complex systems have contributed to overlap in programs for some benefits and discontinuity for other benefits (McPherson et al., 1998). Unifying the national, state, and local efforts requires an inclusive definition of the target population.

A group of experts was organized by the Maternal and Child Health Bureau's Division of Services for Children with Special Health Care Needs to develop a new working definition of CSHCN. This group gathered between 1994 and 1995 and consisted of directors of CSHCN programs, physicians, parents, epidemiologists, and policy analysts. Five principles guided the group's efforts. The definition was to be simple, be useful to the federal Title V program, be useful to the state Title V systems, reflect primary and health services linkages, be measurable, and be based on scientific knowledge. Programs had previously defined CSHCN by either providing a list of qualifying chronic conditions, identifying functional impairment, or identifying increased service need. The assembled group of experts agreed to include increased service needs and to include children at risk. The final definition reads "Children with special health care needs are those who have or are at increased risk for a chronic physical,

developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally”

(McPherson et al., 1998).

Socioeconomic Status (SES)

Research has confirmed the role of socioeconomic status (SES) in health care disparities for adults and children in the United States. SES is generally presented in the form of percent of federal poverty level, calculated as a ratio of household income and the number of persons in a household. According to the 2005 poverty level guidelines, a family of four with an annual income of \$19,350.00 is categorized at 100 % of the federal poverty level (Department of Health and Human Services [DHHS], 2005). Disparities of SES are significant with more than one-third of Black (40%), Hispanic (35%), and Native American (41%) children in the United States living in households below the federal poverty level (Flores, Bauchner, Feinstein, & Nguyen, 1999). Several studies utilizing data from national databases have included SES as an independent factor in multivariate models; thus, controlling for SES to accurately assess the relationship of variables.

Results of the National Health Interview Survey conducted in 1999 and 2000 provide insight into disparities for adolescents 10 to 18 years of age based on SES. When compared to adolescents from households at $\geq 300\%$ of the federal poverty level, adolescents in households at $< 100\%$ of the federal poverty level (FPL) and at 100 – 199% of the FPL were significantly more likely to have fair or poor health, be limited in activity, have a behavioral or emotional problem, have no health insurance coverage,

have no usual source of care when sick, have no personal health provider, have had no visits to a health professional in the past year, and be unable to get medical care due to costs. Most of these trends continued even into households at 200 – 299% of the FPL (Table 1) (Newacheck et al., 2003). Among Hispanic children, a lower annual household income was significantly related to an increased odds of having suboptimal health status, as defined by parent report of the child's health status (poor, fair, or good versus excellent or very good) [OR = 1.5, 95% CI (1.04, 2.2)] and an increase in the number of physician visits in the past year ($p < 0.04$) (Flores, Abreu, Olivar, and Kastner, 1998).

Similar trends in health status and health care access occur in CSHCN from different SES levels. Parents or guardians of CSHCN belonging to households < 100% FPL [OR = 1.97, 95% CI (1.23, 3.14)] and between 100% - 199% FPL [OR = 2.57, 95% CI (1.70, 3.89)] are more likely to report not having received all needed routine care than households \geq 200% FPL. CSHCN in households < 100% FPL [OR = 2.50, 95% CI (1.49, 4.18)] and between 100% and 199% FPL [OR = 1.93, 95% CI (1.43, 2.61)] are also more likely to report not having received all needed specialty care (Mayer et al., 2004). CSHCN in households < 100% FPL and between 100% and 200% FPL are more than four times as likely to not have insurance when compared to households \geq 200% FPL (Newacheck, McManus et al., 2000). Van Dyck, Kogan, McPherson et al. (2004) also demonstrate that when compared to households \geq 400% of poverty level, CSCHN in households at 0 – 99%, 100 – 199%, and 200 – 399% of the FPL are more likely to demonstrate unmet needs for access to care (Table 2). Tippy, Meyer, Aronson, and Wall

(2005), however, did not find any significant affect of SES on receiving comprehensive care in a medical home in Maine.

Table 1. Income and Health Status, Access to Care, and Use of Health Services for Adolescents: U.S. 1999 and 2000 §

	< 100% FPL	100 – 199% FPL	200 - 299% FPL
	OR (95% CI)*	OR (95% CI)*	OR (95% CI)*
With fair or poor health	4.47 (2.68, 7.47)	2.15 (1.32, 3.49)	1.55 (0.87, 2.77)
With any limitation activity	2.71 (2.04, 3.60)	2.12 (1.70, 2.64)	1.53 (1.20, 1.95)
Had a behavioral / emotional problem	1.87 (1.57, 2.22)	1.64 (1.42, 1.89)	1.30 (1.13, 1.49)
With no health insurance coverage	5.81 (4.61, 7.32)	5.98 (4.79, 7.48)	2.65 (2.10, 3.35)
With no usual source of care when sick	2.52 (1.71, 3.71)	1.88 (1.35, 2.62)	1.67 (1.19, 2.34)
With no personal health provider	1.68 (1.26, 2.24)	1.57 (1.20, 2.05)	1.28 (0.98, 1.67)
Had no visits to a health professional in pas year	1.70 (1.40, 2.07)	1.63 (1.38, 1.94)	1.48 (1.23, 1.77)
Unable to get medical care due to costs	3.80 (2.29, 6.32)	2.93 (1.79, 4.78)	2.72 (1.70, 4.36)

*OR = Odds Ratio; 95% CI = 95% Confidence Interval of Odds Ratio; FPL = Federal Poverty Level

§Source: Data are taken directly from Table 1 in Newacheck et al. (2003). Odds ratios represent adjusted odds ratios.

Table 2. Measures of Access with Care Among CSHCN in the United States, 2001§

	0 - 99% FPL	100 - 199% FPL	200 - 399% FPL
	OR (95% CI)*	OR (95% CI)*	OR (95% CI)*
Any unmet need for specific care services	3.43 (2.78, 4.23)	3.09 (2.54, 3.77)	1.68 (1.40, 2.02)
Any unmet need for family support services	1.79 (1.29, 2.47)	1.74 (1.30, 2.35)	1.65 (1.24, 2.19)
Child had no usual source of care	1.26 (1.01, 1.58)	1.20 (0.98, 1.48)	1.10 (0.92, 1.32)
Child had no personal physician or nurse	2.12 (1.69, 2.66)	1.53 (1.25, 1.89)	0.99 (0.83, 1.18)
Difficulty receiving referrals for specialty care	1.71 (1.34, 2.18)	1.27 (1.03, 1.56)	0.99 (0.83, 1.17)

*OR = Odds Ratio; 95% CI = 95% Confidence Interval of Odds Ratio; FPL = Federal Poverty Level

§Source: Data are taken directly from Table 1 in van Dyck, Kogan, McPherson et al., 2004. Odds ratios represent adjusted odds ratios.

Preventive Care

In 1997, the American Academy of Pediatrics Committee on Child Health Finance set forth 22 services that individuals up to age 21 and pregnant women should be able to access for “optimal health and well-being”. These health care services should be provided by pediatricians and OB/GYNs and offered through both private and public insurance plans. The recommended services include medical care (such as immunizations), mental health care, and “case management and care coordination integrated with [the] child’s primary care provider and family as required by those with special health care needs” (AAP, 1997). The American Academy of Pediatrics has also provided a policy statement for “Family-Centered Care and the Pediatrician’s Role”. Family centered care focuses on having the pediatrician and family work together to make health care decisions. This eventually empowers the family and child to feel a sense of responsibility and take action for the child’s health. Core principles guide family centered care for children: respect the child and family; honor diversity; recognize strengths; ensure flexibility in policies; share unbiased information; provide formal and informal support; collaborate with families at all levels of care; and empower each child and family. Ultimately, family centered care leads to increase satisfaction and improved health outcomes (AAP, 2003).

Routine visits to the pediatrician provide the opportunity for preventive care through well child examinations and family centered care. The American Academy of Pediatrics recommends 28 well child visits between birth and 21 years of age. The elements of a well child visit change depending on age, generally recognized as early

infancy (0 – 6 months), late infancy (7 months – 2 years), preschool (3 – 5 years), and elementary school (6 – 12 years) (Nevin & Witt, 2002). Freed, Clark, Pathman, and Schectman (1999) conducted a parent interview, medical record review, and insurance status verification on 2,767 children in North Carolina. The authors found that late initiation or no prenatal care [OR = 0.6, 95% CI (0.50, 0.86)], mother's race, non-white [OR = 0.7, 95% CI (0.55, 0.92)], being uninsured [OR = 0.5, 95% CI (0.35, 0.86)], and being underinsured [OR = 0.5, 95% CI (0.31, 0.76)] decreased a child's odds of receiving an adequate number of well child visits at 24 months. Receiving all care at a private site (versus public site) [OR = 5.2, 95% CI (4.06, 6.57)], on the other hand, drastically increased the odds of receiving an adequate number of well child visits. Five well child visits was considered adequate for 24 months. No differences were found for mother's age, mother's education, mother's marital status, and household income. Analysis of the 2000 National Survey of Early Childhood Health revealed disconcerting results. Of children 4 to 35 months of age, an alarming 24.9% received fair and 8.7% received poor basic preventive services. Receiving excellent, good, fair, or poor basic preventive services was not affected, however, by maternal race / ethnicity, family income, type of health insurance coverage, and provider setting (private, public, hospital-based) (Zuckerman, Stevens, Inkelas, & Halfron, 2004).

Pediatricians and family physicians use a variety of tools to identify developmental delays during well child visits. A survey of 341 pediatricians and 199 family physicians demonstrated that almost 90% of physicians utilize a list of developmental milestones and question parents regarding issues or concerns.

Approximately one third of physicians used validated screening tools administered by the physician and / or parent report questionnaires. Of respondents, 87% of pediatricians and 79% of family physicians agreed with the statement “early intervention services for children ages birth to 3 years with developmental delays are effective”. Differences between pediatricians (71%) and family physicians (47%) become apparent when agreeing to “once I identify developmental delays in a child, I feel confident in how to care for the child, including managing consultations and referrals for therapy”. Despite feeling early intervention screening is important, only 39% of pediatricians and 32% of family physicians felt that “during a typical well-care visit, there is adequate time to perform developmental screening” (Sices, Feudtner, Mclaughlin, Drotar, & Williams, 2003). These complex issues need to be addressed to ensure complete, adequate health care for children

Specialty Care

Health care specialists focus on one disorder or body system to provide expertise in intricate and complex systems. One hundred forty-two pediatricians representing practices in 36 states were followed for 20 work days. Referral rates to a specialist ranged from 0 to 11% of patients. Reasons for referral were advice on treatment (62.6%), advice on diagnosis (46.7%), and medicolegal reasons (0.9%). Patients referred for specialized skill were referred for surgery (21.7%), medical treatment (14.6%), nonsurgical technical procedures (15.1%), mental health counseling (6.7%), failed

conventional therapy (7.8%), multidisciplinary care (7.6%), and time constraints (0.8%) (Forrest, Glade, Baker et al., 1999).

Having an insurance plan which requires gatekeeping arrangements affects referral for specialty care. Gatekeeping arrangements that restrict referrals to specialty care are common among managed care organizations. In the aforementioned study, only one significant difference, type of insurance, was identified in the distribution of children and adolescents who received referrals to specialty care because of belonging to a health care plan that includes gatekeeping. An estimated 82.2% of children and adolescents with a health care plan that involved gatekeeping had private insurance; whereas, 17.8% had Medicaid. Of those with a health care plan that did not include gatekeeping, 68.8% had private insurance, and 31.2% had Medicaid. No significant differences were found for age, sex, maternal education, global rating of health, and number of previous visits with physician for the health problem (Forrest, Glade, Starfield et al., 1999).

Thirteen percent of children and adolescents 2 to 17 years of age are reported as having had a specialty care visit in the last year. Non-white, poor, and uninsured children and adolescents are less likely to have seen a specialist. Having a chronic condition or disability is associated with being more likely to see a specialist in the past year (Kuhlthau, Nyman, Ferris, Beal, & Perrin, 2004). Similar statistics apply to CSHCN, such that over 7% of CSHCN report an unmet need for specialty care. Age, poverty status, insurance status, and severity of condition affect having an unmet need for specialty care among CSHCN. In essence, older, poor, uninsured, and more severely affected CSHCN are more likely to have an unmet need (Mayer et al., 2004). In Texas,

parents of Hispanic CSHCN [OR = .45, 95% CI (0.21, 0.97)] are less likely to report a need for specialist care. Maternal education of some high school [OR = 0.14, 95% CI (0.04, 0.48)] and a high school diploma [OR = 0.29, 95% CI (0.13, 0.64)] are also associated with a decreased odds of reporting a need for specialist care when compared to a four year college degree (Young et al., 2005).

Mental Health Care

Mental health disorders in children can be difficult to diagnose and may continue into adulthood. Approximately 21 % of children 9 to 17 years of age in the United States have a mental or addictive disorder. Mental health conditions commonly affecting children include: anxiety disorders, attention-deficit and disruptive behavior disorders, autism and other pervasive developmental disorders, eating disorders, elimination disorders, learning and communication disorders, mood disorders, schizophrenia, and Tic disorders (United States Surgeon General, 2006). The number of mental health care physician visits during which antipsychotic medications were prescribed to individuals 0 – 20 years of age increased from about 201,000 in 1993 to 1,224,000 in 2002 (Olfson, Blanco, Liu, Moreno, & Laje, 2006).

Due to the increasing number of children and adolescents in the United States experiencing mental health needs, the *Surgeon General's Conference on Children's Mental Health: Developing a National Action Agenda* was convened on September 18 – 19, 2000. This conference included 300 stakeholders in the mental health well-being of children in the United States. The agenda set forth eight goals, each with action steps

aimed at “fostering social and emotional health in children as a part of healthy child development”. One of the eight goals constructed was to “increase access to and coordination of quality mental healthcare services” with an action plan to “develop a universal measurement system across all major service sectors that is age-appropriate, culturally-competent, and gender sensitive to (i) identify children, including those with special health care needs, who may need mental health services . . .” (United States Public Health Services, 2000).

The majority of individuals 0 to 17 years of age who utilized mental health services in 1996 were male (60.8%) and 13 to 17 years old (50.6%). The number of outpatient treatment days for mental health care actually decreased from 6.88 in 1993 to 6.53 in 1996, while the cost per treated patient decreased from \$983 in 1993 to \$737 in 1996 (Leslie, Rosenheck, & McCue Horwitz, 2001). With changes in utilization patterns of mental health care, it is crucial to identify needs for specific populations of children. An interview of primary caregivers for African American and Caucasian CSHCN 2 to 18 years of age revealed that Caucasian [OR = 2.4, 95% CI (1.1, 5.3)] caregivers are more likely to report a perceived need for mental health care after controlling for child behavior. No differences in perceived need were found for gender, education of parent, employment status, or marital status (Canty-Mitchell, Austin, Jaffee, Qi, & Swigonski, 2004).

Analysis of data from the National Survey of CSHCN revealed that CSHCN from households at less than 100% of the federal poverty level [OR = 2.02, 95% CI (1.22, 3.34)], from household at 100 to 185% of the federal poverty level [OR = 1.57, 95% CI

(1.13, 7.19)], who are uninsured [OR = 2.84, 95% CI (1.70, 2.32)], with a mildly severe condition [OR = 2.14, 95% CI (1.44, 3.17)], with a modestly severe condition [OR = 2.96, 95% CI (1.97, 4.46)], and with a most severe condition [OR = 2.61, 95% CI (1.54, 4.41)] are more likely to have unmet needs for mental health care services. Hispanic CHSCN [OR = 0.66, 95% CI (0.45, 0.96)] demonstrated a decreased odds of having unmet needs for mental health care services (Ganz & Tendulkar, 2006). CSHCN with chronic emotional, behavioral, or developmental problems are at an even greater risk of experiencing unmet health care needs. Specifically, when compared to CSHCN without emotional, behavioral, or developmental problems, they exhibit a greater odds of not having health insurance at some time during the past year [OR = 1.41, 95% CI (1.22, 1.62)], having difficulty obtaining a referral [OR = 2.41, 95% CI (2.11, 2.76)], not having a personal doctor or nurse [OR = 1.51, 95% CI (1.31, 1.75)], and not having family-centered care [OR = 2.17, 95% CI (1.98, 2.39)] (Centers for Disease Control and Prevention [CDC], 2005).

With the increase in the number of children needing mental health care and the under utilization of services, it is important to identify potential barriers to mental health services. Harrison, McKay, and Bannon Jr. (2004) surveyed parents of children referred to an outpatient mental health care facility who never attended. Results of the survey revealed that reasons for non-attendance included: the therapist had not called (29%); the parents were too busy with other responsibilities (23%); the child went somewhere else (17%); the parent was no longer caring for the child (6%); the parents were waiting for insurance benefits (2%); and the child was doing better (3%). Another parent report

survey of seventh grade children identified as needing mental health services demonstrated that 35% of parents reported a barrier to receiving services, with 25.9% reporting a barrier of perceptions of mental health services. These included negative perceptions of mental healthcare such as lacking confidence in who recommended the help, having had a negative experience with professionals, and family and social stigma. Parents who had been divorced [OR = 4.61, 95% CI (1.65, 12.92)] and parents with difficulties parenting [OR = 5.22, 95% CI (1.56, 17.51)] were more likely to report a barrier related to perceptions of mental health services (Owens et al., & Ialongo, 2002).

The Medical Home

The concept of a medical home is important for CSHCN to receive adequate health care. The American Academy of Pediatrics (AAP) has established guidelines for a medical home to include accessible, family centered, continuous, comprehensive, coordinated, compassionate, and culturally effective care. This care is generally provided by a family physician that is familiar with the child and serves as the child's usual source of care (AAP, 2002). Care coordination is becoming increasingly necessary with the advances of medicine and availability of specialty care. Ideally, a primary physician in cooperation with nurses, families, and support staff will provide information about needed specialty services that are available and obtainable based on the child's condition, social circumstances, and health insurance coverage. The medical record at the primary physician's office would function as the central location for information on the child's health care (Council on Children with Disabilities, 2005). Obstacles to receiving

coordinated care in a medical home include cultural and language differences, deficient knowledge of the child's condition, inadequate communication, deficient health care funding, and a lack of an organized system of providers (Council on Children with Disabilities, 2005).

Various models for creating an optimal medical home environment have been established. For example, pediatricians (primary care and specialty care) worked together to create the Pediatric Alliance for Coordinated Care (PACC) based in Boston, Massachusetts to provide a medical home environment for CSHCN. The PACC emphasized family centered care by having the families involved in health care decision making. A pediatric nurse practitioner was chosen from each practice in PACC to spend at least eight hours per week managing CSHCN. The pediatric nurse practitioner received training on identifying resources and visited each child at home to become familiar with any potential unmet needs. Parents responded to a series of quality of health care questions before and after entering PACC. Parents reported it was either much easier or somewhat easier to attain services due to having the same nurse to talk to (68.4%), getting letters of medical necessity (66.9%), getting early medical care (61.4%), getting telephone calls returned (61.2%), getting an appointment (60.9%), communicating with the child's doctor (60.9%), getting referrals (60.5%), and getting resources (59.7%) (Palfrey et al., 2004). The additional resources and access to care associated with having coordinated care in a medical home provides children the opportunity to experience better health outcomes. For example, children identified as having a medical home have higher immunization rates than children who do not receive

care in a medical home ($72.3 \pm 1.7\%$ versus $63.5 \pm 4.7\%$) (Smith, Santoli, Chu, Ochoa, & Rodewald, 2005).

Receiving care in a medical home environment becomes more essential with CSCHC. It is crucial to identify characteristics of CSHCN who do not typically have access to a medical home. School-age children and adolescents with special health care needs who are uninsured [OR = 0.67, 95% CI (0.51, 0.89)] and have fair or poor health [OR = 2.19, 95% CI (1.55, 3.12)] are less likely to have received medical care coordination in the last year, while those that are limited in their activities [OR = 1.36, 95% CI (1.13, 1.62)] have a greater odds of not receiving medical care coordination (Weller, Minkovitz, & Anderson 2003).

The National Survey of CSHCN includes questions on five aspects of having a medical home including having a usual course of care, having a personal doctor or nurse, experiencing difficulties in receiving referrals for specialty care, receiving coordinated care, and having family centered care (Cooley, 2004; Strickland et al., 2004). Of CSHCN, 90.5% had a usual course of care, 89.0% had a personal doctor or nurse, 78.1% had no problem obtaining referrals, 39.8% received coordinated care when needed (only 11.7% of parents reported needing care coordination), and 66.8% received family centered care. Overall, 52.6% of CSHCN met all five components of having a medical home. Black [OR = 1.4, 95% CI (1.3, 1.7)], Hispanic [OR = 1.5, 95% CI (1.3, 1.8)], and non-Hispanic other [OR = 1.4, 95% CI (1.2, 1.7)] CHSCN were more likely to not receive coordinated care in a medical home. Poverty status also affected receiving care in a medical home with CSHCN in households < 100% [OR = 1.8, 95% CI (1.6, 2.1)] and

100 – 199% [OR = 1.3, 95% CI (1.2, 1.5)] of the federal poverty level being more likely to not receive care in a medical home when compared to CSHCN in households \geq 400% of the federal poverty level. Additionally, CSHCN whose condition sometimes affects activities [OR = 1.5, 95% CI (1.3, 1.6)] and usually or always affects activities [OR = 2.4, 95% CI (2.1, 2.7)] are more likely to not receive coordinated care in a medical home (Strickland et al., 2004). Similarly, Tippy et al. (2005) demonstrated that CSHCN with adequate health insurance [OR = 2.3, 95% CI (1.5, 3.5)] are more likely and CSHCN with the most severe rank of condition [OR = 0.3, 95% CI (0.2, 0.6)] are less likely to have coordinated care in a medical home.

Race / Ethnicity

Disparities exist in health care status and health care access among different racial and ethnic groups, suggesting that minority groups are more likely to report poorer health (Cooper, Beach, Johnson, & Inui, 2005; Kelley et al., 2005). Results of the National Health Interview Survey, however, demonstrated that African-American [OR = 0.39, 95% CI (0.49, 0.65)], Hispanic [OR = 0.39, 95% CI (0.32, 0.46)], and Asian [OR = 0.40, 95% CI (0.26, 0.62)] adults were less likely to report a delayed need for medical care than white adults. This same trend held true for other aspects of health care with African-American [OR = 0.57, 95% CI (0.42, 0.78)], Hispanic [OR = 0.41, 95% CI (0.30, 0.54)], and Asian [OR = 0.30, 95% CI (0.11, 0.79)] adults less likely to report delayed mental health care (Shi & Stevens, 2005b). Identifying health disparities due to race and ethnicity is vital to ensuring adequate health care.

Differences in health care access by race / ethnicity are becoming more important as the number of minority children in the United States continues to increase annually. The United States Census Bureau estimates that the number of Hispanic children (ages 17 and under) increased from 12,422,750 in 2000 to 14,460,390 in 2005, while the number of Black children increased from 11,284,546 in 2000 to 11,344,817 in 2005 (United States Census Bureau, 2006a; United States Census Bureau, 2006b). Differences between racial and ethnic groups have also been identified for proportions of children with conditions such as depression, anxiety, phobias / fears, suicide attempts, and other aspects of mental health (Flores et al., 2002). A panel of experts on Latino child health suggested that access to health care is the most important issue facing Latino families and children in the United States. The panel further suggested that increasing access to health care services would require raising the eligibility for Medicaid to 250% of the federal poverty level (Zambrana & Logie, 2000).

Data from the 2000 Medical Expenditure Panel Survey demonstrated that Asian [OR = 3.3, 95% CI (2.0, 5.5)], Hispanic [OR = 2.5, 95% CI (2.0, 3.2)], and Black [OR = 1.9, 95% CI (1.4, 2.6)] children were more likely to not have a usual source of care when compared to white children. Additionally, Asian [OR = 2.1, 95% CI (1.5, 3.0)], Hispanic [OR = 1.5, 95% CI (1.3, 1.7)], and Black [OR = 1.8, 95% CI (1.5, 2.2)] children were more likely to not have a health professional or doctor visit in the last year; however, Black children [OR = 0.6, 95% CI (0.5, 0.8)] were less likely to have difficulty obtaining care in the last year (Shi & Stevens, 2005a). Further supporting these findings, Flores et al. (1999) reported that Native American [OR = 1.22, 95% CI (1.04, 1.43)],

Asian/Pacific Islander [OR = 1.28, 95% CI (1.15, 1.43)], Black [OR = 1.24, 95% CI (1.18, 1.30)], and Hispanic [OR = 1.09, 95% CI (1.03, 1.16)] children are more likely to have not had a physician visit in at least the last year. Data from the National Health Interview Survey from 1993 to 1996 suggested, on the other hand, that Black [OR = 0.69, $p < 0.01$] children were less likely than white children to have an unmet medical need. No differences were found between Hispanic and White children (Newacheck, Hughes et al., 2000).

A question of concern is whether disparities between racial and ethnic groups apply to CSHCN. Analysis of data from the National Survey of CSHCN illustrates that disparities between racial and ethnic groups do exist for CSHCN. For example, African American [OR = 2.01, 95% CI (1.32, 3.06)] and Multiracial [OR = 2.25, 95% CI (1.19, 4.26)] CSHCN have a greater odds of not receiving all needed routine care when compared to white CSHCN. No differences were found for receiving all needed specialty care or between Hispanic and non-Hispanic (Mayer et al., 2004). Van Dyck, Kogan, McPherson et al. (2004) also reported Hispanic CSHCN were more likely to not have a usual source of care [OR = 1.52, 95% CI (1.22, 1.90)] and to have difficulty receiving referrals for specialty care [OR = 1.71, 95% CI (1.46, 2.01)]. Black CSHCN were more likely to not have a personal physician or nurse [OR = 1.23, 95% CI (1.02, 1.49)]. No differences were found between white and non-white CSHCN when accessing a medical home (Tippy et al., 2005).

Health Insurance

The Maternal and Child Health Bureau recommends that CSHCN have adequate health insurance to cover any required services. This entails having public or private insurance, having continuous health care coverage, and having adequate health care coverage, measured by not having unmet health care needs. Grave disparities exist between various populations of CSHCN. For example, Hispanic CSHCN [OR = 0.63, 95% CI (0.54, 0.74)] are not as likely as non-Hispanic white CSHCN to meet these insurance recommendations. Socioeconomic status also plays an intense role. CSHCN from households at < 100% [OR = 0.46, 95% CI (0.40, 0.54)], 100 – 199% [OR = 0.51, 95% CI (0.45, 0.57)], and 200 – 399% [OR = 0.78, 95% CI (0.70, 0.87)] of the federal poverty level are significantly less likely to meet the MCHB's recommendations for health care coverage as compared to CSHCN from households \geq 400% of the federal poverty level (Honberg, McPherson, Strickland, Gage, & Newacheck, 2005). The poorer the child, the lower the odds of having adequate health insurance. These disparities exist even with governmental programs aimed at eliminating such discrepancies. When compared to children without special health care needs, CSHCN are more likely to have public insurance (29.8% versus 18.5%), less likely to have private insurance (62.5% versus 69.1%), and less likely to be uninsured (8.1% versus 11.5%) (Davidoff, 2004).

Medicaid

Medicaid is a federal and state funded health insurance program for low income and disabled persons. Eligible groups for Medicaid consist of categorically needy,

medically needy, and special groups. Specific groups of children and pregnant women are considered categorically needy, and Medicaid coverage is federally mandated. States are required to provide health care benefits to pregnant women and children up to 6 years of age with a household income less than or equal to 133% of the federal poverty level and individuals 6 to 19 years of age with a household income less than or equal to 100% of the federal poverty level. Medically needy individuals are not socioeconomically disadvantaged enough to qualify as categorically needy; however, states may set specific eligibility regulations to expand Medicaid coverage. States may also provide Medicaid benefits to special groups such as the disabled or individuals with certain medical conditions (DHHS, 2005). Medicaid eligible children under 21 years of age are also provided Early and Periodic Screening, Diagnosis, and Treatment (EPSDT). Through EPSDT, states must provide all medically necessary services if a condition is diagnosed (DHHS, 2005). The American Academy of Pediatrics' Committee on Child Health Financing (2005b) set forth a Medicaid Policy Statement. They recommended expanding state eligibility requirements, increasing outreach and enrollment, continuing the EPSDT benefits, and increasing Medicaid reimbursement for physicians.

Approximately 48% of Medicaid enrollees are children, yet they only account for 19% of expenditures (Carbaugh, Elias, & Rowland, 2006). Services provided through Medicaid facilitate increased access to care for CSHCN. When compared to uninsured CSHCN, those with Medicaid have a decreased chance of experiencing an unmet need for medical care, dental care, prescriptions, eyeglasses, and mental health care (Carbaugh et al., 2006). CSHCN with Medicaid do not differ from CHSCN with private insurance

with respect to not receiving all needed routine preventive or specialty care (Mayer et al., 2004).

State Children's Health Insurance Program (SCHIP)

The State Children's Health Insurance Program (SCHIP) was enacted to expand health care coverage to children ineligible for Medicaid because of a higher household income. The SCHIP program officially began offering benefits to uninsured children on October 1, 1997 with all states having an approved program by September 30, 1999. To provide SCHIP benefits, each state has the option of expanding eligibility for Medicaid, providing a separate program for SCHIP, or combining Medicaid with SCHIP. With any of these options, state programs must include benefits for children in households up to and including 200% of the federal poverty level or 50% higher than the state's Medicaid eligibility requirements. In fiscal year 2005 – 2006, \$4,050,000,000 was allotted for SCHIP programs. Children are ineligible for SCHIP if they qualify for Medicaid (DHHS, 2006).

The implementation of SCHIP has positively affected children with chronic health conditions. Based on results of the National Health Interview Survey in 1997 and 2000 – 2001, the number of children with chronic health conditions with public insurance increased (12.2% versus 25.7%, $p \leq 0.01$); whereas, the number with private insurance decreased (68.4% versus 60.0%, $p \leq 0.01$). The number of uninsured also decreased (21.3% versus 16.6%, $p \leq 0.10$), though not significantly. During this same period, the number of children with chronic health conditions that had a reported any unmet need for

health care decreased by 8.6% ($p \leq 0.05$) (Davidoff, Kenney, & Dubay, 2005). Shone, Dick, Klein, Zwanziger, and Szilagyi (2005) report that the implementation of SCHIP helped alleviate racial and ethnic disparities in access to care for children and improved access for all races and ethnicities.

Severity of Condition

Among CSHCN, the severity of condition affects many aspects of access to a medical home, access to care, satisfaction, employment status of family members, and financial strain on family members. Analysis of data from the National Survey of CSHCN demonstrates that severity of disorder is negatively associated with access to a medical home. Tippy et al. (2005) found that among respondents in Maine, CSHCN with the highest level of condition severity (7-10 = most severe and 0-1 = least severe) demonstrated a decreased odds of having comprehensive care in a medical home [OR = 0.3; 95% CI (0.2, 0.6)]. CSHCN in Rhode Island with severity of condition categorized as “sometimes affects activities” [adjusted OR = 1.87; 95% CI (1.15, 3.02)] and “usual/always/a great deal” affects activities [adjusted OR = 2.21; 95% CI (1.18, 4.14)] are more likely to not have coordinated, ongoing, comprehensive care within a medical home as compared to CSHCN whose condition “never affects activities”. Furthermore, CSHCN in Rhode Island with greater severity of condition are more likely to report financial and employment problems (Viner-Brown & Kim, 2005). Results in Alabama follow similar patterns. Families of CSHCN whose condition ever affected their activities demonstrate an increased odds of cutting work hours [OR = 4.2, 95% CI (2.0,

8.9)], stopping work [OR = 6.7, 95% CI (2.0, 22.9)], and incurring financial problems [OR = 4.7, 95% CI (2.0, 11.1)] (Mulvihill et al., 2005). Nationally, CSHCN with a modestly severe condition [OR = 1.88, 95% CI (1.13, 3.13)] are more likely to not receive all needed routine care, while CSHCN with a mildly severe rank [OR = 2.01, 95% CI (1.42, 2.86)] and modestly severe rank [OR = 3.22, 95% CI (2.21, 4.70)] are more likely to not receive all needed specialty care (Mayer et al., 2004). Van Dyck, Kogan, McPherson et al. (2004) demonstrate that CSHCN categorized as having their condition impact their activities as always/usually/a great deal are more likely to have any unmet need for specific care services [OR = 4.20, 95% CI (3.56, 4.96)], have any unmet need for family support [OR = 12.66, 95% CI (9.29, 17.24)], have difficulty receiving referrals for specialty care [OR = 2.66, 95% CI (2.22, 3.19)], and lack ≥ 1 satisfaction measure of family-centered care [OR = 2.23, 95% CI (1.97, 2.52)] (van Dyck, Kogan, McPherson et al., 2004).

Language

Disparities in access to health care and health care status are abundant between English speaking persons and non-English speaking persons. These disparities include preventive services for women's health such as receipt of a breast examination, mammogram, or pap test. Women in Canada who primarily speak French are not as likely to have received a breast examination [OR = 0.71, 95% CI (0.52, 0.95)] and a mammogram [OR = 0.58, 95% CI (0.40, 0.84)] compared to women who primarily speak English; whereas, women who speak a language other than French or English are not as

likely to have received a pap test [OR = 0.58, 95% CI (0.45, 0.74)] in the last two years (Woloshin, Schwartz, Katz, & Welch, 1997). Differences have also been reported between Spanish speaking Hispanics and English speaking Hispanics, despite finding no significant differences between English speaking Hispanics and English speaking non-Hispanics. Spanish speaking Hispanics report a decreased odds of having a physician visit [OR = 0.84, 95% CI (0.77, 0.92)], a mental health visit [OR = 0.38, 95% CI (0.23, 0.59)], a mammogram [OR = 0.51, 95% CI (0.29, 0.81)], and an influenza vaccination [OR = 0.37, 95% CI (0.17, 0.75)] in the last year after controlling for predisposing, need, and enabling factors (Fiscella, Franks, Doescher, & Saver, 2002). Furthermore, results of a parent reported survey of health care in Arizona demonstrates that Hispanic children for which interviews were conducted in Spanish are less likely to be in good or excellent health ($p = 0.0236$), have a usual source of care ($p = 0.0005$), and have had a medical visit in the last year ($p = 0.0004$) when compared to Hispanic children for which interviews were conducted in English (Kirkman-Liff & Mondragón, 1991).

After controlling for potential confounders including age, gender, race, ethnicity, poverty level, insurance status, impact of condition, maternal education, and region of residence, participants of the National Survey of CSHCN reported significant differences in access to care for CSHCN when comparing between interviews conducted in English and non-English languages. CSHCN of interviews conducted in a language other than English are more likely to have an unmet need for family support services [OR = 1.88, 95% CI(1.01, 3.50)], lack a usual source of care [OR = 1.89, 95% CI(1.26, 2.85)], lack a personal doctor or nurse [OR = 1.98, 95% CI(1.36, 2.88)], lack family centered care [OR

= 1.74, 95% CI(1.27, 2.38)], have inadequate insurance [OR = 11.29, 95% CI(7.21, 17.46)], have problems with specialty referrals [OR = 1.55, 95% CI(1.01, 2.36)], spend more than \$500 a year out-of-pocket [OR = 1.49, 95% CI(1.05, 2.10)], and have employment consequences [OR = 1.94, 95% CI(1.42, 2.64)]. No differences were found for having an unmet health need, having delayed health care, or having financial problems (Yu, Nyman, Kogan, Huang, & Schwalberg, 2004).

Maternal Education

Maternal education can impact the health status and quality of care for CSHCN. Mothers of CSHCN may not be educated about available programs and services or be aware of how to research the existence of available programs. Additionally, maternal education can influence acquiring private health insurance and increase socioeconomic status. Results of the National Survey of CSHCN illustrate that maternal education plays a significant role in receiving all needed routine care. Respondents with at least a high school degree reported their child is less likely to not receive all needed routine care [OR = 0.51, 95% CI (0.31, 0.84)] as compared to respondents with less than a high school education. No differences are presented for receiving all needed specialty care (Mayer et al., 2004). Maternal education, however, is not significantly related to having an unmet need for mental health care or having comprehensive care within a medical home in Maine (Ganz & Tendulkar, 2006; Tippy et al., 2005).

Single Parent Households and Family Size

Social and financial support within the family play an important role in access to health care and unmet health care needs. Children from single parent households are not as likely to receive all needed health care, potentially due to transportation or work conflicts. Specifically, children from households with one or no parents are more likely to have an unmet medical need (OR = 1.3, $p < 0.05$), unmet dental need (OR = 1.2, $p < 0.01$), and unmet vision need (OR = 1.24, $p < 0.05$). On the other hand, children from households with a family size of five or more are less likely (OR = 0.72, 0.05) to have an unmet medical need. No differences in having an unmet dental need, unmet medication need, or unmet vision need were found for households with five or more family members as compared to households with less than five family members (Newacheck, Hughes et al., 2000). The same dynamics do not necessarily apply to CSHCN. School age-children and adolescents with special health care needs from a household with five or more family members [OR = 0.74, 95% CI (0.57, 0.96)] are actually less likely to have a physician visit in the last year. No differences exist for having a mental health visit or receiving medical care coordination. Having five or more family members could potentially limit the amount of attention available to CSHCN. Finally, CSHCN from a single parent household [OR = 1.53, 95% CI (1.05, 2.21)] are more likely to have had a mental health care visit in the past year (Weller et al., 2003).

Geographical Location

Quality of care for CSHCN varies by geographical location. Utilizing data from the National Survey of CSHCN, estimates of 15 indicators of quality of life determined by the Maternal and Child Health Bureau were used to create composite scores for each state. The top three ranked states in meeting the indicators were Hawaii, Rhode Island, and Arizona; while the bottom three states were Nevada, Oregon, and Florida (Blumberg & Bramlett, 2005). The vast difference in scores emphasizes that not all states equally address and meet standards set for CHSCN, which can partially be attributed to the availability and funding of state and federal programs. The percentage of CSHCN with functional limitations in a state is correlated to rates of uninsured CSHCN ($r = 0.49$, $p < 0.0001$) and rates of CSHCN with unmet health needs ($r = 0.62$, $p < 0.0001$) (Stein & Silver, 2005). Furthermore, differences in state health insurance coverage exist. CSHCN in the South and West are more likely to be uninsured (Newacheck, McManus et al., 2000). When compared to the Northeast, CSHCN in the South [OR = 1.38, 95% CI (1.17, 1.62)] and West [OR = 1.79, 95% CI (1.46, 2.19)] are more likely to have any unmet need for specific care services (van Dyck, Kogan, McPherson et al., 2004). State differences also apply to children without special health care needs. Newacheck, Hughes et al. (2000) report that children less than 18 years of age who live in the Midwest (OR = 1.47, $p < 0.01$) and West (OR = 1.87, $p < 0.01$) are more likely to have an unmet medical need than children who live in the Northeast. Furthermore, children who live in the West are also more likely to have an unmet dental need (OR = 1.22, $p < 0.01$). No differences were found between regions for having an unmet medication need or unmet vision need.

Summary

Previous research illustrates insufficient access to health care among CSHCN. Having access to and utilizing preventive care, specialty care, mental health care, and a medical home is especially crucial for adequate health care among CSHCN. The impact of race, ethnicity, having health insurance, Medicaid, State Children's Health Insurance Program, severity of condition, language, maternal education, single parent households and family size, and geographical location on access to care among CSHCN has also been established. What has not been established is how the impact of these factors changes across SES levels. It is important to identify factors within SES levels that affect access to care since such factors may not remain constant across SES levels. Identifying barriers for access to care could have policy implications and provide insight for creating programs aimed at reducing health disparities and ensuring optimal health care for CSHCN.

CHAPTER III

METHODOLOGY

This research study included analysis of an already existing publicly available database from the National Survey of Children with Special Health Care Needs, 2000 – 2002. Data were parent report responses on health care and health care needs for children with special health care needs (CSHCN). Chapter III describes the methodologies used to analyze data for this dissertation. Four hypotheses were tested, with each stratified by socioeconomic status.

Population and Sample

All data were obtained from the National Survey of Children with Special Health Care Needs conducted from October 17, 2000 through April 30, 2002. The National Survey of Children with Special Health Care Needs was developed by the Maternal and Child Health Bureau (MCHB) of the Health Resources and Services Administration to monitor the health care of children with special health care needs (CSHCN) at not only a national level, but also at the state level (Blumberg et al., 2003). De-identified responses to the survey are available to the public and can be accessed on-line at www.cdc.gov/nchs/about/major/slats/cshcn.htm. The survey was conducted in

conjunction with the Centers for Disease Control and Prevention's (CDC), National Center for Health Statistics (NCHS) using the State and Local Area Integrated Telephone Survey (SLAITS).

The State and Local Area Integrated Telephone Survey (SLAITS) is a continuous surveillance system available to monitor the health of US citizens, both adults and children. The National Survey of Children with Special Health Care Needs is the fourth survey to be conducted using SLAITS. SLAITS was first initiated in 1997 and employs the sampling frame utilized for the National Immunization Survey (NIS) conducted by the CDC's National Immunization Program. The NIS is designed to collect parent reported data on immunizations for children ages 19 to 35 months. The sampling frame for NIS includes all 50 states and the District of Columbia in the United States. Households are divided into 78 Immunization Action Plan (IAP) areas, and a random sample of each IAP area is selected every 3 months for screening. SLAITS utilizes random digit dialing to obtain a simple random sample of all possible telephone numbers within each IAP. To allow for a more clear definition of geographical boundaries and analysis by state, IAP areas are self contained and do not cross state lines (Blumberg et al., 2003).

When a household was selected for screening and an address could be obtained, an advance letter was mailed to the potential participant. Approximately 40% of generated telephone numbers had an identifiable mailing address. The advance letter informed the recipient about the survey, notified the recipient that his/her household had been selected for participation, and provided a toll free telephone number for recipients to

respond earlier if desired. The letter did not mention the NIS or National Survey of CSHCN, but did state the recipient would be asked questions about the health of his/her children and services his/her children might use (Blumberg et al., 2003).

Each contacted household was first screened for participation in the NIS. If there was an eligible participant for the NIS, the NIS was administered and then the household was screened for eligibility to participate in the National Survey of CSHCN. If there was not a child in the household eligible for participation in the NIS, the household was immediately screened for participation in the National Survey of CSHCN. Participants could have potentially completed the NIS and then the National Survey of CSHCN (Blumberg et al., 2003).

The original intent of the National Survey of CSHCN was to screen until data were collected for approximately 750 CSHCN in each of the 50 states and the District of Columbia. Collecting data on approximately 750 CSHCN required additional sampling beyond the sample of households screened for the NIS in some states (see Table 3). Furthermore, each state could request an increased number of completed interviews, but the requesting state was responsible for funding the additional time and effort. Only one state, Missouri, took advantage of this opportunity, requesting an additional 750 interviews be completed. These additional households were sampled using the same methods as the NIS, but were an independent sample (Blumberg et al., 2003).

Table 3. Augmentation Sample by State: National Survey of CSHCN*

State	Percent of state sample supplemented for National Survey of CSHCN
Hawaii	25.8%
Idaho	20.3%
Iowa	2.4%
Mississippi	13.0%
Missouri	45.4%
Nebraska	9.7%
Nevada	17.4%
New Mexico	2.5%
Oklahoma	8.7%
Oregon	2.6%
South Dakota	14.6%
Utah	29.0%
Virginia	17.1%
Wyoming	5.5%

*Table taken directly from (Blumberg et al., 2003) Table A.

A total of 196,888 potential participants were screened, and data were collected for 38,866 CSHCN. Other components of the National Survey of CSHCN included 176,296 interviews for the Health Insurance Control Sample and 9,935 interviews for the

Low Income Uninsured Supplement. A second round of data collection for the National Survey of CSHCN will be completed in 2006 (Blumberg et al., 2003; McPherson et al., 2004).

Protection of Human Participants

Study methodology included analysis of an existing publicly available database for the National Survey of Children of Special Health Care Needs, 2000 – 2002. Study procedures were approved by the Institutional Review Board at the University of North Texas Health Science Center with exempt review.

Data Collection Procedures

Data Collection.

No direct data collection was required as this research study involved secondary data analysis from a publicly available national database. Before data were obtained, research study methodologies were approved by the University of North Texas Health Science Center's Institutional Review Board as an exempt status review of secondary data analysis.

The following details data collection for the National Survey of CSHCN. All interviews about children for each component of the survey were conducted by interviewing the parent or guardian most knowledgeable about the child. If more than one child in a household qualified for a component of the survey, the parent or guardian most knowledgeable about each child was interviewed. Computer assisted telephone

interviewing was utilized to help prompt the interviewers and assist in immediate data entry. Any data entry errors could be flagged immediately so the interviewer could make corrections (Blumberg et al., 2003).

Instrumentation.

As previously stated, the National Survey of Children with Special Health Care Needs (CSHCN) was developed to monitor the health of CSHCN at the national and state level. The survey is designed to provide relevant information on the prevalence of CSHCN, identify services these children need and use, and identify areas for improvement in the care of CSHCN (Blumberg et al., 2003; McPherson et al., 2004). The survey is part of the Maternal and Child Health Bureau's (MCHB) strategy to monitor the progress of reaching goals set by *Healthy People 2010* for CSHCN. The survey will be conducted at three different points in time to provide a baseline measurement, midpoint, and final assessment (McPherson et al., 2004). Questions for the National Survey of CSHCN were adapted from already existing, validated surveys including: the National Health Interview Survey, the Consumer Assessment of Health Plans Survey, the Promoting Health Development Survey, the Living with Illness Survey, the Questionnaire for Identifying Children with Chronic Conditions, and Your Voice Counts (Blumberg et al., 2003).

There are multiple parts to the National Survey of CSHCN. Once a household was reached through random digit dialing, a person over the age of 18 was asked to participate in the study. The interviewee was asked questions from the CSHCN Screener

to identify children in the household who were under 18 years of age and met the criteria for CSHCN. The CSHCN Screener was prescreened and tested against the Questionnaire for Identifying Children with Chronic Conditions-Revised Version. The pretest demonstrated greater accuracy in identifying CSHCN with the CHSCN Screener. If a CSHCN was identified, the National Survey of CSHCN Interview was conducted. A Health Insurance Control Sample was included for children who were not identified as CSHCN. If more than one child in the household was identified for this control sample, one of the children was randomly selected. Each household may have included a CSHCN, a child without special health care needs, or both. Finally, a Low-Income Uninsured Supplement was conducted for children with or without special health care needs identified as uninsured and living in a household under the 200% poverty level (Blumberg et al., 2003). Data collected from each of the above National Survey of CSHCN components are publicly available in a Screener File (n = 372,174), Household File (n = 196,888), Interview File (n = 38,866), and Insurance File (n = 215,162). Overall, the National Survey of CSHCN and its components include data on 13 components including: age-eligibility screening; special health care needs screening; health and functional status; access to care, utilization, and unmet needs; care coordination; satisfaction with care; health insurance; adequacy of health care coverage; impact on the family; income and other demographics; Medicaid and SCHIP knowledge and experience; and utilization and barriers to care questions for low-income/uninsured children without special health care needs (Blumberg et al., 2003).

Data Analysis

All data were downloaded from www.cdc.gov/nchs/about/major/slait/cshcn.htm as SAS files. Data manipulation and analysis were conducted using SPSS version 14 and SAS version 9.1.2. Variable weights adjusted to the population (WEIGHT_I = Interview weight; WEIGHT_H = Household weight) were provided, and variables defining the sample design were included. SAS was used for all statistical analyses to control for weighting and the sample design. Data were analyzed as a one stage cluster sampling design with the variable STATE representing the Immunization Action Plan, or primary sampling unit. Variables appropriate for analyses were acquired from the Household File, Interview File, and the Insurance File. Only CSHCN were included. The National Survey of CSHCN only includes data on persons 17 years of age and under. While merging the data files, CSHCN from the Interview File and Insurance File were linked with the variable IDNUMXR defined as the unique child ID number recoded. CSHCN from the Household File were then merged into the Interview File and Insurance File with the variable IDNUMR defined as household ID number recoded.

Hypothesis 1.

Children with special health care needs receiving all needed routine preventive care is dependent upon income stratification with each stratum affected by demographic characteristics, geographical location of household, severity of condition, and social factors.

Two questions in the National Survey of CSHCN were utilized to determine if all needed routine preventive care was received by the CSHCN. This dependent variable was recorded as a dichotomous outcome of yes or no. The specific questions are listed in Table 4.

Table 4. Questions from the National Survey of CSHCN relevant to Hypothesis 1

Variable Name	Question from National Survey of CSHCN
C4Q05_01	During the past 12 months was there any time when (“S” CHILD) needed routine preventive care, such as a physical examination or well child check-up?
C4Q5_1A	Did (“S” CHILD) receive all the routine preventive care {he/she} needed?

The independent variables necessary to test Hypothesis 1 included demographic characteristics (age, gender, ethnicity, race, maternal education), geographical location of the household, severity of condition, and social factors (health insurance status, language in which the interview was conducted, number of adults living in the household, number of children living in the household, relationship of respondent to CSHCN). A specific description of each variable is presented later in this section.

Hypothesis 2.

Children with special health care needs receiving all needed care from a specialist is dependent upon income stratification with each stratum affected by demographic characteristics, geographical location of household, severity of condition, and social factors.

Two questions in the National Survey of CSHCN were utilized to determine if all needed care from a specialist was received by the CSHCN. This dependent variable was recorded as a dichotomous outcome of yes or no. The specific questions are listed in Table 5.

Table 5. Questions from the National Survey of CSHCN relevant to Hypothesis 2

Variable Name	Question from National Survey of CSHCN
C4Q05_02	During the past 12 months, was there any time when (“S” CHILD) needed care from a specialty doctor?
C4Q5_2A	Did (“S” CHILD) receive all the care from a specialty doctor that {he/she} needed?

The independent variables necessary to test Hypothesis 2 included demographic characteristics (age, gender, ethnicity, race, maternal education), geographical location of the household, severity of condition, and social factors (health insurance status, language

Hypothesis 2.

Children with special health care needs receiving all needed care from a specialist is dependent upon income stratification with each stratum affected by demographic characteristics, geographical location of household, severity of condition, and social factors.

Two questions in the National Survey of CSHCN were utilized to determine if all needed care from a specialist was received by the CSHCN. This dependent variable was recorded as a dichotomous outcome of yes or no. The specific questions are listed in Table 5.

Table 5. Questions from the National Survey of CSHCN relevant to Hypothesis 2

Variable Name	Question from National Survey of CSHCN
C4Q05_02	During the past 12 months, was there any time when (“S” CHILD) needed care from a specialty doctor?
C4Q5_2A	Did (“S” CHILD) receive all the care from a specialty doctor that {he/she} needed?

The independent variables necessary to test Hypothesis 2 included demographic characteristics (age, gender, ethnicity, race, maternal education), geographical location of the household, severity of condition, and social factors (health insurance status, language

in which the interview was conducted, number of adults living in the household, number of children living in the household, relationship of respondent to CSHCN).

Hypothesis 3.

Children with special health care needs receiving all needed mental health care or counseling is dependent upon income stratification with each stratum affected by demographic characteristics, geographical location of household, severity of condition, and social factors.

Two questions in the National Survey of CSHCN were utilized to determine if all needed mental health care was received by the CSHCN. This dependent variable was recorded as a dichotomous outcome of yes or no. The specific questions are listed in Table 6.

Table 6. Questions from the National Survey of CSHCN relevant to Hypothesis 3.

Variable Name	Question from National Survey of CSHCN
C4Q05_06	During the past 12 months, was there any time when (“S” CHILD) needed mental health care or counseling?
C4Q5_6A	Did (“S” CHILD) receive all the mental health care or counseling that {he/she} needed?

The independent variables necessary to test Hypothesis 3 included demographic characteristics (age, gender, ethnicity, race, maternal education), geographical location of the household, severity of condition, and social factors (health insurance status, language in which the interview was conducted, number of adults living in the household, number of children living in the household, relationship of respondent to CSHCN).

Hypothesis 4.

Children with special health care needs receiving comprehensive, coordinated care in a medical home is dependent upon income stratification with each stratum affected by demographic characteristics, geographical location of household, severity of condition, and social factors.

The National Survey of CSHCN identifies five components of the medical home as defined by the American Academy of Pediatrics (AAP). These five components include 1. usual source of care, 2. personal doctor or nurse, 3. referrals for specialty care, 4. coordinated care, and 5. family-centered care (Bethell, Read, & Brockwood, 2004; Strickland et al., 2004; Tippy et al., 2005). To determine whether or not CSHCN received care indicative of the AAP's definition of a medical home, an algorithm was utilized consisting of the five components described above. This algorithm has been previously used by Tippy et al. (2005) to examine how poverty and having adequate health insurance related to receiving care in a medical home in Maine. Table 7 details the algorithm used by Tippy et al. (2005) that was used for this research study. This dependent variable was recorded as a dichotomous outcome of yes or no.

The independent variables necessary to test Hypothesis 4 included demographic characteristics (age, gender, ethnicity, race, maternal education), geographical location of the household, severity of condition, and social factors (health insurance status, language in which the interview was conducted, number of adults living in the household, number of children living in the household, relationship of respondent to CSHCN). A specific description of each variable is presented below.

The dependent variable for Hypothesis 4 was categorized as a dichotomous outcome using an algorithm based on the five components of Table 7. SPSS was used to configure the variable. For example, survey questions (variables are listed in Table 7) relating to each of the three parts of the first component (usual source of sick and well child care) were combined to create one dichotomous variable representing the first component. This was done by using a series of if / then statements based on survey responses to each of the relevant survey questions. This same procedure was followed for the other four components of the algorithm. If responses to all five created variables were “yes”, the final dependent variable was “yes”. If one or more of the five responses was “no”, the definition of a medical home was not met. Thus, the final variable response was “no”. A detailed description of the algorithm and the if / then statements are presented in APPENDIX A.

Table 7. Algorithm for Components of Comprehensive Care in a Medical Home*

Component	Component Algorithm
Usual source of sick and well child care	1. The child has a place they usually go to when he/she is sick or the family needs advice about his/her health. The place is a doctor's office, hospital outpatient, clinic or health center, school, or some other place. (C4QOA, C4QOB)
	AND
	2. The child also goes to the same place when he/she needs routine preventive care. The place is a doctor's office, hospital outpatient, clinic or health center, school, or some other place. (C4QO1, C4QOB)
	OR, 3 alone
	3. The child goes to a doctor's office, hospital outpatient, clinic or health center, school, or some other place for routine preventive care, such as a physical examination or well child check-up. (C4QO2)
Having a personal doctor or nurse	1. One person is thought of as the child's personal doctor or nurse. (C4QO2A)
Experiencing no difficulty in needed	1. During the past 12 months it was not a problem, if any, to get a referral to a specialist that the child needed to see. (C4Q07)
	OR

specialty referrals	2. During the past 12 months, there was never a time the child needed care from a specialty doctor. (legitimate skip for this component) (C4Q05_02)
Receiving needed care coordination	1. The family receives all the professional care coordination that was needed. (C4Q6X0AA)
	AND
	2. The child's doctors and other health care providers had excellent or very good communication with each other about the child's care. (C5Q05)
	AND
	3. The child's doctors and other health care providers had excellent or very good communication with the child's school, early intervention program, child-care providers, or vocational rehabilitation program. (C5Q06)
	OR, 4 alone
	4. During the past 12 months, there was never a time when any family member needed professional care coordination among different health care providers and services used by the child. (legitimate skip for this component) (C4Q06_OA)
OR, 5 alone	

	5. A professional has never helped you coordinate your child's care among his/her different providers and services. (legitimate skip for this component) (C5Q02)
Presence of family-centered care	1. In the past 12 months (or if child younger than 12 months) since his/her birth, the child's doctors and other health care provider usually or always spent enough time with the child. (C6Q02)
	AND
	2. In the past 12 months (or if the child younger than 12 months) since his/her birth, the child's doctor or other health care provider usually or always listened carefully to you. (C6Q03)
	AND
	3. When the child is seen by doctors or other health care providers, they are usually or always sensitive to the family's values and customs. (C6Q04)
	AND
	4. In the past 12 months, you usually or always got the specific information needed from the child's doctor and other health care provider. (C6Q05)
	AND

	<p>5. In the past 12 months, the child's doctor or other healthcare provider usually or always helped you feel like a partner in the child's care. (C6Q06)</p>
	<p>OR, 6 alone</p>
	<p>6. In the past 12 months (or if the child younger than 12 months) since his/her birth, the child never visited a doctor or other health provider. (legitimate skip for this component) (C6Q01R)</p>

* Table was taken directly from Tippy et al., 2005. Table I

Algorithm Verification.

The algorithm was verified through two separate processes. Using SPSS, a random sample of 10 cases was selected to verify each of the five algorithm components. For each of these five components, the 10 cases were followed through the algorithm by hand to verify that the component specific database calculations were correct. An additional 25 cases were randomly selected to verify the entire algorithm by hand. Through this verification process with all 75 cases, no discrepancies were identified. Using SAS, all possible combinations of the algorithm variables were reviewed. This list was provided using the PROC FREQ command in SAS with the LIST / MISSING options. No discrepancies were identified.

Statistical Analysis.

Descriptive statistics are provided for all variables relevant to the stated hypotheses including all four dependent variables, age, gender, race, ethnicity, maternal education, health insurance status, severity of condition, relationship of respondent to CSHCN, language in which the interview was conducted, number of children living in the household, number of adults living in the household, and geographical location of the household. Descriptive statistics for the above variables are also provided for each SES stratum. Significant differences among SES strata were identified using chi-square analysis for each dependent variable (routine preventive care, specialty care, mental health care, and medical home), insurance status (Medicaid, private, SCHIP, other, and uninsured), ethnicity (Hispanic and non-Hispanic), race (white only, black only, multiracial, and other), language in which the interview was conducted (English and other), maternal education (< high school, high school degree or GED, some college but not a four year college degree, four year college degree or more), geographical region of household (Midwest, Northeast, South, and West), relationship of respondent to the CSHCN (mother and other), and sex. An analysis of variance was performed to find differences among SES strata for age, severity of condition, number of children living in the household, and number of adults living in the household. Parametric and nonparametric tests were used as verification when appropriate.

The crude relationship for each independent variable and dependent variable is presented for all four SES strata. A chi-square analysis was conducted to identify significant crude relationships for insurance status, ethnicity, race, language in which the

interview was conducted, maternal education, geographical location of the household, relationship of the respondent to the CSHCN, and sex. An independent samples t test was performed for age, severity of condition, number of children living in the household, and number of adults living in the household. Parametric and nonparametric tests were used as verification when appropriate.

Multiple logistic regression was conducted to prove or disprove each hypothesis. All independent variables were included in the multiple logistic regression models using the enter method so that all variables remained in the final model. Four multiple logistic regression models are presented for each of the four dependent variables. Essentially, a model with identical variables is presented for each SES stratum under each hypothesis. Odds ratios and 95% confidence intervals are presented. Standardized beta coefficients and 95% confidence intervals are presented for each variable. Standardized beta coefficients have been used to compare independent variables among each SES stratum. The $-2 \log$ likelihood is also presented to determine the fit of the model.

All analyses are considered statistically significant at the alpha 0.05 level. Because of precautions taken during the administration of the National Survey of CSHCN, there was not an issue with substantial missing data. Therefore, missing data were excluded from the analyses.

Variables for analysis

This section provides a description of relevant variables in the data files.

Interview File.

Age – Age was provided in the Interview File. It was provided in years with a minimum age of 0 and a maximum age of 17. Age was originally examined as a categorical variable with the following categories: 0 – 4, 5 – 9, 10 – 14, and 15 – 17 years. These categories are reflective of cognitive and developmental levels for children and adolescents. Due to small numbers in each category, age was included as a continuous variable in all models for Hypothesis 1, Hypothesis 2, and Hypothesis 3. It was included as a categorical variable in Hypothesis 4. For Hypothesis 4, dummy coding was used with the 15 – 17 category serving as the reference group.

Maternal education – Maternal education was provided in the Interview File. This variable was available in the following categories: 0 – 8th grade or less; some high school, not graduated; high school or GED completed; some post high school, but not a 4 year college degree; and 4 year college degree or more. Due to small sample sizes, the following categories were used for Hypothesis 1, Hypothesis 2, and Hypothesis 3: less than or equal to high school or GED completed; some college, but not a four year college degree; four year college degree or more. The following categories were used for Hypothesis 4: less than high school; high school or GED completed; some college, but not a four year college degree; four year college degree or more. Dummy coding was used for all models with four year college degree or more as the reference group.

Geographical location of household – The state of residence for each household was provided in the Interview File. For the purposes of this research study, states were categorized into regions determined by the United States Census Bureau (United States Census Bureau, 2006c). Table 8 provides the regions and the states corresponding to each region. Dummy variables were used for geographical location of household in each multiple logistic regression model with Northeast as the reference group.

Table 8. States by Geographic Region per United States Census Bureau

Midwest Region	Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin
Northeast Region	Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont
South Region	Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Oklahoma, North Carolina, South Carolina, Tennessee, Texas, Virginia, West Virginia
West Region	Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming

Severity of condition – The severity of the CSHCN condition was available in the Interview File. It represents the interviewee’s opinion about how severe the child’s condition ranks on a scale of 0 to 10. The question was specifically stated as “Overall,

how would you rank the severity of ('S' CHILD)'s condition(s) or problem(s)? Please pick a number between zero and ten where zero is the mildest and ten is the most severe” (Blumberg et al., 2003).

Health insurance status of CSHCN – Insurance status was included in the Interview File. Insurance status refers to whether or not the CSHCN was without health care insurance at any time during the last year. It was coded as either yes the CSHCN was not insured at some point in the last year or no the CSHCN was not without insurance at some point in the last year. Not having insurance was compared to private as the reference. Dummy coding was utilized.

Medicaid – Medicaid was included in the Interview File. This variable represented whether or not the CSHCN was covered with Medicaid at the time of the interview. It was coded as either yes or no. Medicaid was compared to private as the reference. Dummy coding was utilized.

SCHIP – SCHIP represented the State Child Health Insurance Plan Program. This variable represented whether or not the CSHCN was covered with SCHIP at the time of the interview. It was included in the Interview File. It was coded as either yes or no. SCHIP was compared to private as the reference group. Dummy coding was utilized.

Private – Private represented whether or not the CSHCN was covered with private insurance at the time of the interview. It was included in the Interview File. It was coded as either yes or no. Private insurance served as the reference group.

Other – All of the types of insurance were combined to an other group. This group was compared back to private as the reference group. Dummy coding was utilized.

Relationship of respondent to CSHCN – The relationship of the interviewee to the CSHCN was available in the Interview File. It was categorized as mother, father, or other relative or friend. Due to small sample sizes, all hypotheses included mother and other, with other as the reference group.

Insurance File.

Socioeconomic status (SES) – Socioeconomic status was provided in the Insurance File. Nine different levels of SES based on the Department of Health and Human Services guidelines were available in the public use files. For this research study, each dependent variable was stratified into < 133%, 133 – 199%, 200 – 299%, and \geq 300% of the federal poverty level (FPL). For each hypothesis, four models were examined consisting of identical variables.

These categories were chosen since they represent the different SES levels in which governmental programs and benefits are available to CSHCN. It is federally mandated that all states provide health care benefits to pregnant women and children up to 6 years of age with a household income less than or equal to 133% of the FPL and individuals 6 to 19 years of age with a household income less than or equal to 100% of the FPL. Most states have either expanded the Medicaid benefits or offer health coverage through SCHIP to individuals in households up to or below 200% of the FPL (DHHS, 2005). A few states have elected to expand their SCHIP benefits up to 300% of the FPL. Above 300% of the FPL, households tend to be more affluent and more likely to be ineligible for governmental programs. The SES strata are referred to as Very Poor (<

133% of FPL), Working Poor (133 -199% of FPL), Lower Working to Middle Class (200 – 299% of FPL), and Upper Class (\geq 300% of FPL).

Sex – Sex is provided in the Insurance File. Male was used as the reference group.

Ethnicity – Ethnicity is provided in the Insurance File. The CSHCN was categorized as Hispanic or non-Hispanic. Non-Hispanic was used as the reference group.

Race – Race was provided in the Insurance File. Race was available to the public as white only, black only, multiracial, or other. Due to small numbers in the categories, however, race was included as white only, black only, and other for Hypothesis 1, Hypothesis 2, and Hypothesis 3. All categories were used for Hypothesis 4. Dummy coding was used for race in each multiple logistic regression model with white only as the reference group.

Language in which the interview was conducted – The language in which the interview was conducted was available in the Insurance File. Interviews were conducted in English, Spanish, Vietnamese, Cantonese, Mandarin, Korean, Russian, Tagalog, French, Japanese, Polish, and Italian. This variable, however, was available as either English or language other than English to maintain confidentiality of respondents. Due to small sample sizes, this variable was not included in Hypothesis 1, Hypothesis 2, or Hypothesis 3. It was included in Hypothesis 4 with English as the reference group.

Household File.

Number of adults living in the household – The number of adults living in the household was available in the Household File. Responses were available as 1, 2, 3, or 4. The number was capped at 4 to ensure confidentiality of the respondents.

Number of children living in the household – The number of children living in the household was available in the Household File. Responses were available as 1, 2, 3, 4, 5, or 6. The number was capped at 6 to ensure confidentiality of the respondents.

Interaction Variables.

The following interaction terms were included in the original model for each dependent variable and SES stratum. All interaction terms were tested for colinearity before inclusion in the models. Pearson correlation coefficients ranged from -0.11 to 0.11, except for private insurance * Medicaid ($r = 0.61$). Despite having a higher correlation coefficient, the interaction term was included in all original models due to its significance in previous research. Lykens and Jargowsky (2002) found that the Medicaid * private interaction term was significant for acute health conditions in non-Hispanic white and Hispanic children, as well as bed days in non-Hispanic white children. In all three of the above models, the coefficient of the interaction term was opposite in direction from the Medicaid and private insurance terms.

If an interaction term was significant in at least one of the four models for a hypothesis, it was included in all four models. Interaction terms were modified for the four models under hypothesis 4 since different levels of the variables were utilized. The

following provides a list of the interaction terms and the corresponding correlation coefficients.

age * severity of condition ($r = 0.0003$)

geographical region of household * severity of condition ($r = 0.04$)

uninsured in last year * severity of condition ($r = 0.08$)

uninsured in last year * race ($r = 0.05$)

uninsured in last year * ethnicity ($r = 0.06$)

race * geographical region of household ($r = 0.11$)

ethnicity * geographical region of household ($r = 0.09$)

maternal education * race ($r = -0.11$)

uninsured in last year * geographical region of household ($r = 0.05$)

private insurance * Medicaid ($r = 0.61$)

Summary

Data from the National Survey of Children with Special Health Care Needs, 2000 – 2002 were analyzed. Four research hypotheses were tested with each stratified by socioeconomic status (SES), as measured by percent of the federal poverty level. The hypotheses examined the relationships of demographic characteristics, geographical location of household, severity of condition, and social factors on unmet needs for routine preventive care, specialty care, mental health care, and access to a medical home among CSHCN. Crude and adjusted relationships were examined. Multiple logistic regression models were constructed for four SES levels within each hypothesis. Standardized

regression coefficients for independent variable in the models for each SES were compared to identify what exactly affects unmet health care needs for CSHCN within SES levels.

CHAPTER IV

RESULTS – HYPOTHESIS 1 AND HYPOTHESIS 2

There were 38,866 children with special health care needs (CSHCN) represented in the National Survey of Children with Special Health Care Needs, 2000 – 2002. Responses were provided by a parent or legal guardian of the CSHCN. Of the sample, 23,320 (59.78%) were male. The age of the CSHCN ranged from 0 – 17 years with an average age of 9.95 years (weighted SE = 0.07). The racial breakdown was 30,788 (75.11%) white, 4,403 (15.01%) black, 1,366 (3.31%) multiracial, and 2,454 (6.57%) other. There were 3,424 (11.51%) Hispanics, and 855 (3.49%) of the interviews were conducted in a language other than English. The state of the household was provided. For purposes of this analysis, the geographical location of the household was divided in to four geographical regions with the following distribution: 7,842 (22.32%) Northeast, 5,508 (14.69%) Midwest, 7,020 (18.19%) South, and 14,859 (44.80%) West. The maternal education of the CSHCN was distributed as 3,153 (14.96%) with less than a high school degree, 10,044 (30.22%) with a high school degree or GED, 10,685 (31.29%) with some college but not a four year degree, and 13,647 (23.53%) with a four year college degree or more. Of the CSHCN, there were 28,489 (72.11%) with private insurance, 9,686 (25.82%) with Medicaid, 2,518 (8.18%) covered by the State Children's Health Insurance Program (SCHIP), 4,601 (10.75%) with another form of insurance, and

4,115 (11.63%) with no insurance at some point during the past year. The insurance categories are not mutually exclusive. The average reported severity of the CSHCN's condition was 4.22 (weighted SE = 0.04). The average household had 2.07 (weighted SE = 0.01) adults and 2.14 (weighted SE = 2.14) kids. The socioeconomic status (SES) of the households was provided as percent of the federal poverty level (FPL) with the following distribution: 7,842 (22.32%) at < 133% of FPL, 5,508 (14.67%) at 133 – 199% of (FPL), 7,020 (18.19%) at 200 – 299% of FPL, and 14,859 (44.80%) at \geq 300% of FPL. The distribution of each variable above, except sex, was statistically significant among SES levels at $p < 0.01$. Males and females were not significantly different by SES level ($p = 0.49$). A description of each variable by SES is provided in Table 9 – Appendix B.

Four hypotheses guided the analysis in this dissertation. Each hypothesis is listed below with relevant results.

Hypothesis 1

Children with special health care needs receiving all needed routine preventive care is dependent upon income stratification with each stratum affected by demographic characteristics, geographical location of household, severity of condition, and social factors.

Of CSHCN needing routine preventive care in the past 12 months, 27,828 (96.80%) received all needed care. This significantly ($p < 0.01$) changed among SES levels with 4,979 (93.22%) CSCHN in < 133% FPL, 3,573 (93.23%) in 133 – 199% FPL,

4,944 (98.06%) in 200 – 299% FPL, and 11,782 (98.72%) in $\geq 300\%$ FPL reporting that the CSHCN received all needed routine preventive care. Although, over 90% of all CSHCN across all SES who needed routine preventive care received it, those in the higher SES strata reported close to 100%.

Hypothesis 1 – Socioeconomic Status < 133% of the Federal Poverty Level

Crude Analysis.

A descriptive analysis of variables for Hypothesis 1 and SES < 133% of FPL is presented in Table 10 – Appendix C. Statistically significant differences among CSHCN who received all needed routine preventive care and those who did not were identified for age ($p < 0.01$) and severity of condition ($p < 0.01$). More males than females ($p < 0.01$) received all needed routine preventive care. Significant differences were also found for CSHCN with Medicaid ($p < 0.01$) versus without Medicaid, CSHCN with private insurance ($p < 0.01$) versus without private insurance, and CSHCN with SCHIP ($p < 0.01$) versus without SCHIP. No differences were identified for CSHCN for other form of insurance. Fewer CSHCN who were not insured at some point in the past 12 months received all needed routine preventive care ($p < 0.01$). Significant differences in receiving all needed routine preventive care were detected for maternal education ($p = 0.02$) and the relationship of respondent to CSHCN ($p = 0.02$). No differences existed for ethnicity, language of interview, race, geographical region of household, number of adults in the household, or number of kids in the household.

Adjusted Analysis.

The standardized coefficients, standard errors, p values, odds ratios, and 95% confidence intervals of the multiple logistic regression model are provided in Table 11 – Appendix D. The standardized regression coefficients are presented in addition to the odds ratios to allow for comparison between SES strata. Several significant relationships were discovered for CSHCN receiving all needed routine preventive care in households in < 133% of the FPL. Females were 44% [OR = 0.66, 95% CI (0.45, 0.95), $S\beta = -1.87$] less likely than males to receive all needed care. Being from a minority race also had a significant impact on receiving all needed care. Black CSHCN [OR = 0.26, 95% CI (0.14, 0.48), $S\beta = -5.27$] were 74% less likely, while CSHCN who were not white or black [OR = 0.23, 95% CI (0.08, 0.68), $S\beta = -5.01$] were 77% less likely than white CSHCN to receive all needed care. When compared to having private insurance coverage at the time of the interview, CSHCN with Medicaid [OR = 3.21, 95% CI (1.99, 5.19), $S\beta = 5.02$] had a 3.21 greater odds of receiving all needed care; while, CSHCN with SCHIP [OR = 2.62, 95% CI (1.50, 4.55), $S\beta = 3.42$] had a 3.42 greater odds. Markedly, not having insurance at some point during the past 12 months indicated the CSHCN were 97% less likely [OR = 0.03, 95% CI (0.01, 0.17), $S\beta = -13.60$] to have received all needed care. If the respondent was the mother of the CSHCN, the odds increased by 2.34 [OR = 2.34, 95% CI (1.41, 3.910), $S\beta = 2.66$] as compared to CSHCN when someone other than the mother completed the interview. Additionally, the total number of kids in the household significantly affected receiving all needed routine preventive care with a 16% decrease in the odds for every additional kid [OR = 0.84,

95% CI (0.71, 0.99), $S\beta = - 2.07$]. One interaction term, uninsured * race, was significant in this model [$S\beta = 6.06$, $p = 0.02$]. This coefficient demonstrated a positive slope, while coefficients for black and other race as well as uninsured were negative. No other significant relationships were identified for SES < 133% of FPL.

Hypothesis 1 – Socioeconomic Status 133 – 199% of the Federal Poverty Level

Crude Analysis.

A descriptive analysis of variables for Hypothesis 1 and SES 133 – 199% of FPL is presented in Table 10 – Appendix C. Statistically significant differences among CSHCN who received all needed routine preventive care and those who did not were identified for age ($p < 0.01$) and severity of condition ($p < 0.01$). Significant differences were also found for CSHCN with private insurance ($p = 0.04$) versus without private insurance. No differences were identified for CSHCN with Medicaid, SCHIP, or other form of insurance. Fewer CSHCN who were not insured at some point in the past 12 months received all needed routine preventive care ($p < 0.01$). Significant differences were also identified for maternal education ($p < 0.01$), race ($p = 0.03$), and geographical region of the household ($p < 0.01$). No differences were found for ethnicity, language of interview, relationship of respondent to CSHCN, number of adults in the household, or number of kids in the household.

Adjusted Analysis.

The standardized coefficients, standard errors, p values, odds ratios, and 95% confidence intervals of the multiple logistic regression model are provided in Table 11 – Appendix D. The standardized regression coefficients are presented in addition to the odds ratios to allow for comparison between SES strata. The analysis revealed that Hispanics were 3.89 times more likely [OR = 3.89, 95% CI (2.18, 6.94), $S\beta = 4.49$] than non-Hispanics to receive all needed routine preventive care in this SES stratum. CSHCN with Medicaid [OR = 2.10, 95% CI (1.21, 3.67), $S\beta = 3.07$] also demonstrated an increased odds of receiving all needed care, while having SCHIP had no significant effect when compared to having private insurance. CSHCN without insurance at some time during the past 12 months were 82% [OR = 0.18, 95% CI (0.04, 0.80), $S\beta = - 5.82$] less likely to receive all needed care than CSHCN with insurance for the entire previous 12 months. The geographical location of the household affected receiving all needed routine preventive care with CSHCN in the Midwest [OR = 0.28, 95% CI (0.11, 0.73), $S\beta = - 4.03$] demonstrating a 72% decreased odds. If the mother of the CSHCN was the interviewee, the CSHCN demonstrated an increased odds [OR = 2.71, 95% CI (1.39, 5.28), $S\beta = 3.04$] of receiving all needed care. As the number of kids in the household increased, the CSHCN were less likely [OR = 0.88, 95% CI (0.78, 0.98), $S\beta = - 1.37$] to receive all need care. The only interaction term significant in this model was for age * severity of condition [$S\beta = - 11.53$, $p = 0.03$]. The direction of the coefficient was opposite from both age and severity of condition. No other significant relationships were identified.

Hypothesis 1 – Socioeconomic Status 200 – 299% of the Federal Poverty Level

Crude Analysis.

A descriptive analysis of variables for Hypothesis 1 and SES 200 – 299% of FPL is presented in Table 10 – Appendix C. Statistically significant differences among CSHCN who received all needed routine preventive care and those who did not were identified for age ($p < 0.01$) and severity of condition ($p < 0.01$). Significant differences were also found for CSHCN with private insurance ($p < 0.01$) versus without private insurance and CSHCN with SCHIP ($p < 0.01$) versus without SCHIP. No differences were identified for CSHCN with Medicaid or other form of insurance. Fewer CSHCN who were not insured at some point in the past 12 months received all needed routine preventive care ($p < 0.01$). Significant differences were also identified for race ($p < 0.01$), ethnicity ($p < 0.01$), and geographical region of the household ($p < 0.01$). No differences were found for sex, language of interview, maternal education, relationship of respondent to CSHCN, number of adults in the household, or number of kids in the household.

Adjusted Analysis.

The standardized coefficients, standard errors, p values, odds ratios, and 95% confidence intervals of the multiple logistic regression model are provided in Table 11 – Appendix D. The standardized regression coefficients are presented in addition to the odds ratios to allow for comparison between SES strata. Black CSHCN [OR = 0.19, 95% CI (0.06, 0.61), $S\beta = - 4.56$] were 81% less likely to receive all needed routine preventive

care when compared to white CSHCN; however, there was no difference between other minority and white CSHCN. CSHCN with SCHIP [OR = 10.24, 95% CI (1.11, 94.57), S β = 4.16] demonstrated a 10.24 increased odds receiving all needed care when compared to CSHCN with private insurance. No other predictor variables or interaction terms suggested significant associations.

Hypothesis 1 – Socioeconomic Status \geq 300% of the Federal Poverty Level

Crude Analysis.

A descriptive analysis of variables for Hypothesis 1 and SES \geq 300% of FPL is presented in Table 10 – Appendix C. Statistically significant differences among CSHCN who received all needed routine preventive care and those who did not were identified for age ($p = 0.02$) and severity of condition ($p < 0.01$). Significant differences were also found for CSHCN with private insurance ($p < 0.01$) versus without private insurance. No differences were identified for CSHCN with Medicaid, SCHIP, or other form of insurance. Fewer CSHCN who were not insured at some point in the past 12 months received all needed routine preventive care ($p < 0.01$). Significant differences were also identified for race ($p < 0.01$), ethnicity ($p < 0.01$), maternal education ($p = 0.03$), and geographical region of the household ($p < 0.01$). Although no differences were found for sex ($p = 0.06$) and relationship of respondent to CSHCN ($p = 0.07$), the associations were borderline. No differences were identified for number of adults in the household, or number of kids in the household. There were not enough responses to determine the association for language of interview.

Adjusted Analysis.

The standardized coefficients, standard errors, p values, odds ratios, and 95% confidence intervals of the multiple logistic regression model are provided in Table 11 – Appendix D. The standardized regression coefficients are presented in addition to the odds ratios to allow for comparison between SES strata. Female CSHCN [OR = 2.84, 95% CI (1.13, 7.18), $S\beta = 4.75$] were more likely than male CSHCN to receive all needed routine preventive care. Having insurance other than Medicaid or SCHIP demonstrated a 3.77 times increased odds [OR = 3.77, 95% CI (1.44, 9.89), $S\beta = 3.74$] of having received all needed care when compared to CSHCN with private insurance; whereas, CSHCN without insurance at some point in past 12 months [OR = 0.18, 95% CI (0.06, 0.52), $S\beta = - 3.48$] were 82% less likely. Having the mother of the CSHCN respond to the survey [OR = 2.65, 95% CI (1.12, 6.30), $S\beta = 3.54$] revealed an increased odds of having received all needed care. Furthermore, for every additional kid in the household [OR = 0.52, 95% CI (0.40, 0.68), $S\beta = - 5.56$] the odds of having received all needed care decreased by 48%. One interaction term, geographical location of household * severity of condition, was significant in this model [$S\beta = 7.54$, $p = 0.02$].

Hypothesis 1 – Comparison of Models

Table 12 provides the standardized regression coefficients and p values for all SES strata in Hypothesis 1. The sex of the CSHCN revealed an interesting association with receiving all needed routine preventive care. The coefficient is significant in both the lowest SES stratum, < 133% of FPL, and the highest SES stratum, $\geq 300\%$ of FPL;

however, the direction of the coefficients is different. Females are significantly less likely to receive all needed care in the lowest SES stratum, but are significantly more likely in the highest SES stratum. Race affects the odds of receiving all needed care in both the lowest SES stratum, < 133% of FPL, and the third SES stratum, 200 – 299% of FPL, but not in the second or highest strata. In both models, black CSHCN were less likely to receive all needed care. Other minorities, however, were significantly less likely to receive all needed care in the lowest SES stratum, but demonstrated no significant associations in the other three SES strata. Hispanic CSHCN were more likely to receive all needed care in the lower two SES strata, but less likely in the highest two SES strata, though the only significant relationship was identified in the second SES stratum, 133 – 199% of FPL.

The affect of insurance on having received all needed routine preventive care varied across type of insurance and SES strata. The effect of having been without insurance at some point in the past 12 months remained constant across all SES strata, illustrating a significant negative association. Having Medicaid at the time of the interview demonstrated a positive association across all SES strata, though this association was only significant for the first two SES strata. The coefficient for having an other form of insurance was negative for both the first and third SES strata, but was positive for both the second and fourth SES strata. Only the coefficient in the highest SES stratum, $\geq 300\%$ of FPL was significant. The coefficients for having SCHIP also alternated among SES strata. The coefficients for both the first, < 133% of FPL, and third, 200 – 299% of FPL, were positive suggesting that CSHCN with SCHIP were more

likely to have received all needed care than CSHCN with private insurance. The coefficients in the second and fourth SES strata, on the other hand, were both negative and not significant.

If the mother responded to the survey, the regression coefficients were positive for all four SES strata, but only significant for the first, second, and fourth. The coefficient for the total number of kids was negative and significant for < 133% of FPL, 133 – 199% of FPL, and \geq 300% of FPL, but was negative and approached significance for the 200 – 299% of FPL stratum. The age * severity of condition interaction term was negative for the < 133% of FPL, 133 – 199% of FPL, and \geq 300 % FPL strata, while the coefficient for the 200 – 299% of FPL stratum was positive. Only the coefficient in the 133 – 199% of FPL stratum was significant. The interaction term for geographical location of household * severity of condition was negative for the first three SES strata, but significant and positive for only the highest, \geq 300% of FPL stratum. The uninsured * race interaction term was positive and significant for the lowest SES stratum, < 133% of FPL, but negative and not significant for the other SES strata.

The -2 Log Likelihood illustrated the < 133% of FPL stratum as the best fit model and the 200 – 299% FPL stratum as the least fit model.

Table 12. Standardized Regression Coefficients and p Values for Hypothesis 1*

Variable	< 133% of FPL		133 – 199% of FPL		200 – 299% of FPL		≥ 300% of FPL	
	S β	p	S β	p	S β	p	S β	p
Age	0.24	0.93	6.75	0.07	- 5.83	0.06	- 0.16	0.96
Severity	4.13	0.22	7.61	0.38	0.73	0.91	- 3.88	0.44
Sex								
Male	-	-	-	-	-	-	-	-
Female	- 1.87	0.03	0.19	0.87	1.39	0.34	4.75	0.03
Race								
White	-	-	-	-	-	-	-	-
Black	- 5.27	< 0.01	- 0.25	0.85	- 4.56	0.01	- 2.00	0.09
Other	- 5.01	0.01	- 1.45	0.35	- 0.09	0.96	- 0.65	0.69
Ethnicity								
Non-Hispanic	-	-	-	-	-	-	-	-
Hispanic	2.15	0.15	4.49	< 0.01	- 2.30	0.08	- 1.03	0.47
Maternal Education								
≥ 4 yr College Degree	-	-	-	-	-	-	-	-
Some College	2.26	0.27	- 0.26	0.87	- 0.94	0.72	- 1.02	0.38
≤ High School	2.17	0.33	1.18	0.49	2.90	0.27	1.13	0.63
Insurance								
Private	-	-	-	-	-	-	-	-
Medicaid	5.02	< 0.01	3.07	0.01	0.52	0.79	0.55	0.65
SCHIP	3.42	< 0.01	- 0.07	0.97	4.16	0.04	- 1.46	0.13
Uninsured	- 13.60	< 0.01	- 5.82	0.02	- 3.06	0.18	- 3.48	< 0.01
Other	- 0.26	0.84	0.29	0.83	- 1.41	0.34	3.74	0.01
Region								
Northeast	-	-	-	-	-	-	-	-
Midwest	1.23	0.17	- 4.03	0.01	- 4.11	0.10	0.05	0.98
South	1.34	0.40	- 3.02	0.28	- 0.23	0.93	- 5.06	0.11
West	0.53	0.77	- 4.42	0.26	- 1.55	0.70	- 6.32	0.07
Relationship to Child								
Other	-	-	-	-	-	-	-	-
Mother	2.66	< 0.01	3.04	< 0.01	0.77	0.71	3.54	0.03

Total Adults	- 0.75	0.67	- 1.14	0.25	- 2.69	0.16	- 0.46	0.72
Total Kids	- 2.07	0.04	- 1.37	0.02	3.03	0.09	- 5.56	< 0.01
Age * Severity	- 5.89	0.08	- 11.53	0.03	1.73	0.63	- 7.20	0.09
Region * Severity	- 1.97	0.45	- 1.94	0.76	- 4.82	0.38	7.54	0.02
Uninsured * Race	6.06	0.02	- 1.74	0.61	- 2.59	0.21	- 1.83	0.16
- 2 Log Likelihood	376775.00		246140.70		113923.60		230441.21	

* β = standardized beta; p = p value; FPL = federal poverty level

< 133% of FPL \approx Very Poor; 133 – 199% of FPL \approx Working Poor; 200 – 299% of FPL \approx Lower Working to Middle Class; \geq 300% of FPL \approx Upper Class

Hypothesis 2

Children with special health care needs receiving all needed care from a specialist is dependent upon income stratification with each stratum affected by demographic characteristics, geographical location of household, severity of condition, and social factors.

Of CSHCN needing care from a specialist in the past 12 months, 19,270 (92.75%) received all needed care. This significantly ($p < 0.01$) changed among SES levels with 3,310 (84.26%) CSCHN in < 133% FPL, 2,571 (89.90%) in 133 – 199% FPL, 3,488 (94.13%) in 200 – 299% FPL, and 8,128 (96.18%) in \geq 300% FPL reporting that the CSHCN received all needed care from a specialist. The percent of CSHCN receiving all needed care from a specialist steadily increased with SES.

Hypothesis 2 – Socioeconomic Status < 133% of the Federal Poverty Level

Crude Analysis.

A descriptive analysis of variables for Hypothesis 2 and SES < 133% of FPL is presented in Table 10 – Appendix C. Statistically significant differences among CSHCN who received all needed care from a specialist and those who did not were identified for age ($p < 0.01$) and severity of condition ($p = 0.01$). Significant differences were also found for CSHCN with Medicaid ($p < 0.01$) versus without Medicaid. No differences were identified for private insurance, SCHIP, or other form of insurance. Fewer CSHCN who were not insured at some point in the past 12 months received all needed routine preventive care ($p < 0.01$). Significant differences in receiving all needed care from a specialist were detected for geographical region of household ($p = 0.02$). No differences were identified for ethnicity, language of interview, race, maternal education, relationship of respondent to CSHCN, sex, number of adults in the household, or number of kids in the household.

Adjusted Analysis.

The standardized coefficients, standard errors, p values, odds ratios, and 95% confidence intervals of the multiple logistic regression model are provided in Table 11 – Appendix D. The standardized regression coefficients are presented in addition to the odds ratios to allow for comparison between SES strata. Hispanic CSHCN are over 10 [OR = 10.19, 95% CI (2.17, 47.95), $S\beta = 8.99$] times more likely to have received all needed care from a specialist. Race, however, had no bearing on receiving all needed

care. The only form of insurance to have a significant effect was Medicaid [OR = 2.28, 95% CI (1.29, 4.03), S β = 1.08]; whereas, CHSCN with Medicaid had a greater odds of having received all needed care than CSHCN with private insurance. Living in the Midwest [OR = 2.81, 95% CI (1.02, 7.70), S β = 2.88], South [OR = 2.93, 95% CI (1.07, 8.05), S β = 4.65], and West [OR = 3.56, 95% CI (1.48, 8.59), S β = 4.71] were all strong predictors of having received all needed care from a specialist when compared to the Northeast. Additionally, for every increase in the number of kids in the household, the odds of having received all needed care decreased by 15% [OR = 0.85, 95% CI (0.72, 1.00), S β = - 1.92]. The relationship with the total number adults in the household and having received all needed care approached significance [OR = 1.29, 95% CI (0.99, 1.67), S β = 1.93]. Two interaction terms, geographical location the household * severity of condition [S β = - 7.44, p = 0.02] and ethnicity * geographical region of the household [S β = - 5.72, p = 0.04], were significant.

Hypothesis 2 – Socioeconomic Status 133 – 199% of the Federal Poverty Level

Crude Analysis.

A descriptive analysis of variables for Hypothesis 2 and SES 133 – 199% of FPL is presented in Table 10 – Appendix C. Statistically significant differences among CSHCN who received all needed care from a specialist and those who did not were identified for age (p < 0.01), severity of condition (p < 0.01), and number of kids in household (p = 0.03). Significant differences were also found for CSHCN with private insurance (p < 0.01) versus without private insurance. No differences were identified for

Medicaid, SCHIP, or other form of insurance. Fewer CSHCN who were not insured at some point in the past 12 months received all needed care from a specialist ($p < 0.01$). Although a significant difference was not identified for ethnicity ($p = 0.06$), the association was borderline. No differences were found for language of interview, maternal education, race, geographical location of household, relationship of respondent to CSHCN, sex, and number of adults in the household.

Adjusted Analysis.

The standardized coefficients, standard errors, p values, odds ratios, and 95% confidence intervals of the multiple logistic regression model are provided in Table 11 – Appendix D. The standardized regression coefficients are presented in addition to the odds ratios to allow for comparison between SES strata. Black CSHCN were almost two times more likely [OR = 1.97, 95% CI (1.00, 3.90), $S\beta = 2.06$] to receive all needed care from a specialist than white CSHCN. Other minority CSHCN demonstrated no difference from white CSHCN. CSHCN who did not have insurance at some point in the past 12 months [OR = 0.09, 95% CI (0.01, 0.86), $S\beta = - 7.75$] were 91% less likely than CSHCN with private insurance to have received all needed care. Living in the South [Or = 0.22, 95% CI (0.06, 0.81), $S\beta = - 6.23$] and West [OR = 0.19, 95% CI (0.04, 0.95), $S\beta = - 5.92$] significantly decreased the odds of receiving all needed care. Finally, for every additional adult in the household, the likelihood of having received all needed care increased [OR = 2.73, 95% CI (1.57, 4.73), $S\beta = 6.28$]. No interaction terms were significant in this model.

Hypothesis 2 – Socioeconomic Status 200 – 299% of the Federal Poverty Level

Crude Analysis.

A descriptive analysis of variables for Hypothesis 2 and SES 200 – 299% of FPL is presented in Table 10 – Appendix C. Statistically significant differences among CSHCN who received all needed care from a specialist and those who did not were identified for age ($p < 0.01$) and severity of condition ($p < 0.01$). Significant differences were also found for CSHCN with private insurance ($p < 0.01$) versus without private insurance. No differences were identified for Medicaid, SHCIP, or other form of insurance. Fewer CSHCN who were not insured at some point in the past 12 months received all needed care from a specialist ($p < 0.01$). No differences were found for ethnicity, sex, language of interview, maternal education, race, geographical region of household, relationship of respondent to CSHCN, number of adults in the household, or number of kids in the household.

Adjusted Analysis.

The standardized coefficients, standard errors, p values, odds ratios, and 95% confidence intervals of the multiple logistic regression model are provided in Table 11 – Appendix D. The standardized regression coefficients are presented in addition to the odds ratios to allow for comparison between SES strata. For every unit increase in the severity of the CSHCN's condition, the odds of having received all needed care decreased by 29% [OR = 0.71, 95% CI (0.50, 1.00), $S\beta = -7.61$], with a borderline significance. Strikingly, having a maternal education of less than or equal to high school

increased the likelihood [OR = 2.28, 95% CI (1.08, 4.84), $S\beta = 3.32$] of having received all needed care when compared to having a four year college degree or more. If the mother was the respondent, the CSHCN was 2.20 times more likely to have received all needed care [OR = 2.20, 95% CI (0.99, 4.88), $S\beta = 2.34$], approaching significance. Only one interaction term, not having insurance at some point in the past 12 months * race [$S\beta = - 3.81$, $p = 0.01$].

Hypothesis 2 – Socioeconomic Status \geq 300% of the Federal Poverty Level

Crude Analysis.

A descriptive analysis of variables for Hypothesis 2 and SES \geq 300% of FPL is presented in Table 10 – Appendix C. Statistically significant differences among CSHCN who received all needed care from a specialist and those who did not were identified for age ($p < 0.01$) and severity of condition ($p < 0.01$). Significant differences were also found for CSHCN with Medicaid ($p = 0.05$) versus without Medicaid and private insurance ($p < 0.01$) versus without private insurance. No differences were identified for CSHCN with SCHIP or other form of insurance. Fewer CSHCN who were not insured at some point in the past 12 months received all needed care from a specialist ($p < 0.01$). Significant differences were also identified for maternal education ($p < 0.01$), and sex ($p = 0.02$). No differences were identified for ethnicity, race, geographical region of household, relationship of respondent to CSHCN, number of adults in the household, or number of kids in the household. There were not enough responses to determine the association for language of interview.

Adjusted Analysis.

The standardized coefficients, standard errors, p values, odds ratios, and 95% confidence intervals of the multiple logistic regression model are provided in Table 11 – Appendix D. The standardized regression coefficients are presented in addition to the odds ratios to allow for comparison between SES strata. For every year increase in age, the odds of having received all needed care increase 1.07 times [OR = 1.07, 95% CI (1.01, 1.14), $S\beta = 2.95$]. For CSHCN where the maternal education was some college, but not a four year college degree, the likelihood of having received all need care decreased by 52 percent [OR = 0.48, 95% CI (0.32, 0.73), $S\beta = - 3.17$] when compared to those where the maternal education is a four year college degree or more. No other significant relationships were identified for maternal education. CSHCN in the Midwest [OR = 1.78, 95% CI (1.25, 2.54), $S\beta = 2.04$] were more likely than CSHCN in the Northeast to have received all needed care. Several interaction terms were significant in this model including: age * severity of condition [$S\beta = - 5.57$, $p < 0.01$], not having insurance at some point in the past 12 months * severity of condition [$S\beta = 1.54$, $p = 0.01$], not having insurance at some point in the past 12 months * race [$S\beta = 3.34$, $p = 0.05$], and not having insurance at some point in the past 12 months * geographical location of the household [$S\beta = - 3.18$, $p = 0.03$].

Hypothesis 2 – Comparison of Models

Table 13 provides the standardized regression coefficients and p values for all SES strata in Hypothesis 2. Age was only significant in the $\geq 300\%$ of FPL stratum,

suggesting that as age increases, the likelihood of having received all needed care from a specialist increased. The coefficient for age also demonstrated a positive, yet not significant, association in the 133 – 199% of FPL stratum. The association was reversed in the lowest stratum, < 133% of FPL and the third SES, 200 – 299% of FPL. The regression coefficient for severity of condition was positive for < 133% of the FPL stratum, but negative for all other SES strata. The association was only significant in the 200 – 299% of FPL stratum, demonstrating that as the severity of the condition increases, the CSHCN is more likely to have received all needed care. The effects of being black or other race revealed interesting associations. For the first two strata, the coefficient for black CSHCN was positive, but was then negative for the last two strata. The only significant coefficient was identified in the 133 – 199% of FPL stratum. The coefficients for other race was opposite from that of black. While none of the associations were significant, the coefficients were negative for the < 133% of FPL and 133 – 199% of FPL strata and negative for the 200 – 299% of FPL and $\geq 300\%$ of FPL strata. Coefficients for Hispanic CSHCN in all strata suggested that Hispanic CSHCN are more likely to have received all needed care. Significance was identified in the lowest stratum, < 133% of FPL; however, the magnitude of the coefficient was largest in the 200 – 299% of FPL stratum and lowest in the 133 – 199% of FPL stratum.

Maternal education had a significant impact in the highest SES stratum, $\geq 300\%$ of FPL, for having some college, but not a four year degree. Maternal education of some college was reduced the likelihood of having received all needed care as compared to a maternal education of having a four year college degree or more. The coefficients were

positive, but not significant, for all other SES strata. The regression coefficient for maternal education of less than a high school education was positive and significant for the 200 – 299% of FPL stratum. Coefficients in the lowest and highest SES levels both suggested an opposite effect, yet not significant.

The effect of insurance type when compared to private insurance also revealed mixed associations. CSHCN with Medicaid were significantly more likely to have received all needed care. Though the coefficients were not significant for the 133 – 199% of FPL and 200 – 299% of FPL strata, they were negative. Coefficients for SCHIP in the lowest and third strata were both positive, while they were negative for the second and highest strata. The largest coefficient belonged to the 200 – 299% of FPL stratum, though none of them were significant. Coefficients for not having insurance at some point in the past 12 months remained negative for all strata; however, the largest magnitude and the only significant effect was found in the 133 – 199% of FPL stratum.

CSHCN in the Midwest, South, and West in the < 133% of FPL and \geq 300% of FPL strata were all significantly more likely to have received all needed care than CSHCN in Northeast. All coefficients were then negative for the 133 – 199% of FPL and the 200 – 299% of FPL strata. Having the mother as the respondent was significantly related to having received all needed care in the 200 – 299% of FPL stratum, demonstrating a positive association. The coefficient was negative in the < 133% of FPL stratum. The coefficients for the number of adults in the household were positive for all strata, but the largest magnitude and only significant association was identified in the 133

– 199% of FPL stratum. All coefficients for the number of kids in the household were negative and only significant in the < 133% of FPL stratum.

The coefficient for the age * severity of condition interaction term was negative, greatest in magnitude, and only significant in the $\geq 300\%$ of FPL stratum. The coefficient for geographical location of the household * severity of condition was positive for all strata, except < 133% of FPL. This was also the only stratum in which the coefficient was significant. This coefficient was also negative, unlike the coefficients for both age and all levels of geographical location of household. The interaction term uninsured for at some point in the past 12 months * severity of condition was positive and significant in the $\geq 300\%$ of FPL stratum. The coefficient for uninsured at some point in the past 12 months * race was negative for the first, second, and third strata, yet positive in the highest stratum. Interestingly, this coefficient was negative and significant in the 200 – 299% of FPL stratum, but positive and significant in the $\geq 300\%$ of FPL stratum. The coefficient for ethnicity * geographical location of the household was negative and highest in magnitude for 200 – 299% of FPL, but was significant for the < 133% of FPL stratum. Although the coefficient for uninsured at some point in the past 12 months * geographical region of the household was only significant in the $\geq 300\%$ of FPL, the directionality of the coefficients changed. They were positive in both the lowest and highest strata, but were negative in the middle two strata.

The -2 Log Likelihood illustrated the < 133% of FPL stratum as the best fit model and the 200 – 299% FPL stratum as the least fit model.

Table 13. Standardized Regression Coefficients and p Values for Hypothesis 2*

Variable	< 133% of FPL		133 – 199% of FPL		200 – 299% of FPL		≥ 300% of FPL	
	S β	p	S β	p	S β	p	S β	p
Age	- 3.68	0.12	0.82	0.73	- 2.52	0.31	2.95	0.03
Severity	3.44	0.23	- 0.13	0.98	- 7.61	0.05	- 0.17	0.94
Sex								
Male	-	-	-	-	-	-	-	-
Female	0.23	0.79	1.21	0.35	0.05	0.97	2.28	0.11
Race								
White	-	-	-	-	-	-	-	-
Black	0.10	0.93	2.06	0.05	- 0.78	0.47	- 1.15	0.12
Other	- 1.00	0.58	- 2.33	0.11	0.32	0.77	- 1.75	0.35
Ethnicity								
Non-Hispanic	-	-	-	-	-	-	-	-
Hispanic	8.99	< 0.01	0.25	0.95	11.78	0.25	2.87	0.49
Maternal Education								
≥ 4 yr College Degree	-	-	-	-	-	-	-	-
Some College	0.78	0.67	0.82	0.61	2.75	0.09	- 3.17	< 0.01
≤ High School	- 1.30	0.42	0.43	0.79	3.32	0.03	- 0.89	0.37
Insurance								
Private	-	-	-	-	-	-	-	-
Medicaid	3.42	< 0.01	- 0.61	0.57	- 0.65	0.58	0.03	0.97
SCHIP	1.08	0.32	- 0.90	0.48	2.10	0.10	- 0.41	0.65
Uninsured	- 2.71	0.46	- 7.75	0.04	- 1.85	0.59	- 4.36	0.07
Other	0.23	0.87	- 0.27	0.88	- 0.46	0.64	- 0.36	0.78
Region								
Northeast	-	-	-	-	-	-	-	-
Midwest	2.88	0.05	- 1.18	0.40	- 3.11	0.15	2.04	< 0.01
South	4.65	0.04	- 6.23	0.02	- 5.49	0.13	1.43	0.30
West	4.71	< 0.01	- 5.92	0.04	- 5.87	0.15	2.65	0.20
Relationship to Child								
Other	-	-	-	-	-	-	-	-
Mother	- 0.56	0.65	0.45	0.79	2.34	0.05	0.62	0.61

Total Adults	1.93	0.06	6.28	< 0.01	0.79	0.32	0.01	0.99
Total Kids	- 1.92	0.05	- 0.63	0.57	- 0.32	0.73	- 1.26	0.33
Age * Severity	1.10	0.64	- 4.26	0.17	- 1.06	0.70	- 5.57	< 0.01
Region * Severity	- 7.44	0.02	0.83	0.85	5.73	0.21	0.27	0.87
Uninsured * Severity	- 0.80	0.52	1.73	0.40	0.68	0.79	1.54	0.01
Uninsured * Race	- 0.73	0.80	- 0.55	0.78	- 3.81	0.01	3.34	0.05
Ethnicity * Region	- 5.72	0.04	2.73	0.51	- 9.69	0.31	- 4.08	0.25
Uninsured * Region	- 0.18	0.95	2.33	0.35	0.17	0.92	- 3.18	0.03
- 2 Log Likelihood	513794.69		247978.24		234079.91		449182.08	

* S β = standardized beta; p = p value; FPL = federal poverty level

< 133% of FPL \approx Very Poor; 133 – 199% of FPL \approx Working Poor; 200 – 299% of FPL \approx

Lower Working to Middle Class; \geq 300% of FPL \approx Upper Class

CHAPTER V

RESULTS – HYPOTHESIS 3 AND HYPOTHESIS 4

Hypothesis 3

Children with special health care needs receiving all needed mental health care or counseling is dependent upon income stratification with each stratum affected by demographic characteristics, geographical location of household, severity of condition, and social factors.

Of CSHCN needing mental health care or counseling in the past 12 months, 8,057 (81.89%) received all needed care. This significantly ($p < 0.01$) changed among socioeconomic status (SES) strata with 1,952 (71.92%) CSCHN in $< 133\%$ federal poverty level (FPL), 1,166 (80.20%) in 133 – 199% FPL, 1,447 (84.64%) in 200 – 299% FPL, and 8,861 (88.45%) in $\geq 300\%$ FPL reporting that the CSHCN received all needed mental health care or counseling. The percent of CSHCN receiving all needed mental health care or counseling steadily increased with SES.

Hypothesis 3 – Socioeconomic Status $< 133\%$ of the Federal Poverty Level

Crude Analysis.

A descriptive analysis of variables for Hypothesis 3 and SES $< 133\%$ of FPL is presented in Table 10 – Appendix C. A statistically significant difference among

CSHCN who received all needed mental health care or counseling and those who did not was identified severity of condition ($p = 0.01$). Significant differences were also found for CSHCN with Medicaid ($p < 0.01$) versus without Medicaid. A borderline significant association was identified for CSHCN with SCHIP ($p = 0.06$) versus those without SCHIP. No differences were identified for private insurance or other form of insurance. Fewer CSHCN who were not insured at some point in the past 12 months received all needed routine preventive care ($p < 0.01$). Significant differences in receiving all needed mental health care or counseling were detected for ethnicity ($p = 0.04$), race ($p = 0.03$), geographical region of household ($p < 0.01$), and relationship of respondent to CSHCN ($p < 0.01$). No differences were identified for language of interview, maternal education, sex, age, number of adults in the household, or number of kids in the household.

Adjusted Analysis.

The standardized coefficients, standard errors, p values, odds ratios, and 95% confidence intervals of the multiple logistic regression model are provided in Table 11 – Appendix D. The standardized regression coefficients are presented in addition to the odds ratios to allow for comparison between SES strata. Black CSHCN were 64% less likely [OR = 0.36, 95% CI (0.19, 0.69), $S\beta = -3.89$] than white CSHCN to receive all needed mental health care, and Hispanic CSHCN were 2.47 [OR = 2.47, 95% CI (1.15, 5.29), $S\beta = 3.21$] times more likely than non-Hispanic CSHCN. Having Medicaid [OR = 3.61, 95% CI (2.10, 6.21), $S\beta = 5.33$] and SCHIP [OR = 1.62, 95% CI (1.01, 2.60), $S\beta = 1.67$] also had a greater odds of having received all needed care. When compared to the

Northeast, CSHCN in all other regions demonstrated an increased likelihood of receiving all needed care. Only the Midwest [OR = 2.24, 95% CI (1.08, 4.68), $S\beta = 2.33$] and the South [OR = 2.76, 95% CI (1.16, 6.58), $S\beta = 4.49$], however, were significant predictors. Furthermore, as the number of kids in the household increases by 1, the odds of having received all needed care decreased by 23% [OR = 0.77, 95% CI (0.62, 0.95), $S\beta = - 3.25$]. The following three interaction terms were significant in this model: geographical region of the household * severity of condition [$S\beta = - 5.61$, $p = 0.04$]; uninsured at some point in the past 12 months * ethnicity [$S\beta = 2.29$, $p = 0.02$]; and private insurance * Medicaid [$S\beta = - 2.53$, $p < 0.01$]. The direction of the coefficient for geographical region of the household * severity of condition is opposite in direction from each individual term.

Hypothesis 3 – Socioeconomic Status 133 – 199% of the Federal Poverty Level

Crude Analysis.

A descriptive analysis of variables for Hypothesis 3 and SES 133 – 199% of FPL is presented in Table 10 – Appendix C. Statistically significant differences among CSHCN who received all needed mental health care or counseling and those who did not were identified for age ($p < 0.01$) and severity of condition ($p < 0.01$). No differences were identified for Medicaid, private insurance, SCHIP, or other form of insurance. A significant association was identified for geographical location of household ($p < 0.01$). No differences were found for ethnicity, language of interview, maternal education, race, relationship of respondent to CSHCN, sex, number of adults in the household, and number of kids in the household.

Adjusted Analysis.

The standardized coefficients, standard errors, p values, odds ratios, and 95% confidence intervals of the multiple logistic regression model are provided in Table 11 – Appendix D. The standardized regression coefficients are presented in addition to the odds ratios to allow for comparison between SES strata. For every year increase in age, the odds of having received all needed care decreased by 20% [OR = 0.80, 95% CI (0.68, 0.94), $S\beta = -6.89$]. The geographical location of the household also plays an important role in having received all needed care. As compared to CSHCN in the Northeast, CSHCN who lived in the Midwest [OR = 2.22, 95% CI (0.99, 4.99), $S\beta = 2.59$] were more likely (borderline association), while CSHCN in the South [OR = 3.49, 95% CI (0.50, 8.15), $S\beta = 5.28$] were significantly more likely to have received all needed mental health care or counseling. Several interaction terms were significant in this model including age * severity of condition [$S\beta = 6.88$, $p = 0.05$], geographical location of the household * severity of condition [$S\beta = -7.80$, $p < 0.01$], and uninsured at some point in the past 12 months * ethnicity [$S\beta = -2.86$, $p = 0.05$]. The uninsured at some point in the past 12 months * race [$S\beta = 6.45$, $p = 0.06$] approached significance.

Hypothesis 3 – Socioeconomic Status 200 – 299% of the Federal Poverty Level

Crude Analysis.

A descriptive analysis of variables for Hypothesis 3 and SES 200 – 299% of FPL is presented in Table 10 – Appendix C. A statistically significant difference among CSHCN who received all needed mental health care or counseling and those who did not

was identified for severity of condition ($p < 0.01$). A borderline association was revealed for age ($p = 0.06$). Significant differences were also found for CSHCN with private insurance ($p = 0.05$) versus without private insurance. No differences were identified for Medicaid, SHCIP, or other form of insurance. Fewer CSHCN who were not insured at some point in the past 12 months received all needed care from a specialist ($p < 0.01$). A significant difference was also found for sex ($p = 0.02$). No differences were found for ethnicity, language of interview, maternal education, race, geographical region of household, relationship of respondent to CSHCN, number of adults in the household, or number of kids in the household.

Adjusted Analysis.

The standardized coefficients, standard errors, p values, odds ratios, and 95% confidence intervals of the multiple logistic regression model are provided in Table 11 – Appendix D. The standardized regression coefficients are presented in addition to the odds ratios to allow for comparison between SES strata. Maternal education was the only predictor in this model that demonstrated a significant effect. Having a maternal education of less than or equal to a high school education or GED [OR = 2.35, 95% CI (1.52, 6.44), $S\beta = 4.75$] and some college, but not a four year degree [OR = 2.35, 95% CI (1.05, 5.22), $S\beta = 3.41$] increased the likelihood of having received all needed care when compared to having a four year college degree or more. The significant interaction terms in this model are uninsured at some point in the past 12 months * severity of condition [$S\beta = - 4.89$, $p = 0.03$], uninsured at some point in the past 12 months * race [$S\beta = - 4.42$,

$p < 0.01$], and uninsured at some point in the past 12 months * ethnicity [$S\beta = 2.49$, $p = 0.03$]. The coefficients for the first two are opposite in direction from the coefficients for the individual variables.

Hypothesis 3 – Socioeconomic Status \geq 300% of the Federal Poverty Level

Crude Analysis.

A descriptive analysis of variables for Hypothesis 3 and SES \geq 300% of FPL is presented in Table 10 – Appendix C. A statistically significant difference among CSHCN who received all needed mental health care or counseling and those who did not was identified for severity of condition ($p < 0.01$). Significant differences were also found for CSHCN with private insurance ($p < 0.01$) versus without private insurance and SCHIP ($p = 0.01$) versus without SCHIP. No differences were identified for Medicaid or other form of insurance. Fewer CSHCN who were not insured at some point in the past 12 months received all needed mental health care or counseling ($p < 0.01$). Significant differences were also identified for race ($p = 0.05$) and geographical location of household ($p = 0.01$). No differences were identified for ethnicity, language of interview, maternal education, relationship of respondent to CSHCN, sex, age, number of adults in the household, or number of kids in the household.

Adjusted Analysis.

The standardized coefficients, standard errors, p values, odds ratios, and 95% confidence intervals of the multiple logistic regression model are provided in Table 11 –

Appendix D. The standardized regression coefficients are presented in addition to the odds ratios to allow for comparison between SES strata. As the severity of the condition increased, the odds of having received all needed care decreased [OR = 0.67, 95% CI (0.45, 0.99), $S\beta = - 8.70$]. Only the other race category impacted receiving all needed care [OR = 0.56, 95% CI (0.32, 0.98), $S\beta = - 1.29$], suggesting that other minority CSHCN were 44% less likely. CSHCN with SCHIP had a 77% [OR = 0.23, 95% CI (0.08, 0.71), $S\beta = - 2.32$] decreased odds of having received all needed care; while, CSHCN with other insurance had a 2.16 times increased odds [OR = 2.16, 95% CI (1.04, 4.51), $S\beta = 2.19$]. Two interaction terms were significant in this model: uninsured at some point in the past 12 months * severity of condition [$S\beta = 2.71$, $p = 0.02$] and uninsured at some point in the past 12 months * geographical location of the household [$S\beta = - 7.80$, $p < 0.01$].

Hypothesis 3 – Comparison of Models

Table 14 provides the standardized regression coefficients and p values for all SES strata in Hypothesis 1. The regression coefficient was positive for age in < 133% of FPL, but negative for all other SES strata. Age only had a significant effect in the 133 – 199% of FPL. Severity differed among SES strata. The coefficient was positive, though not significant, in both the < 133% of FPL and 200 – 299% of FPL. The largest magnitude of these two strata existed in the < 133% of FPL, suggesting that as the severity increases, so does the likelihood of having received all needed mental health care or counseling. The direction of the coefficients, however, was negative for both the 133

– 199% of FPL and $\geq 300\%$ of FPL strata, while significant in the $\geq 300\%$ of FPL stratum. Gender did not have a significant effect, the direction of the coefficient revealed different relationships among the SES strata by changing direction. Black CSHCN were significantly less likely to receive all needed care in the $< 133\%$ of FPL stratum; while, the other race group was significantly less likely in the $\geq 300\%$ of FPL stratum. The coefficient for ethnicity was only significant for the $< 133\%$ of FPL stratum, suggesting that Hispanic CSHCN were more likely to have received all needed care.

For maternal education, the coefficients for having some college but not a four year college degree, and having less than or equal to a high school degree or GED were both positive and significant in the 200 – 299% of FPL only. The sign of both coefficients changed direction in the $\geq 300\%$ of FPL, but they were not significant. CSHCN with Medicaid were more likely to have received all needed care in the $< 133\%$ of FPL. No other significant relationships were identified; though, the direction did change for the 200 – 299% of FPL stratum. The coefficient for SHIP was significant in both the $< 133\%$ of FPL and $\geq 300\%$ of FPL strata; however the sign was positive in the first and negative in the latter. Not having insurance at some point in the past 12 months had the largest effect in the 133 – 199% of FPL. Oddly, the coefficient was only negative in this SES stratum and positive in the other three. Of the non-significant, positive coefficients, the greatest magnitude was identified in the 200 – 299% of FPL stratum.

The coefficients for Midwest and South were significant and positive for both the $< 133\%$ and 133 – 199% of FPL strata, suggesting that CHSCN in these geographical locations were more likely to have received all needed mental health care or counseling

than CSHCN in the Northeast. Despite not being significant, the coefficient for West had the greatest magnitude for < 133% of FPL. None of the coefficients for having the mother respond to the survey were significant, though the greatest magnitudes were found in the < 133% and 200 – 299% of FPL strata. The coefficient for the number of adults in the household changed direction in the $\geq 300\%$ of FPL stratum. The coefficient for the number of kids in the household was negative and significant in the < 133% of FPL and negative, but not significant in the $\geq 300\%$ of FPL stratum.

The age * severity of condition interaction term coefficient was negative, but not significant, for the < 133% and 200 – 299% of FPL strata; however, it was positive and significant for the 133 – 199% of FPL stratum. The coefficient for geographical location of household * severity of condition was negative for the first three SES strata, while significant for the first two. The direction of the coefficient changed for $\geq 300\%$ of FPL. The coefficient for the uninsured at some point in the past 12 months * severity of condition was negative for both the < 133% and 200 – 299% of FPL strata, yet was positive for the 133 – 199% and $\geq 300\%$ of FPL strata. The coefficient for the uninsured at some point in the past 12 months * race approached significance and was positive in the 133 – 199% of FPL. It was negative and significant in the 200 – 299% of FPL. This indicated a significant change of direction between the middle two SES strata. The coefficient for uninsured in the past 12 months * ethnicity was positive for the < 133% and 200 – 299% of FPL strata, yet was negative for the 133 – 199% and $\geq 300\%$ of FPL. The uninsured at some point in the past 12 months * geographical location of the household coefficient had the largest magnitude and was significant in the $\geq 300\%$ of

FPL. The interaction between private insurance * Medicaid was only significant in the < 133% of FPL.

The -2 Log Likelihood illustrated the < 133% of FPL stratum as the best fit model and the 133 – 199% FPL stratum as the least fit model.

Table 14. Standardized Regression Coefficients and p Values for Hypothesis 3

Variable	< 133% of FPL		133 – 199% of FPL		200 – 299% of FPL		≥ 300% of FPL	
	S β	p	S β	p	S β	p	S β	p
Age	2.41	0.31	- 6.89	0.01	- 0.25	0.93	- 1.31	0.62
Severity	5.45	0.19	- 3.48	0.24	2.30	0.49	- 8.70	0.05
Sex								
Male	-	-	-	-	-	-	-	-
Female	- 0.69	0.33	1.13	0.08	- 0.93	0.24	1.96	0.08
Race								
White	-	-	-	-	-	-	-	-
Black	- 3.89	< 0.01	- 1.32	0.28	0.25	0.78	2.32	0.19
Other	- 1.52	0.18	- 1.70	0.16	0.97	0.26	- 1.29	0.04
Ethnicity								
Non-Hispanic	-	-	-	-	-	-	-	-
Hispanic	3.21	0.02	2.62	0.11	- 0.99	0.41	2.15	0.25
Maternal Education								
≥ 4 yr College Degree	-	-	-	-	-	-	-	-
Some College	1.49	0.06	1.55	0.35	3.41	0.04	- 1.70	0.28
≤ High School	- 0.05	0.96	2.78	0.11	4.75	< 0.01	- 0.82	0.48
Insurance								
Private	-	-	-	-	-	-	-	-
Medicaid	5.33	< 0.01	0.73	0.68	- 0.55	0.60	1.67	0.29
SCHIP	1.67	0.04	- 0.93	0.51	- 0.20	0.89	- 2.32	0.01
Uninsured	1.51	0.58	- 7.61	0.15	4.69	0.17	0.57	0.87

Other	0.06	0.95	- 0.64	0.58	- 0.48	0.61	2.19	0.04
Region								
Northeast	-	-	-	-	-	-	-	-
Midwest	2.33	0.03	2.59	0.05	0.64	0.66	0.62	0.45
South	4.49	0.02	5.28	< 0.01	0.58	0.70	- 1.37	0.53
West	1.51	0.38	3.45	0.08	2.03	0.22	1.18	0.73
Relationship to Child								
Other	-	-	-	-	-	-	-	-
Mother	1.49	0.10	0.11	0.93	1.53	0.16	- 0.21	0.83
Total Adults	0.55	0.65	0.86	0.43	0.90	0.44	- 0.85	0.45
Total Kids	- 3.25	0.02	1.79	0.14	0.68	0.54	- 1.27	0.10
Age *	- 4.35	0.17	6.88	0.05	- 2.07	0.58	0.78	0.87
Severity								
Region *	- 5.61	0.04	- 7.80	< 0.01	- 3.48	0.22	3.26	0.32
Severity								
Uninsured *	- 4.70	0.08	1.21	0.60	- 4.89	0.03	2.71	0.02
Severity								
Uninsured *	- 0.19	0.95	6.45	0.06	- 4.42	< 0.01	1.78	0.35
Race								
Uninsured *	2.29	0.02	- 2.86	0.05	2.49	0.03	- 1.56	0.11
Ethnicity								
Uninsured *	- 1.13	0.67	- 0.47	0.88	1.41	0.54	- 7.80	< 0.01
Region								
Private *	- 2.53	< 0.01	0.86	0.50	2.28	0.14	0.88	0.59
Medicaid								
- 2 Log Likelihood	449646.91		205356.45		212621.79		379497.96	

* β = standardized beta; p = p value; FPL = federal poverty level

< 133% of FPL \approx Very Poor; 133 – 199% of FPL \approx Working Poor; 200 – 299% of FPL \approx

Lower Working to Middle Class; \geq 300% of FPL \approx Upper Class

Hypothesis 4

Children with special health care needs receiving comprehensive, coordinated care in a medical home is dependent upon income stratification with each stratum

affected by demographic characteristics, geographical location of household, severity of condition, and social factors.

Of CSHCN needing comprehensive, coordinated care in a medical home, 21,693 (53.57%) received care. This significantly ($p < 0.01$) changed among SES levels with 3,493 (40.10%) CSCHN in $< 133\%$ FPL, 2,937 (52.42%) in 133 – 199% FPL, 4,031 (54.69%) in 200 – 299% FPL, and 9,285 (60.97%) in $\geq 300\%$ FPL reporting that the CSHCN received comprehensive, coordinated care in a medical home. The percent of CSHCN receiving comprehensive, coordinated care in a medical home steadily increased with SES.

Hypothesis 4 – Socioeconomic Status $< 133\%$ of the Federal Poverty Level

Crude Analysis.

A descriptive analysis of variables for Hypothesis 4 and SES $< 133\%$ of FPL is presented in Table 10 – Appendix C. A statistically significant difference among CSHCN who received comprehensive, coordinated care in a medical home and those who did not was identified for age ($p < 0.01$), severity of condition ($p < 0.01$), and number of adults in the household ($p = 0.03$). Significant differences were also found for Medicaid ($p < 0.01$) versus without Medicaid and SCHIP ($p = 0.03$) versus without SCHIP. No differences were identified for private insurance or other form of insurance. Fewer CSHCN who were not insured at some point in the past 12 months received comprehensive, coordinated care in a medical home ($p < 0.01$). Significant associations were also revealed for ethnicity ($p < 0.01$), language of interview ($p < 0.01$), maternal

education ($p < 0.01$), race ($p < 0.01$), and geographical region of household ($p < 0.01$). No differences were identified for relationship of respondent to CSHCN, or number of kids in the household.

Adjusted Analysis.

The standardized coefficients, standard errors, p values, odds ratios, and 95% confidence intervals of the multiple logistic regression model are provided in Table 11 – Appendix D. The standardized regression coefficients are presented in addition to the odds ratios to allow for comparison between SES strata. Several predictors were significant in this model. Only one age group was significant, indicating that CSHCN 5 to 9 years of age are more likely to comprehensive, coordinated care in a medical home [OR = 1.52, 95% CI (1.11, 2.07), $S\beta = 1.72$] as compared to CSHCN 15 to 17 years of age. Additionally, for every unit increase in severity, the likelihood of receiving care in a medical home decreased by 12% [OR = 0.88, 95% CI (0.85, 0.91), $S\beta = - 3.05$]. Black [OR = 0.59, 95% CI (0.44, 0.79), $S\beta = - 2.12$] and other minority [OR = 0.42, 95% CI (0.20, 0.89), $S\beta = - 2.54$] CSHCN demonstrated a decreased odds of having received care in a medical home. Only one category for maternal education had an effect. A maternal education of some college, but not a four year degree [OR = 1.31, 95% CI (1.00, 1.74), $S\beta = 0.97$] was borderline protective against receiving care in a medical home. Insurance status had a significant effect. CHSCN with Medicaid [OR = 1.21, 95% CI (1.02, 1.44), $S\beta = 0.81$] and SCHIP [OR = 1.23, 95% CI (1.01, 1.50), $S\beta = 0.72$] were more likely than CSHCN with private insurance to have received care in a medical home. CHSCN who

were uninsured at some point in the past 12 months were 68% less likely [OR = 0.32, 95% CI (0.20, 0.53), $S\beta = -4.29$]. CSHCN in two of the three geographical locations of the household were illustrated a decreased odds of receiving care in a medical home as compared to the Northeast: South [OR = 0.61, 95% CI (0.47, 0.79), $S\beta = -2.22$] and West [OR = 0.56, 95% CI (0.37, 0.84), $S\beta = -2.15$]. In this SES stratum, having the interview conducted in a language other than English also significantly decreased the odds of having received care in a medical home [OR = 0.33, 95% CI (0.22, 0.49), $S\beta = -3.27$]. Only one interaction term, uninsured at some point in the past 12 months * severity of condition [$S\beta = 3.73$, $p < 0.01$] was significant in this model. The coefficient was opposite in direction than the coefficients for either individual term.

Hypothesis 4 – Socioeconomic Status 133 – 199% of the Federal Poverty Level

Crude Analysis.

A descriptive analysis of variables for Hypothesis 4 and SES 133 – 199% of FPL is presented in Table 10 – Appendix C. Statistically significant differences among CSHCN who received comprehensive, coordinated care in a medical home and those who did not were identified for age ($p < 0.01$), severity of condition ($p < 0.01$), and number of kids in household. Significant differences were also found for Medicaid ($p = 0.04$) versus no Medicaid, private insurance ($p < 0.01$) versus no private insurance, and other form insurance ($p = 0.02$) versus no other form of insurance. A significant difference was not identified for SCHIP. Significant associations were identified for ethnicity ($p = 0.02$), language of interview ($p < 0.01$), geographical location of household

($p < 0.01$), and relationship of respondent to CSHCN ($p < 0.01$). No differences were found for maternal education, race, sex, and number of adults in the household.

Adjusted Analysis.

The standardized coefficients, standard errors, p values, odds ratios, and 95% confidence intervals of the multiple logistic regression model are provided in Table 11 – Appendix D. The standardized regression coefficients are presented in addition to the odds ratios to allow for comparison between SES strata. Only the youngest age group, 0 to 4 years [OR = 1.51, 95% CI (1.05, 2.16), $S\beta = 1.30$], increased the likelihood of having received comprehensive, coordinated care in a medical home, as compared to 15 to 17 years of age. For every unit increase in the severity of condition, the odds of having received care in a medical home decreased by 12% [OR = 0.88, 95% CI (0.85, 0.91), $S\beta = -2.96$]. Females were more likely than males [OR = 1.38, 95% CI (1.10, 1.73), $S\beta = 1.36$], and other racial groups were more likely than whites [OR 2.75, 95% CI (1.14, 6.64), $S\beta = 2.51$] to have received care in a medical home. If the mother was the respondent, the CSHCN demonstrated an increased odds [OR = 2.67, 95% CI (1.88, 3.80), $S\beta = 3.00$] of receiving care in a medical home. Finally, a 1.14 increase was observed for every additional kid in the household [OR = 1.14, 95% CI (1.01, 1.29), $S\beta = 1.35$]. The race * geographical location of the household [$S\beta = -3.05$, $p = 0.01$] and private * Medicaid [$S\beta = -1.08$, $p = 0.03$] interaction terms were significant in this model.

Hypothesis 4 – Socioeconomic Status 200 – 299% of the Federal Poverty Level

Crude Analysis.

A descriptive analysis of variables for Hypothesis 4 and SES 200 – 299% of FPL is presented in Table 10 – Appendix C. A statistically significant difference among CSHCN who received comprehensive, coordinated care in a medical home and those who did not was identified for severity of condition ($p < 0.01$) and number of adults in the household ($p < 0.01$). Significant differences were also found for Medicaid ($p < 0.01$) versus without Medicaid, private insurance ($p = 0.03$) versus without private insurance and other form of insurance ($p < 0.01$) versus without other form of insurance. No difference was identified for SHCIP, and the difference between CSHCN with no insurance at some point in the past 12 months and those with insurance the past 12 months was borderline ($p = 0.06$). A significant difference was also found for ethnicity ($p < 0.01$), race ($p < 0.01$), geographical location of household ($p < 0.01$), and relationship of respondent to CSHCN ($p < 0.01$). No differences were found for language of interview, maternal education, sex, age, or number of kids in the household.

Adjusted Analysis.

The standardized coefficients, standard errors, p values, odds ratios, and 95% confidence intervals of the multiple logistic regression model are provided in Table 11 – Appendix D. The standardized regression coefficients are presented in addition to the odds ratios to allow for comparison between SES strata. As the severity of the condition increased by one unit, the likelihood of having received comprehensive, coordinated care

decreased by 9% [OR = 0.91, 95% CI (0.86, 0.95), Sβ = - 2.12]. When compared to white CSHCN, black [OR = 0.49, 95% CI (0.35, 0.70), Sβ = - 1.91], multiracial [OR = 0.29, 95% CI (0.14, 0.63), Sβ = - 1.49], and other [OR = 0.16, 95% CI (0.06, 0.44), Sβ = - 3.58] racial groups all demonstrated a decreased odds of having received care in a medical home. Only the other insurance group had a significant effect [OR = 0.68, 95% CI (0.49, 0.95), Sβ = - 1.04] by decreasing the chance of having received care in a medical home. If the mother responded to the survey, there was an almost significant increased likelihood [OR = 1.39, 95% CI (1.00, 1.93), Sβ = 1.07] of having received care in a medical home. Finally, as the number of kids in the household increased, the odd of receiving care in a medical home decreased by 15% [OR = 0.85, 95% CI (0.73, 1.00), Sβ = - 1.55]. The uninsured in the past 12 months * race [Sβ = 2.22, p = 0.02] and race * geographical location of the household [Sβ = 2.66, p = 0.04] interaction terms were significant in this model.

Hypothesis 4 – Socioeconomic Status \geq 300% of the Federal Poverty Level

Crude Analysis.

A descriptive analysis of variables for Hypothesis 4 and SES \geq 300% of FPL is presented in Table 10 – Appendix C. A statistically significant difference among CSHCN who received comprehensive, coordinated care in a medical home and those who did not was identified for age ($p < 0.01$), severity of condition ($p < 0.01$), and number of kids in the household ($p = 0.05$). The association with number of adults in the household was borderline significant ($p = 0.06$). Significant differences were also found

for Medicaid ($p < 0.01$) versus without Medicaid, private insurance ($p < 0.01$) versus without private insurance SCHIP ($p = 0.03$) versus without SCHIP, and other insurance ($p < 0.01$) versus without other form of insurance. Fewer CSHCN who were not insured at some point in the past 12 months received all needed mental health care of counseling ($p < 0.01$). Significant differences were also identified for race ($p < 0.01$) and geographical location of household ($p < 0.01$). No differences were identified for ethnicity, language of interview, maternal education, relationship of respondent to CSHCN, and sex.

Adjusted Analysis.

The standardized coefficients, standard errors, p values, odds ratios, and 95% confidence intervals of the multiple logistic regression model are provided in Table 11 – Appendix D. The standardized regression coefficients are presented in addition to the odds ratios to allow for comparison between SES strata. In this SES stratum, two age groups significantly affected having received comprehensive, coordinated care in a medical home. Compared to ages 15 – 17 years, CHSCN that were 10 – 14 years of age [OR = 1.37, 95% CI (1.20, 1.58), $S\beta = 1.42$] and 0 – 4 years of age [OR = 1.53, 95% CI (1.28, 1.83), $S\beta = 1.34$] were more likely to have received care in a medical home. Again as the severity of the condition increase by one unit, the odds of having received care in a medical home decreased by 12% [OR = 0.85, 0.91), $S\beta = - 2.87$]. The effect of maternal education for completing high school or the GED was borderline significant [OR = 1.22, 95% CI (1.00, 1.49), $S\beta = 0.75$]. Having Medicaid [OR = 0.65, 95% CI (0.46, 0.93), $S\beta$

= - 0.87] or some other form of insurance [OR = 0.75, 95% CI (0.65, 0.86), $S\beta$ = - 0.83] decreased the odds of having received care in a medical home when referenced against having private insurance. Having no insurance decreased the odds by 58% [OR = 0.42, 95% CI (0.21, 0.82), $S\beta$ = - 1.77]. CSHCN in the Midwest [Or = 1.29, 95% CI (1.07, 1.54), $S\beta$ = 0.90] and South [OR = 1.53, 95% CI (1.22, 1.93), $S\beta$ = 1.91] demonstrated an increased odds of having received care in a medical home. Finally, as the number of adults in the household increased, the likelihood of having received care in a medical home also increased [OR = 1.14, 95% CI (1.04, 1.26), $S\beta$ = 0.70]. Only one interaction term was significant in this model: uninsured at some point in the past 12 months * ethnicity [$S\beta$ = - 1.38, p = 0.05].

Hypothesis 4 – Comparison of Models

Table 15 provides the standardized regression coefficients and p values for all SES strata in Hypothesis 4. Age of 10 – 14 years only had a significant effect on receiving comprehensive, coordinated care in a medical home for the $\geq 300\%$ of FPL as compared to 15 – 17 years of age. The coefficient for 5 – 9 years of age had the greatest effect on the $< 133\%$ of FPL. The coefficients for 0 – 4 years of age were positive and significant for 133 – 199% and $\geq 300\%$ of FPL. Coefficients for the severity of condition were negative and significant for all SES strata, but had the largest magnitude in the $< 133\%$ of FPL stratum. The coefficient for sex was negative, but not significant in the lowest SES stratum, but was positive for the other three SES strata with the only significance in the 133 – 199% of FPL stratum. Coefficients for black CSHCN were

negative and significant for both the < 133% and 200 – 299% of the FPL, suggesting that black CSHCN were less likely to have received care in a medical home. The coefficient was positive, but had a small magnitude in the 133 – 199% of FPL stratum. Similar trends followed for the multiracial CSHCN. The coefficients for the other race group had a larger magnitude and were significant for the first three SES strata; however, it changed direction in the 133 – 199% of FPL. The magnitude of the coefficients was small for all strata with ethnicity, except 133 – 199% of FPL. For Hispanic CSHCN, the coefficient changed direction and demonstrated the largest magnitude for 133 – 199% of FPL.

There was not much difference for maternal education of some college, but not a four year degree or a high school education or GED as compared to having a four year college degree or more. The coefficient for having less than a high school degree was negative for < 133% of FPL stratum, but positive for all other strata. CCHSN on Medicaid were significantly more likely than CSHCN with private insurance to have received care in a medical home for the < 133% of FPL stratum, but were less likely in all other strata. Only the first and last were significant. SCHIP only had an effect in the < 133% of FPL stratum. The coefficient for not having insurance at some point in the past 12 months was negative for all strata, but was significant in the lowest and highest strata.

Coefficients for geographical location of the household demonstrated different associations among SES strata. CSHCN in the Midwest versus Northeast were less likely to receive care in a medical home for the first two SES strata, but were more likely in the last two strata. Only the $\geq 300\%$ of FPL stratum was significant. The coefficient for

living in the South was negative for both the < 133% and 200 – 299% of FPL strata, yet was positive for the 133 – 199% and \geq 300% of FPL. This same relationship held true for CSHCN in the West.

Coefficients for having the interview conducted in a language other than English were negative for all SES strata, but was only positive for the < 133% of FPL. If the respondent was the Mother of the CSHCN, the coefficients were positive and significant or approached significance in the last three SES strata. The number of kids in the household had a significant effect in both the 133 – 199% and 200 – 299% of FPL strata, but the coefficients were in opposite directions. The uninsured at some point in the past 12 months * severity of condition was only significant in the < 133% of FPL; while, the coefficient for uninsured at some point in the past 12 months * race was only significant in the 200 – 299% of FPL. The coefficient for uninsured at some point in the past 12 months * ethnicity was negative for all SES strata and significant for the \geq 300% of FPL. The race * geographical location of household presented a significant coefficient for both the 133 – 199% and 200 – 299% of FPL; however, the direction was different. The private * Medicaid interaction term coefficient was significant in the 133 – 199% of FPL stratum.

The -2 Log Likelihood illustrated the \geq 300% of FPL stratum as the best fit model and the 133 – 199% FPL stratum as the least fit model.

Table 15. Standardized Regression Coefficients and p Values for Hypothesis 4

Variable	< 133% of FPL		133 – 199% of FPL		200 – 299% of FPL		≥ 300% of FPL	
	S β	p	S β	p	S β	p	S β	p
Age								
15-17 years	-	-	-	-	-	-	-	-
10-14 years	0.29	0.58	0.76	0.32	- 0.31	0.62	1.42	< 0.01
5-9 years	1.72	< 0.01	0.87	0.22	0.17	0.85	0.93	0.08
0-4 years	0.12	0.78	1.30	0.03	- 0.48	0.39	1.34	< 0.01
Severity	- 3.05	< 0.01	- 2.96	< 0.01	- 2.12	< 0.01	- 2.87	< 0.01
Sex								
Male	-	-	-	-	-	-	-	-
Female	- 0.13	0.79	1.36	< 0.01	0.32	0.34	0.08	0.78
Race								
White	-	-	-	-	-	-	-	-
Black	- 2.12	< 0.01	0.38	0.50	- 1.91	< 0.01	- 0.01	0.98
Multi-racial	- 0.52	0.37	0.85	0.15	- 1.49	< 0.01	0.01	0.97
Other	- 2.54	0.02	2.51	0.02	- 3.58	< 0.01	- 0.47	0.48
Ethnicity								
Non-Hispanic	-	-	-	-	-	-	-	-
Hispanic	0.44	0.52	- 1.36	0.17	0.08	0.80	0.47	0.32
Maternal Education								
≥ 4 yr College Degree	-	-	-	-	-	-	-	-
Some College	0.97	0.05	0.89	0.27	0.41	0.26	0.25	0.40
High School	0.44	0.41	1.37	0.16	0.30	0.51	0.75	0.05
< High School	- 0.66	0.32	1.09	0.23	0.53	0.35	0.37	0.31
Insurance								
Private	-	-	-	-	-	-	-	-
Medicaid	0.81	0.03	- 0.31	0.72	- 0.37	0.45	- 0.87	0.02
SCHIP	0.72	0.04	- 0.42	0.48	0.29	0.63	- 0.30	0.30
Uninsured	- 4.29	< 0.01	- 0.72	0.59	- 1.35	0.09	- 1.77	0.01

Other	- 0.80	0.07	- 0.55	0.25	- 1.04	0.02	- 0.83	< 0.01
Region								
Northeast	-	-	-	-	-	-	-	-
Midwest	- 0.62	0.09	- 0.27	0.51	0.65	0.30	0.90	0.01
South	- 2.22	< 0.01	0.62	0.38	- 1.73	0.07	1.91	< 0.01
West	- 2.15	< 0.01	0.12	0.89	- 2.91	0.08	0.92	0.13
Language of Interview								
English	-	-	-	-	-	-	-	-
Other	- 3.28	< 0.01	- 0.59	0.37	- 0.02	0.94	- 0.25	0.52
Relationship to Child								
Other	-	-	-	-	-	-	-	-
Mother	- 0.04	0.94	3.00	< 0.01	1.07	0.05	0.67	0.06
Total Adults	0.52	0.25	- 0.30	0.49	- 0.47	0.16	0.70	0.01
Total Kids	0.31	0.67	1.35	0.03	- 1.55	0.05	0.39	0.43
Uninsured * Severity	3.73	< 0.01	- 1.04	0.13	- 0.72	0.33	0.44	0.33
Uninsured * Race	- 0.46	0.72	0.43	0.79	2.22	0.02	0.95	0.34
Uninsured * Ethnicity	- 0.10	0.84	- 0.14	0.85	- 0.55	0.43	- 1.38	0.05
Race * Region	1.09	0.40	- 3.05	< 0.01	2.66	0.04	- 0.91	0.16
Private * Medicaid	0.02	0.96	- 1.08	0.03	- 0.75	0.18	0.16	0.68
- 2 Log Likelihood	1769035.7		1204309.8		1481010.6		3582375.5	

* S β = standardized beta; p = p value; FPL = federal poverty level

< 133% of FPL \approx Very Poor; 133 – 199% of FPL \approx Working Poor; 200 – 299% of FPL \approx

Lower Working to Middle Class; \geq 300% of FPL \approx Upper Class

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

Chapter VI provides a brief summary of the methods, conclusions specifically related to the hypotheses, and a detailed discussion of the results and how they relate to previous research.

Summary

This research study included analysis of an already existing, publicly available database from the National Survey of Children with Special Health Care Needs, 2000 – 2002, available through the Centers for Disease Control and Prevention. Data were collected through random digit dialing within 78 Immunization Action Plans, or primary sampling units, throughout the United States. Data were collected on approximately 750 children with special health care needs (CSHCN) from each of the 50 states and the District of Columbia. Data collected represented parent report responses on health care and health care needs for CSHCN. Responses for 38,866 CSHCN up to 17 years of age were available and were included in the analysis.

The purpose of this research study was to identify factors that affect unmet health care needs for CSHCN and to identify how these factors vary among different socioeconomic levels. Four hypotheses were tested, with each stratified by four

socioeconomic status (SES) strata: < 133 % of the federal poverty level (FPL); 133 – 199% of the FPL, 200 – 299% of the FPL, and \geq 300% of the FPL. These strata were chosen based on governmental programs and benefits available to CSHCN. It is federally mandated that all states provide health care benefits to pregnant women and children up to 6 years of age with a household income less than or equal to 133% of the FPL and individuals 6 to 19 years of age with a household income less than or equal to 100% of the FPL. Most states have either expanded the Medicaid benefits or offer health coverage through SCHIP to individuals in households up to or below 200% of the FPL (DHHS, 2005). A few states have elected to expand their SCHIP benefits up to 300% of the FPL. Above 300% of the FPL, households tend to be more affluent and more likely to be ineligible for governmental programs. The SES strata are referred to as Very Poor (< 133% of FPL), Working Poor (133 -199% of FPL), Lower Working to Middle Class (200 – 299% of FPL), and Upper Class (\geq 300% of FPL). Four hypotheses were tested.

Conclusions

Hypothesis 1.

Children with special health care needs receiving all needed routine preventive care is dependent upon income stratification with each stratum affected by demographic characteristics, geographical location of household, severity of condition, and social factors.

There were variations among the predictor variables within the SES strata for Hypothesis 1. Sex, race, insurance type / status, the relationship of the respondent to the CSHCN, and the number of kids in the household significantly predicted receiving all needed routine preventive care for CSHCN in < 133% of the FPL stratum. Ethnicity, insurance type / status, geographical location of the household, relationship of the respondent to the CSHCN, and the number of kids in the household significantly predict receiving all needed routine preventive care for CSHCN in the 133 – 199% of FPL stratum. Race and insurance type significantly predict receiving all needed routine preventive care for CSHCN in the 200 – 299% of FPL stratum. Sex, insurance type / status, relationship of the respondent to the CSHCN, and the number of kids in the household significantly predict receiving all needed routine preventive care for CSHCN in the $\geq 300\%$ of FPL stratum. See Figure 1.

Figure 1. Summary of CSHCN and Routine Preventive Care Stratified by Socioeconomic Status*

	< 133% of FPL (Very Poor)	133 – 199% of FPL (Working Poor)	200 – 299% of FPL (Lower Working to Middle Class)	≥ 300% of FPL (Upper Class)
Age				
Severity				
Sex				
Female	-			+
Race				
Black	-		-	
Other	-			
Ethnicity				
Hispanic		+		
Maternal Education				
Some College				
≤ High School				
Insurance				
Medicaid	+	+		
SCHIP	+		+	
Uninsured	-	-		-
Other				+
Region				
Midwest		-		
South				
West				
Relationship				
Mother	+	+		+
Total Adults				
Total Kids	-	-		-
Age *				
Severity				
Region *				+
Severity				
Uninsured *	+			
Race				

*Reference categories: male; White; non-Hispanic; ≥ 4 year college degree; private insurance; Northeast; relationship other than mother

Hypothesis 2.

Children with special health care needs receiving all needed care from a specialist is dependent upon income stratification with each stratum affected by demographic characteristics, geographical location of household, severity of condition, and social factors.

There were variations among the predictor variables within the SES strata for Hypothesis 2. Ethnicity, insurance type, geographical location of the household, and the number of kids in the household significantly predicted receiving all needed care from a specialist for CSHCN in the < 133% of FPL stratum. Race, insurance type, geographical location of the household, and the number of adults in the household significantly predicted receiving all needed care from a specialist for CSHCN in the 133 – 199% of FPL stratum. Severity of condition, maternal education, and the relationship of the respondent to the CSHCN significantly predicted receiving all needed care from a specialist for CSHCN in the 200 – 299% of FPL stratum. Age, maternal education, and geographical location of the household significantly predicted receiving all needed care from a specialist for CSHCN in the \geq 300% of FPL stratum. See Figure 2.

Figure 2. Summary of CSHCN and Care from a Specialist Stratified by Socioeconomic Status*

	< 133% of FPL (Very Poor)	133 – 199% of FPL (Working Poor)	200 – 299% of FPL (Lower Working to Middle Class)	≥ 300% of FPL (Upper Class)
Age				+
Severity			-	
Sex				
Female				
Race				
Black		+		
Other				
Ethnicity				
Hispanic	+			
Maternal Education				
Some College				-
≤ High School			+	
Insurance				
Medicaid	+			
SCHIP				
Uninsured		-		
Other				
Region				
Midwest	+			+
South	+	-		
West	+	-		
Relationship				
Mother			+	
Total Adults		+		
Total Kids	-			
Age * Severity				-
Region * Severity	-			
Uninsured * Severity				+
Uninsured * Race			-	+
Ethnicity * Region	-			

Uninsured * Region				-
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*Reference categories: male; White; non-Hispanic; ≥ 4 year college degree; private insurance; Northeast; relationship other than mother

Hypothesis 3.

Children with special health care needs receiving all needed mental health care or counseling is dependent upon stratification with each stratum affected by demographic characteristics, geographical location of household, severity of condition, and social factors.

There were variations among the predictor variables within the SES strata for Hypothesis 3. Race, ethnicity, insurance type, geographical location of the household, and the number of kids in the household significantly predicted receiving all needed mental health care or counseling for CSHCN in the $< 133\%$ of FPL stratum. Age and geographical location of the household significantly predicted receiving all needed mental health care or counseling for CSHCN in the 133 – 199% of FPL stratum. Maternal education was the only significant predictor for receiving all needed mental health care or counseling for CSHCN in the 200 – 299% of FPL stratum. Severity of condition, race, and insurance type significantly predicted receiving all needed mental health care or counseling for CSHCN in the $\geq 300\%$ of FPL stratum.

Figure 3. Summary of CSHCN and Mental Health Care or Counseling Stratified by Socioeconomic Status*

	< 133% of FPL (Very Poor)	133 – 199% of FPL (Working Poor)	200 – 299% of FPL (Lower Working to Middle Class)	≥ 300% of FPL (Upper Class)
Age		-		
Severity				-
Sex				
Female				
Race				
Black	-			
Other				-
Ethnicity				
Hispanic	+			
Maternal Education				
Some College			+	
≤ High School			+	
Insurance				
Medicaid	+			
SCHIP	+			-
Uninsured				
Other				+
Region				
Midwest	+	+		
South	+	+		
West				
Relationship				
Mother				
Total Adults				
Total Kids	-			
Age *		+		
Severity				
Region *	-	-		
Severity				
Uninsured *			-	+
Severity				
Uninsured *			-	
Race				
Uninsured *	+	-	+	
Ethnicity				
Uninsured *				-

Region				
Private * Medicaid	-			

*Reference categories: male; White; non-Hispanic; ≥ 4 year college degree; private insurance; Northeast; relationship other than mother

Hypothesis 4.

Children with special health care needs receiving comprehensive, coordinated care in a medical home is dependent upon income stratification with each stratum affected by demographic characteristics, geographical location of household, severity of condition, and social factors.

There were variations among the predictor variables within the SES strata for Hypothesis 4. Age, severity of condition, race, maternal education, insurance type / status, geographical location of the household, and language of the interview significantly predicted receiving comprehensive, coordinated care in a medical home for CSHCN in the $< 133\%$ of FPL stratum. Age, severity of condition, sex, race, relationship of the respondent to the CSHCN, and the number of kids in the household significantly predicted receiving comprehensive, coordinated care in a medical home for CSHCN in the $133 - 199\%$ of FPL stratum. Severity of condition, race, insurance type, relationship of the respondent to the CSHCN, and the number of kids in the household significantly predicted receiving comprehensive, coordinated care in a medical home for CSHCN in the $200 - 299\%$ of FPL stratum. Age, maternal education, insurance type / status, geographical location of the household, and number of adults in the household significantly predicted receiving comprehensive, coordinated care in a medical home for CSHCN in the $\geq 300\%$ of FPL stratum.

Figure 4. Summary of CSHCN and Comprehensive, Coordinated Care in a Medical Home Stratified by Socioeconomic Status*

	< 133% of FPL (Very Poor)	133 – 199% of FPL (Working Poor)	200 – 299% of FPL (Lower Working to Middle Class)	≥ 300% of FPL (Upper Class)
Age				
10-14 years				+
5-9 years	+			
0-4 years		+		+
Severity	-	-	-	-
Sex				
Female		+		
Race				
Black	-		-	
Multi-racial			-	
Other	-	+	-	
Ethnicity				
Hispanic				
Maternal Education				
Some College	+			
High School				+
< High School				
Insurance				
Medicaid	+			-
SCHIP	+			
Uninsured	-			-
Other			-	-
Region				
Midwest				+
South	-			+
West	-			
Language of Interview				
Other	-			
Relationship				
Mother		+	+	
Total Adults				+
Total Kids		+	-	

Uninsured * Severity	+			
Uninsured * Race			+	
Uninsured * Ethnicity				-
Race * Region		-	+	
Private * Medicaid		-		

*Reference categories: 15 – 17 years of age; male; White; non-Hispanic; ≥ 4 year college degree; private insurance; Northeast; language other than English; relationship other than mother

Discussion

Routine Preventive Care.

Of the CSHCN with a reported need for routine preventive care in the past year, 27,828 (96.8%) were reported as having received all needed care. The percentage was similar for CSHCN in the < 133% of FPL (93.22%) and 133 – 199% of FPL (93.23%) strata. Similar overall responses were also found for CSHCN in the 200 – 299% of FPL (98.06%) and $\geq 300\%$ of FPL (98.72%) strata. This demonstrates that although over 90% of CSHCN in all SES strata received all needed routine preventive care, CSHCN in the two lowest strata were less likely than those in the two highest strata.

Mayer et al. (2004) found that 3.20% of CSHCN who needed routine preventive care did not receive it. This exactly matches the current study since Mayer et al. (2004) also analyzed data from the National Survey of Children with Special Health Care Needs, 2000 – 2002. The current research, however, differs from that of Mayer et al. (2004) by examining each of four SES strata independently and then comparing how various risk factors affect each stratum. Mayer et al. (2004) included three levels of SES (< 100% of

FPL, 100 – 199% of FPL, and $\geq 200\%$ of FPL) as a factor in the model, thus, controlling for SES. Mayer et al. (2004) did find that SES had a significant impact on having received all needed routine, preventive care. As compared to $\geq 200\%$ of FPL, both of the lower SES levels were more likely to not have received all needed care.

In the current study, age did not significantly affect having received all needed routine preventive care; however, the coefficient did approach significance in both the 133 – 199% and 200 – 299% of FPL strata. An even more interesting finding is that the direction of the affect for age was different in these two strata. In essence, as age increased in the 133 – 199% of FPL stratum, the likelihood of having received all needed care increased. The opposite was true for the 200 – 299% of FPL stratum. The coefficient was also negative in the highest SES stratum. Again, these results approached, but did not achieve significance. One possible explanation would be that the disability or need for increased care was identified at different ages within each SES stratum, potentially due to the availability of resources. Mayer et al. (2004) demonstrated no significant affect for age, though, age was categorized.

The severity of the CSHCN's condition (0 – 10 scale) was not significantly associated with having received all needed routine preventive care in any of the SES strata. Nevertheless, the largest magnitudes of the standardized coefficients were identified in the lowest two SES strata. All coefficients were positive except for in the $\geq 300\%$ of FPL stratum. The expectations for care might be different based on SES. Parents in the highest SES stratum might expect better care because of available resources; thus, they might be more inclined to report that all needed care was not

received. Mayer et al. (2004) found that CSHCN with a severity rank of modestly severe were more likely than those with a rank of least severe to have not received all needed care.

In the < 133% of FPL stratum, females were significantly less likely than males to have received all needed routine preventive care. This relationship reversed in the \geq 300% of FPL stratum, also with a significant coefficient. Mayer et al. (2004) found no difference between males and females when examining all CSHCN together. The current research demonstrates the affect of gender varies among the different SES strata. Programs aimed at ensuring adequate care for CSHCN should consider these differences within various SES strata.

The race of the CSHCN demonstrated a significant association among the < 133% of FPL and the 200 – 299% of FPL strata, but not the other two. In all strata, black and other CSHCN were less likely to have received all needed routine preventive care as compared to white CSHCN. Mayer et al. (2004) found similar results for all CSHCN, such that black and multiracial CSHCN were more likely to have not received all needed care. Additionally, Mayer et al. (2004) demonstrated no difference between Hispanic and non-Hispanic CSHCN overall. The current study, on the other hand, revealed a significant difference in the 133 – 199% of FPL stratum. Furthermore, the coefficients were positive in the lowest two strata, suggesting that Hispanic CSHCN were more likely to have received all needed care. The differences in employment between Hispanic and non-Hispanic families could potentially explain this finding. This association reversed in the highest two SES strata, with Hispanic CSHCN less likely to have received all needed

care. The direction of the coefficients in the lowest two SES strata is surprising. There is plethora of research indicating that Hispanic CSHCN are less likely to receive adequate health care (Flores et al., 1999; Gannotti, Kaplan, Handwerker, & Groce, 2004; Honberg et al., 2005). The differences among SES strata could have implications for health care policy among Hispanic CSHCN.

Maternal education did not affect having received all needed routine preventive care for any of the SES strata. This is not in sync with the findings of Mayer et al. (2004), where CSHCN with a maternal education of a high school degree were less likely to have not received all needed routine preventive care as compared to less than a high school degree. This relationship was significant. In this research, however, maternal education was analyzed as less than or equal to a high school degree, but was not broken into less than and equal to a high school degree. There were not enough in each cell to examine this association when stratified by SES.

The insurance status of the CSHCN significantly impacted having received all needed routine preventive care among each SES stratum. The affect of not having insurance at some point in the past 12 months was not unexpected. CSHCN in this category were significantly less likely to have received all needed care in all SES strata except the 200 – 299% of FPL stratum. The coefficient in this stratum was also in the negative direction, just not significant. CSHCN with Medicaid were more likely to have received all needed care than CSHCN with private insurance in the < 133 of FPL and 133 – 199% of FPL strata, but not the upper two. CSHCN with SCHIP were also more likely to have received all needed care, but this was significant for the < 133% of FPL and 200

– 299% of FPL strata only. The differences among strata can potentially be explained by the lack of numbers in the cells once stratified. There were very few CSHCN in the upper two strata with either Medicaid or SCHIP and did not receive all needed care. Mayer et al. (2004) found no significant affect for Medicaid or SCHIP as compared to private insurance.

The current study only identified one significant relationship for the geographical location of the household and having received all needed routine preventive care. CSHCN in the Midwest were less likely than CSHCN in the Northeast to have received all needed care. The coefficients for CSHCN in the South and West were also negative, except in the < 133% of FPL stratum. CSHCN in the Midwest, South, and West were all more likely than CSHCN in the Northeast to have received all needed care in the < 133% of FPL stratum, though the coefficients were not significant. The associations may be affected by the availability of programs for CSHCN. Variations among states in meeting key indicators for health among CSHCN exists (Blumberg & Bramlett, 2005).

Other family factors affect CSHCN having received all needed routine preventive care, especially the relationship of the survey respondent to the CSHCN and the number of kids in the household. If the mother was the survey respondent, it was reported that the CSHCN were more likely to have received all needed care in all SES strata. This association was significant in all SES except the 200 – 299% of FPL stratum. The mother might have more information and be more up to date on the health care needs of the CSHCN. As the number of kids in the household increased, the likelihood of having received all needed care significantly decreased in all SES strata except the 200 – 299%

of FPL stratum. One possible explanation is that when there are more children, there is less time to dedicate to the needs of the CSHCN.

Care from a Specialist.

Of the CSHCN with a reported need for care from a specialist in the past year, 19,270 (92.75%) were reported as having received all needed care. This percentage increased as SES increased with the following distribution in each stratum: 3,310 (84.26%) in the < 133% of FPL; 2,571 (89.90%) in the 133 – 199% of FPL; 3,488 (94.13%) in the 200 – 299% of FPL; and 8,128 (96.18%) in the \geq 300% of FPL. These results demonstrate that as the SES status of the CSHCN increases, the likelihood of receiving all needed care from a specialist also increases.

Mayer et al. (2004) found that 7.25% of CSHCN who needed care from a specialist did not receive it. This exactly matches the current study since Mayer et al. also analyzed data from the National Survey of Children with Special Health Care Needs, 2000 – 2002. The current research, however, differs from that of Mayer et al. by examining each of four SES strata independently and then comparing how various risk factors affect each stratum. Mayer et al. (2004) included three levels of SES (< 100% of FPL, 100 – 199% of FPL, and \geq 200% of FPL) as a factor in the model, thus, controlling for SES. Mayer et al. (2004) did find that SES had a significant impact on having received all needed routine, preventive care. As compared to \geq 200% of FPL, both of the lower SES levels were more likely to not have received all needed care.

The current analysis revealed that age is a significant predictor of having received all needed care from a specialist, but only in the $\geq 300\%$ of FPL stratum. As age increased, the likelihood of having received all needed care also increased. Even though none of the other coefficients were significant, the direction of the coefficients was negative for the $< 133\%$ of FPL and 200 – 299% of FPL strata. This suggests that as age increased, the likelihood of having received all needed care actually decreased. One possible explanation is that the disability or need for extra care may not be apparent until the child is older and either enters school or is observed in group settings with other children their age. Of note, the coefficient for the age * severity of condition term was also significant in only the $\geq 300\%$ of FPL stratum. Mayer et al. (2004) found age to be a significant predictor for having received care from a specialist with all CSHCN combined. The analysis revealed that CSHCN who were either 10 – 12 years of age or 13 – 18 years of age were more likely to have not received all needed care. Not stratifying by SES masks the true affect of age, potentially excluding important policy implications for CSHCN. This could be due to less severely affected children failing to qualify for public programs.

The severity of the condition (0 – 10 scale) only demonstrated a significant affect on receiving all needed care from a specialist in the 200 – 299% of FPL stratum, demonstrating that as the severity of the condition increased, the likelihood of having received all needed care decreased. This could be related to parent expectations. The respondent might rationalize that if the condition is so severe, the child must not be receiving all needed care. The coefficients for both the 133 – 199% of FPL and $\geq 300\%$

of FPL strata were also both negative, but were close to 0. The coefficient for the < 133% of FPL stratum, however, was positive. Mayer et al. (2004) found that overall CSHCN with a severity rank of either mildly severe or modestly severe were more likely than CSHCN with a severity rank of least severe to have not received all needed care from a specialist.

No difference in having received all needed care from a specialist for males and females was found in either the work by Mayer et al. (2004) or by SES in the current research. On the other hand, Mayer et al. did not find a significant association for race, but one association in the 133 – 199% of FPL stratum was identified in the current research. Black CSHCN were more likely than white CSHCN to have received all needed care. Furthermore, Mayer et al did not find ethnicity to be a significant predictor of receiving all needed care. When stratified by SES, however, a significant association was discovered in the < 133% of FPL stratum. Oddly, Hispanic CSHCN in the lowest SES stratum were more likely to have received all needed care. This relationship may be explained by differences in perceived unmet needs and expectations of providers between Hispanic and non-Hispanic parents of CSHCN (Gannotti et al., 2004). Further research into how these expectations may differ with SES would help explain such intriguing findings.

Maternal education significantly impacted having received all needed care from a specialist in the 200 – 299% of FPL and \geq 300% of FPL strata. For CSHCN in the 200 – 299% of FPL stratum, a maternal education of less than or equal to a high school diploma or GED increased the likelihood of having received all needed care as compared to

having a four year college degree or more. The coefficient for having some college, but not a four year degree was also positive, implying the same relationship, but not significant. This is reverse from what would be expected and what was found in the \geq 300% of FPL stratum. In the highest SES stratum, a lower maternal education was negatively associated with having received all needed care. This association, though, was only significant for having some college, but not a four year college degree. The importance of maternal education is masked if not stratified by SES. Mayer et al. (2004) did not find maternal education to be a significant predictor for not having received all needed care from a specialist.

The type of health insurance or being uninsured is generally thought of a factor that affect unmet health care needs for CSHCN. Previous research from the National Survey of Children with Special Health Care Needs, 200 – 2001 demonstrated that CSHCN who did not meet 3 health insurance components of coverage, continuity, and adequacy demonstrated a greater than three times odds of having one or more unmet health care needs (Honberg et al., 2005). Mayer et al. (2004) also found that CSHCN who were uninsured at some point in the past 12 months were more likely to have not received all needed care from a specialist. Strikingly, this association did not present across all SES strata. Being uninsured at some point in the past 12 months only significantly predicted having received all needed care in the 133 – 199% of FPL stratum. Furthermore, the type of insurance was only significant for Medicaid in the < 133% of FPL. CSHCN with Medicaid were more likely to have received all needed care.

Statistically, it is not surprising no association was found for SCHIP in the highest two SES strata. There were too few CSHCN who had SCHIP.

The geographical location of the household played an important role in having received all needed care from a specialist, particularly in the < 133% of FPL and 133 – 199% of FPL strata. CSHCN in the Midwest, South, and West were all more likely to have received all needed care than CSHCN in the Northeast in the < 133% of FPL stratum. These associations, however, reversed in the 133 – 199% of FPL stratum. Though all coefficients were negative in the 133 – 199% of FPL stratum, the coefficient for Midwest was not significant. CSHCN in the South and West were less likely than CSHCN in the Northeast to have received all needed care in the 133 – 199% of FPL stratum. Remarkably, all coefficients were again negative in the 200 – 299% of FPL stratum, though none of them were significant. In the highest SES stratum, all coefficients again changed direction and were positive. Only coefficient for Midwest was significant in the $\geq 300\%$ of FPL stratum. The geographical location of the household appears to have a significant affect on CSHCN having received all needed care from a specialist among different SES strata. Three interaction terms for geographical location of the household were included in all four models. The coefficients for geographical location of household * severity of condition and geographical location of household * ethnicity were significant in the < 133% of FPL stratum; while, the geographical location of household * uninsured at some point in the past 12 months was significant in the $\geq 300\%$ of FPL stratum. The reasons for these disparities in distributions must be researched. Previous research demonstrates that variations among

states in meeting key indicators for health among CSHCN exists (Blumberg & Bramlett, 2005). Exactly how these variations affect CSHCN among SES strata is unclear.

Family factors such as the relationship of the respondent to the CSHCN, the number of adults in the household, and the number of kids in the household were important predictors of having received all needed care from a specialist among the various SES strata. If the mother was the respondent, the CSHCN was more likely to have received all needed care in the 200 – 299% of FPL stratum, but no significant associations were found in the other strata. The number of adults in the household was significant in the 133 – 199% of FPL stratum and approached significance in the < 133% of FPL stratum. As the number of adults in the household increased, the likelihood of having received all needed care increased. It is especially important in the lower SES strata to have family support with providing care for CSHCN. For all children younger than 18 years of age, children from a single parent household were 1.4 times more likely to experience activity limitations due to chronic conditions than children from a household with two parents (Newacheck & Halfron, 1998). Furthermore, 60.7% of all families with CSHCN have at least one person working full time; however, this number decreases to 44.0% in single parent households (Loprest & Davidoff, 2004). The number of kids in the household significantly predicted having received all needed care in the < 133% of FPL stratum. The coefficients for all strata were negative, suggesting that as the number of kids in the households increased, the likelihood of having received all needed care decreased. One possible explanation is that when there are more children, there is less time to dedicate to the needs of the CSHCN.

Mental Health Care or Counseling.

Of the CSHCN with a reported need for mental health care or counseling in the past year, 8,057 (81.89%) were reported as having received all needed care. This percentage increased as SES increased with the following distribution in each stratum: 1,952 (71.92%) in the < 133% of FPL; 1,166 (80.20%) in the 133 – 199% of FPL; 1,447 (84.64%) in the 200 – 299% of FPL; and 2,861 (88.45%) in the \geq 300% of FPL. These results demonstrate that as the SES status of the CSHCN increases, the likelihood of receiving all needed mental health care or counseling also increases.

Ganz and Tendulkar (2006) analyzed data from the National Survey of Children with Special Health Care Needs, 2000 – 2002 to examine what predicts having an unmet need for mental health care services among CSHCN. The current research, however, differs from that of Ganz and Tendulkar (2006) by examining each of four SES strata independently and then comparing how various risk factors affect each stratum. Ganz and Tendulkar (2006) included three levels of SES (< 100% of FPL, 100 – 185% of FPL, and > 185% of FPL) as a factor in the model, thus, controlling for SES. Ganz and Tendulkar (2006) did find that SES had a significant impact on having received all needed mental health care. As compared to > 185% of FPL, both of the lower SES levels were more likely to not have received all needed care.

Ganz and Tendulkar (2006) found that as age increased (10 – 12 years of age and 13 – 17 years of age as compared to 1 – 4 years of age) the odds of not having received all needed mental health care increased. This trend is remains apparent across SES strata. In the current research, age was a significant predictor of having received all needed

mental health care or counseling in the 133 – 199% of FPL stratum. As age increased, the likelihood of having received all needed care decreased. The coefficient was negative in all strata except for < 133% of FPL, though no other significant associations were identified. One possible explanation is that the disability or need for extra care may not be apparent until the child is older and either enters school or is observed in group settings with other children their age. There is also a stigma factor involved with receiving mental health care. This may discourage children and parents from seeking needed care. The age * severity of condition interaction term is significant in the 133 – 199% of FPL stratum only.

The severity of the CSHCN's condition (0 – 10 scale) is only significant in the \geq 300% of FPL stratum, though the direction of the coefficients change throughout. In the \geq 300% of FPL stratum, as the severity of the condition increases, the likelihood of having received all needed mental health care or counseling decreased. This is similar to research by Ganz and Tendulkar (2006) which demonstrated that as the severity of the condition increased, the odds of having an unmet need for mental health care increased. This could be related to parent expectations. The respondent might rationalize that if the condition is severe, the child must not be receiving all needed care. This did not hold constant across all SES strata. The coefficients for the < 133% of FPL and 200 – 299% of FPL strata were positive, but not significant. Several interaction terms with severity of condition were significant throughout the strata. Age * severity of condition was significant in the 133 – 199% of FPL stratum. Geographical region of the household * severity of condition was significant for both the < 133% and 133 – 199% of FPL strata,

and uninsured at some point in the past 12 months * severity of condition was significant for the 200 – 299% of FPL and \geq 300% of FPL strata. These relationships need further evaluation.

A significant association for the sex of the CSHCN was identified for having received all needed mental health care or counseling among SES strata. This concurred with the findings of Ganz and Tendulkar (2006). Unlike the research of Ganz and Tendulkar (2006), race did significantly affect having received all needed care among SES strata. Black CSHCN were less likely than white CSHCN to have received all needed care in the $<$ 133% of FPL stratum; while, other minorities were less likely than whites in the \geq 300% of FPL stratum. Hispanic CSHCN were more likely to have received all needed care in the $<$ 133% of FPL stratum. Overall, Ganz and Tendulkar (2006) demonstrated that Hispanic CSHCN were less likely to have an unmet need for mental health care services. This relationship is unexpected, but may be explained by differences in perceived unmet needs and expectations of providers between Hispanic and non-Hispanic parents of CSHCN (Gannotti et al., 2004). Further research into how these expectations may differ with SES would help explain such fascinating findings.

Even though Ganz and Tendulkar (2006) did not uncover an association between maternal education and having received all needed mental health care, maternal education did have a significant affect among SES strata. In the 200 – 299% of FPL stratum, having some college, but not a four year degree significantly increased the odds of having received all needed care as compared to having a four year college degree or more. This same association was illustrated for having less than or equal to a high school degree in

the 200 – 299% of FPL stratum. The direction of the relationship between maternal education and having received all needed mental health care or counseling is counterintuitive from what is expected. Maybe having a higher education increases expectations. The importance of maternal education is masked if not stratified by SES. Ganz and Tendulkar (2006) did not find maternal education to be a significant predictor for having received all needed mental health care.

Surprisingly, not having insurance at some point in the past 12 months did not significantly affect having received all needed mental health care or counseling in any of the SES strata, though the magnitude of the coefficient was greatest in the 133 – 199% of FPL stratum. This does not hold true to what Ganz and Tendulkar (2006) discovered, suggesting that for all CSHCN, being uninsured increased the odds of having unmet needs for mental health care. In the current research study, Medicaid and SCHIP did affect having received all needed care. CSHCN on Medicaid were more likely to have received all needed care in the < 133% of FPL as compared to CSHCN with private insurance. This should be interpreted carefully since the Medicaid * private insurance interaction term was significant in this SES stratum only. CSHCN with SCHIP were more likely to have received all needed care in the < 133% of FPL stratum, but were less likely in the $\geq 300\%$ of FPL stratum. This change is not altogether unforeseen since CSHCN in the highest SES stratum have more resources and potentially better benefits with private insurance. Private insurance plans for CSHCN in the lower SES strata may not be as comprehensive. Additionally, there were few CSHCN with SCHIP in the $\geq 300\%$ of FPL stratum.

The geographical location of the household played an important role in having received all needed mental health care or counseling in the two lowest SES strata. No differences were found in the highest two strata. CSHCN in the Midwest and South were more likely than CSHCN in the Northeast to have received all needed care in both the < 133% of FPL and 133 – 199% of FPL strata. Previous research demonstrates that variations among states in meeting key indicators for health among CSHCN exists (Blumberg & Bramlett, 2005). Exactly how these variations affect CSHCN among SES strata is unclear.

Family factors may affect CSHCN having received all needed mental health care or counseling. In the current research, the relationship of the mother to the CSHCN does not have an affect. The number of adults in the household also does not affect having received all needed care. The number of kids in the household, however, does significantly affect having received all needed care, but only in the < 133% of FPL stratum. As the number of kids in the household increased, the likelihood of having received all needed care decreased. One possible explanation is that when there are more children, there are more demands on parents' time resulting in less time to dedicate to the needs of the CSHCN.

Comprehensive, Coordinated Care in a Medical Home.

Strikingly, a little over half of all CSHCN received comprehensive, coordinated care in a medical home in the past year, 21,693 (53.57%). This percentage increased as the SES strata increased with the following distribution in each stratum: 4,349 (40.10%)

in the < 133% of FPL; 2,937 (52.42%) in the 133 – 199% of FPL; 4,031 (54.69%) in the 200 – 299% of FPL; and 9,285 (60.97%) in the \geq 300% of FPL. These results demonstrate that as the SES status of the CSHCN increases, the likelihood of receiving comprehensive, coordinated care in a medical home also increases.

Previous research indicates age group does not significantly predict having received comprehensive, coordinated care in a medical home. These results were based on data from the National Survey of Children with Special Health Care Needs, 2000 – 2002, for all CSHCN and for CSHCN in Maine (Strickland et al., 2004; Tippy et al., 2005). The current research, however, demonstrates a significant affect of age group when stratified by SES. For example, CSHCN 0 – 4 years of age are more likely than CSHCN 15 – 17 years of age to receive comprehensive, coordinated care in a medical home in the 133 – 199% of FPL and \geq 300% of FPL strata. CSHCN 5 – 9 years of age are more likely in the < 133% of FPL stratum, and CSHCN 10 – 14 years of age are more likely in the \geq 300% of FPL stratum. These results suggest that younger CSHCN have a greater odds of receiving comprehensive, coordinated care in a medical home than older CSHCN. This provides valuable information for programs targeting CSHCN.

The severity of the CSHCN's condition (0 – 10 scale) was significant for all SES strata. As the severity of the condition increased, the likelihood of having received comprehensive, coordinated care in a medical home decreased. None of the coefficients appeared greater in magnitude, signifying a similar relationship among all SES strata. This is consistent with the findings of Strckland et al. (2004); where, CSHCN with a condition that affects his/her activities are more likely to not have a medical home. This

is a disturbing trend in that CSHCN with more severe conditions are more likely to need care in a medical home. Of course, the observed trend is based on parent report data. Therefore, if the condition is severe, there may be more of a perception that the CSHCN is not receiving enough services and help with care coordination.

The only difference between males and females was observed for the 133 – 199% of FPL stratum. Females were more likely than males to have received comprehensive, coordinated care in a medical home. This difference was not observed in previous research, suggesting there is something occurring within this particular SES stratum (Strickland et al., 2004; Tippy et al., 2005). Research conducted by Strickland et al. (2004) revealed an association between race and ethnicity and receiving care in a medical home. Non-Hispanic black, Hispanic, and non-Hispanic other CSHCN demonstrated an increased odds of not receiving care in a medical home as compared to non-Hispanic white CSHCN (Strickland et al., 2004). Although the current research did not unearth any affect based on ethnicity, significant associations for race were identified. Black CSHCN were less likely to have received care in a medical home in the < 133% of FPL and 200 – 299% of FPL strata. Multiracial CSHCN were less likely in the 200 – 299% of FPL. Other racial groups for CSHCN were, however, less likely in the < 133% of FPL and 200 – 299% of FPL strata, but were more likely in the 133 – 199% of FPL stratum. No significant associations were found in the $\geq 300\%$ of FPL stratum. These results imply that race is not a factor for CSHCN in the highest SES stratum. The disparities become less obvious when SES becomes greater. Several of the interaction terms with race were significant in the models.

Maternal education only made a difference in the lowest and highest SES strata. A maternal education of some college, but not a four year college degree was indicative of being more likely to have received comprehensive, coordinated care in a medical home in the < 133% of FPL stratum as compared to having a four year college degree or more. Having a high school degree increased the odds of having received care in a medical home in the $\geq 300\%$ of FPL stratum. No other associations were observed. One possible explanation is that a higher maternal education increases the expectations of care.

Insurance status had the greatest impact in the lowest and highest SES strata. Although the coefficients for having been uninsured at some point in the past 12 months are negative in all SES strata, they are only significant in the lowest and highest strata. This indicates that having been uninsured is associated with not receiving comprehensive, coordinated care in a medical home. The role of Medicaid was also important in both the lowest and highest SES strata; except, the direction of the coefficient changed. In the < 133% of FPL stratum, CSHCN are more likely to receive comprehensive, coordinated care in a medical home than CSHCN with private insurance. In the $\geq 300\%$ of FPL stratum, CSHCN are less likely than CSHCN with private insurance to have received care in a medical home. The discrepancy could potentially be related to the benefits and amount of coverage, such as premiums, available to CSHCN in the two extreme SES strata. CSHN with SCHIP were also more likely to have received care in a medical home than CSHCN with private insurance in the < 133% of FPL stratum.

The geographical location of the household affected whether or not CSHCN received comprehensive, coordinated care in a medical home in the lowest and highest

SES strata. CSHCN in the South and West were less likely than CSHCN in the Northeast to receive care in a medical home in the < 133% of FPL stratum; whereas, CSHCN in the Midwest and South were more likely in the $\geq 300\%$ of FPL stratum. Of note, the interaction term for geographical location of the household * race was significant for both the 133 – 199% of FPL and 200 – 299% of FPL strata. Previous research demonstrates that variations among states in meeting key indicators for health among CSHCN exists (Blumberg & Bramlett, 2005). Exactly how these variations affect CSHCN among SES strata is unclear.

The language in which the interview was conducted did make a difference in the < 133% of FPL stratum. When the interview was conducted in a language other than English, the CSHCN were less likely to have received comprehensive, coordinated care in a medical home. This association was not apparent in the other strata; however, fewer interviews were conducted in another language as SES increased. Not speaking English is a known barrier to health care in the United States. Parents of children attending a Latino pediatric clinic named language problems as the biggest barrier to health care for their children (Flores et al., 1998).

Family factors such as the relationship of the respondent to the CSHCN, the number of adults in the household, and the number of kids in the household also affected whether or not CSHCN received comprehensive, coordinated care in a medical home. If the mother was the interviewee, the CSHCN were more likely to have received care in a medical home in the 133 – 199% of FPL and 200 – 299% of FPL strata. The same relationship approached significance in the $\geq 300\%$ of FPL stratum. The mother is

probably the most knowledgeable about the child's condition and health care. As the number of adults in the household increased, the likelihood of receiving care in a medical home also increased, but only in the $\geq 300\%$ of FPL stratum. In the 133 – 199% of FPL, the likelihood of having received care in a medical home increased as the number of kids increased. This is counterintuitive of what is expected and what was found in the $\geq 300\%$ of FPL stratum. In the highest stratum, the likelihood of having received care in a medical home decreased as the number of kids in the household increased.

Recommendations

Future research must provide a more in depth look at what is occurring among various levels of SES. This research indicates there are disparities among SES strata for unmet health care needs for CSHCN. The current analysis reveals that programs for CSHCN should be specific to SES; as such, trends among factors associated with having received all needed routine preventive care, care from a specialist, mental health care or counseling, and care in a medical home can be seen.

The severity of the CSHCN's condition had a significant impact on having received all needed care in at least one SES stratum for care from a specialist and mental health care or counseling. Severity was significant in all SES strata for having received comprehensive, coordinated care in a medical home. In general, as the severity of the condition increased, the likelihood of having received all needed care decreased. This may be due to perceived needs. Particularly when developing programs for providing care in a medical home, severity of condition must be considered.

The effect of demographic characteristics varied among hypotheses and SES strata. Differences between males and females were identified for having received all needed routine, preventive care and care in a medical home, but not the other two hypotheses. The analyses did not demonstrate that males always did better than females or vice versa, but rather the effect varied among SES strata. In congruence with the literature for race, minority CSHCN were consistently less likely than white CSHCN to have received all needed care. Hispanic CSHCN, on the other hand, were more likely than non-Hispanic CSHCN to have received all needed routine preventive care, mental health care or counseling, and care in a medical home in at least one of the two lowest SES strata. These factors could impact programs for CSHCN in poorer geographical areas.

The type of insurance significantly impacted having received all needed care. Not surprisingly, CSHCN without insurance at some point in the past 12 months were consistently less likely to have received all needed care for all four hypotheses. Additionally, CSHCN with Medicaid and SCHIP in the lowest SES strata were more likely to have received all needed care than CSHCN with private insurance. This is reflected by the benefits offered to CSHCN through Medicaid and SCHIP.

In all of the hypotheses except having received care in a medical home, CSHCN in the South, West, and Midwest were more likely to have received all needed care than CSHCN in the Northeast in the < 133% of FPL stratum. This, however, did not always hold true for the other SES strata. Programs in the Northeast should strive to improve recruitment and retention of CSHCN in the lower SES stratum. Finally, the number of

kids in the household impacts having received all needed care more often than the number of adults in the household. Further analysis on what aspect of having more kids in the household should be examined. Potential areas for exploration include transportation, child care, and supplemental home health care.

There are two final areas to address. First, the $< 133\%$ of FPL and $\geq 300\%$ of FPL strata tended to be the best fit models with the included variables. This suggests there are other factors that are also important for predicting having received all needed care in the 133 – 199% of FPL and 200 – 299% of FPL strata. Lastly, there are several significant interaction terms in each of the hypotheses. These relationships should be examined more in depth, and interpretation of the results should be done cautiously.

APPENDIX A
DETAILED ALGORITHM FOR HYPOTHESIS 4

Algorithm

q1medhm

- (c4q0a) Child had usual source of care
1 – yes
2 – there is no place
3 – there is more than one place
6 – DK
7 – REF

if c4q0a = 1 or c4q0a = 3, then q1p1a = 1

- (c4q0b) Kind of place child goes to for health care
1 – doctor's office
2 – hospital emergency room
3 – hospital outpatient department
4 – clinic or health center
5 – school (nurse's office, athletic trainer's office, etc)
6 – some other place
7 – does not go to one place most often
8 – friend / relative

if c4q0b = 1 or c4q0b = 3 or c4q0b = 4 or c4q0b = 5 or c4q0b = 6, then q1p1b = 1

if q1p1a = 1 and q1p1b = 1, then q1p1 = 1

- (c4q01) Usual and routine health care sources the same
0 = no
1 = yes
6 = DK
7 = REF

if c4q01 = 1 and q1p1 = 1, then q1p2 = 1

- (c4q02) Place where child goes for routine care
1 = does not get preventive care anywhere
2 = doctor's hospital
3 = hospital emergency room
4 = hospital outpatient department
5 = clinic or health center
6 = school (nurse's office, athletic trainer's office, etc)
7 = some other place
8 = does not go to one place most often

9 = friend / relative
10 = Mexico / other locations out of U.S.
96 = DK
97 = REF

if c4q021 = 2 or c4q02 = 4 or c4q02 = 5 or c4q02 = 6 or c4q02 = 7, then q1p3 = 1

if (q1p1 = 1 and q1p2 = 1) or q1p3 = 1, then q1medhm = 1

q2medhm

(c4q02a) Child has a personal doctor or nurse
0 = no
1 = yes
6 = DK
7 = Ref

if c4q02a = 1, then q2medhm = 1

q3medhm

(c4q07) Past 12 months, problem getting referral to specialist
1 = a big problem
2 = a small problem
3 = not a problem
4 = child did not need to see a specialist in the past 12 months
5 = don't need referrals
6 = DK
7 = REF

if c4q07 = 3 or c4q07 = 4 or c4q07 = 5, then q3p1 = 1

(c4q05_02) Past 12 months, needed care from a specialist
0 = no
1 = yes
6 = DK
7 = REF

if c4q05_02 = 0, then q3p2 = 1

if q3p1 = 1 or q3p2 = 1, then q3medhm = 1

q4medhm

(c4q6x0aa) Received all needed professional care coordination
0 = no
1 = yes
6 = DK

if c4q6x0aa = 1, then q4p1 = 1

(c5q05) How well do doctors communicate with each other
1 = excellent
2 = very good
3 = good
4 = fair
5 = poor
6 = communication not needed
96 = DK

if c5q05 = 1 or c5q05 = 2, then q4p2 = 1

(c5q06) How well doctors communicate with other type of care providers
1 = excellent
2 = very good
3 = good
4 = fair
5 = poor
6 = communication not needed
96 = DK
97 = REF

if c5q06 = 1 or c5q06 = 2, then q4p3 = 1

(c4q06_0a) Past 12 months, needed professional care coordination
0 = no
1 = yes
6 = DK
7 = REF

if c4q06_0a = 0, then q4p4 = 1

(c5q02) How often does a professional help coordinate care
1 = never
2 = sometimes
3 = usually

4 = always
6 = DK
7 = REF

if c5q02 = 1, then q4p5 = 1

if (q4p1 = 1 and q4p2 = 1 and q4p3 = 1) or q4p4 = 1 or q4p5 = 1, then q4medhm = 1

q5medhm

(c6q02) Past 12 months, how often doctors spent enough time
1 = never
2 = sometimes
3 = usually
4 = always
6 = DK
7 = REF

if c6q02 = 3 or c6q02 = 4, then q5p1 = 1

(c6q03) Past 12 months, difficulty getting doctors to listen
1 = never
2 = sometimes
3 = usually
4 = always
6 = DK
7 = REF

if c6q03 = 3 or c6q03 = 4, then q5p2 = 1

(c6q04) Providers sensitive to family's values / customs
1 = never
2 = sometimes
3 = usually
4 = always
6 = DK
7 = REF

if c6q04 = 3 or c6q04 = 4, then q5p3 = 1

(c6q05) Got enough info from doctors re medical problems
1 = never
2 = sometimes

3 = usually
4 = always
6 = DK
7 = REF

if c6q05 = 3 or c6q05 = 4, then q5p4 = 1

(c6q06) Past 12 months, frequency doctors helped feel like partner
1 = never
2 = sometimes
3 = usually
4 = always
6 = DK
7 = REF

if c6q06 = 3 or c6q06 = 4, then q5p5 = 1

(c6q01r) In past 12 months number of doctor visits recoded
0 = 0
1 = 1
2 = 2
3 = 3
4 = 4
5 = 5
6 = 6
7 = 7
8 = 8
9 = 9
10 = 10
11 = 11 to 15 visits
12 = 16 to 20 visits
13 = 21 + visits
996 = DK
997 = REF

if c6q01r = 0, then q5p6 = 1

if (q5p1 = 1 and q5p2 = 1 and q5p3 = 1 and q5p4 = 1 and q5p5 = 1) or q5p6 = 1, then
q5medhm = 1

medhm

if $q_1 \text{medhm} = 1$ and $q_2 \text{medhm} = 1$ and $q_3 \text{medhm} = 1$ and $q_4 \text{medhm} = 1$ and $q_5 \text{medhm} = 1$, then $\text{medhm}_2 = 1$

APPENDIX B

TABLE 9. DESCRIPTIVE CHARACTERISTICS OF
THE NATIONAL SURVEY OF CSHCN BY SES

Table 9. Descriptive Characteristics of the National Survey of CSHCN by SES*

	Total	< 133% of FPL	133 – 199% of FPL	200 – 299% of FPL	≥ 300% of FPL	Overall p
	n (%)	n (%)	n (%)	n (%)	n (%)	
Routine Preventive Care						< 0.01
Yes	27828 (96.80)	4979 (93.22)	3573 (93.23)	4944 (98.06)	11782 (98.72)	
No	705 (3.20)	298 (6.8)	156 (6.77)	94 (1.94)	110 (1.28)	
Specialty Care						< 0.01
Yes	19270 (92.75)	3310 (84.26)	2571 (89.90)	3488 (94.13)	8128 (96.18)	
No	1202 (7.25)	420 (15.74)	240 (10.10)	199 (5.87)	267 (3.82)	
Mental Health Care						< 0.01
Yes	8057 (81.89)	1952 (71.92)	1166 (80.20)	1447 (84.64)	2861 (88.45)	
No	1582 (18.11)	558 (28.08)	297 (19.80)	272 (15.36)	339 (11.55)	
Medical Home						> 0.01
Yes	21693 (53.57)	3493 (40.10)	2937 (52.42)	4031 (54.69)	9285 (60.97)	
No	17173 (46.43)	4349 (59.90)	2571 (47.58)	2989 (45.31)	5574 (39.03)	
Ethnicity						< 0.01
Hispanic	3424 (11.51)	1227 (20.98)	569 (13.96)	497 (9.56)	770 (6.31)	
Other	35306 (88.49)	6579 (79.02)	4923 (86.04)	6502 (90.44)	14051 (93.69)	
Insurance						
Medicaid						< 0.01
Yes	9686 (25.82)	5296 (68.31)	1715 (34.38)	975 (15.14)	741 (5.17)	
No	29180 (74.78)	2546 (31.69)	3793 (65.62)	6045 (84.86)	14118 (94.83)	

Private						< 0.01
Yes	28489 (72.11)	2312 (27.73)	3540 (60.74)	5903 (83.35)	14150 (94.32)	
No	10377 (27.89)	5530 (72.27)	1968 (39.26)	1117 (16.65)	709 (5.68)	
SCHIP						< 0.01
Yes	2518 (8.18)	1333 (19.07)	602 (15.98)	250 (5.42)	122 (1.30)	
No	25134 (91.82)	4485 (80.93)	3402 (84.02)	4767 (94.58)	10166 (98.70)	
Other						< 0.01
Yes	4601 (10.75)	925 (9.76)	792 (12.82)	939 (11.82)	1548 (10.27)	
No	34265 (89.25)	6917 (90.24)	4716 (87.18)	6081 (88.18)	13311 (89.73)	
Not Insured						< 0.01
Yes	4115 (11.63)	1487 (22.06)	946 (19.09)	743 (11.34)	580 (4.60)	
No	34666 (88.37)	6326 (77.94)	4552 (80.91)	6261 (88.66)	14268 (95.40)	
Language of Interview						< 0.01
English	38011 (96.51)	7336 (89.57)	5392 (96.42)	6974 (99.02)	14830 (99.74)	
Other	855 (3.49)	506 (10.43)	116 (3.58)	46 (0.98)	29 (0.26)	
Maternal Education						< 0.01
< High School	3153 (14.96)	1730 (37.80)	479 (17.68)	312 (9.19)	231 (3.77)	
High School	10044 (30.22)	2988 (35.97)	1963 (40.30)	1903 (34.06)	2239 (22.30)	
Some College	10685 (31.29)	1912 (20.38)	1770 (31.83)	2322 (37.35)	3767 (35.13)	
≥ 4 Yr College Degree	13647 (23.53)	932 (5.85)	1122 (10.20)	2270 (19.40)	8117 (38.80)	
Race						< 0.01
White only	30788 (75.11)	4942 (55.60)	4202 (70.49)	5848 (80.85)	12976 (84.26)	

Black only	4043 (15.01)	1610 (28.43)	655 (17.97)	542 (11.75)	837 (8.75)	
Multi-racial	1366 (3.31)	384 (4.78)	226 (3.57)	221 (2.22)	417 (2.88)	
Other	2454 (6.57)	843 (11.20)	403 (7.97)	377 (5.18)	576 (4.11)	
Region						< 0.01
Northeast	7842 (22.32)	1126 (17.33)	850 (16.30)	1124 (18.25)	2910 (17.75)	
Midwest	5508 (14.69)	1644 (20.35)	1366 (24.01)	1965 (25.90)	3870 (25.23)	
South	7020 (18.19)	3032 (43.73)	1795 (40.05)	2023 (34.16)	4583 (35.54)	
West	14859 (44.80)	2040 (18.59)	1497 (19.64)	1908 (21.68)	3496 (21.48)	
Relation to Child						< 0.01
Mother	32071 (79.8)	6723 (83.05)	4700 (83.16)	5823 (79.66)	11855 (76.98)	
Other	6788 (20.20)	1118 (16.95)	807 (16.84)	1196 (20.34)	3003 (23.02)	
Sex						0.49
Male	23320 (59.78)	4706 (58.20)	3333 (60.10)	4277 (61.02)	8820 (59.60)	
Female	15520 (40.22)	3133 (41.80)	2173 (39.90)	2738 (38.98)	6034 (40.40)	
	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)	Mean (SE)	p
Age (years)	9.95 (0.07)	9.19 (0.06)	9.54 (0.14)	10.01 (0.13)	10.38 (0.07)	< 0.01
Severity of Condition	4.22 (0.04)	5.28 (0.06)	4.62 (0.06)	4.14 (0.05)	3.61 (0.04)	< 0.01
Total adults	2.07 (0.01)	1.94 (0.04)	2.01 (0.02)	2.13 (0.01)	2.11 (0.01)	< 0.01
Total kids	2.14 (0.02)	2.51 (0.04)	2.31 (0.03)	2.23 (0.03)	1.90 (0.02)	< 0.01

*SE = standard error; p = p value; FPL = federal poverty level

Percents, means, and standard errors are based on weighted analysis

< 133% of FPL ≈ Very Poor; 133 – 199% of FPL ≈ Working Poor; 200 – 299% of FPL ≈ Lower Working to Middle Class; ≥ 300% of FPL ≈ Upper class

APPENDIX C

TABLE 10. DESCRIPTIVE CHARACTERISTICS
FOR EACH HYPOTHESIS BY SES

Table 10. Descriptive Characteristics by SES – Routine Preventive Care*

	< 133% of FPL		p	133 – 199% of FPL		p
	No n (%)	Yes n (%)		No n (%)	Yes n (%)	
Age (years)			< 0.01			0.55
0-4	39 (14.02)	989 (21.74)		19 (18.81)	648 (19.11)	
5-9	66 (23.07)	1551 (33.51)		34 (22.58)	1090 (31.31)	
10-14	110 (30.79)	1704 (31.06)		58 (36.94)	1248 (34.98)	
15-17	83 (32.11)	730 (13.68)		45 (21.67)	585 (14.60)	
Ethnicity			0.98			0.41
Hispanic	63 (22.78)	805 (22.66)		15 (10.77)	382 (15.02)	
Other	233 (77.22)	4150 (77.34)		141 (89.23)	3185 (84.98)	
Insurance						
Medicaid			< 0.01			0.77
Yes	120 (34.65)	3473 (71.33)		33 (33.71)	1213 (37.23)	
No	178 (65.35)	1506 (28.67)		123 (66.29)	2360 (62.77)	
Private			< 0.01			0.04
Yes	66 (17.55)	1478 (28.88)		71 (42.20)	2335 (61.64)	
No	232 (82.45)	3501 (71.12)		85 (57.80)	1238 (38.36)	
SCHIP			< 0.01			0.35
Yes	33 (9.22)	873 (19.94)		15 (27.35)	408 (15.39)	
No	196 (90.78)	2796 (80.06)		103 (72.65)	2157 (84.61)	
Other			0.63			0.07
Yes	29 (7.95)	614 (9.73)		13 (7.21)	553 (13.47)	
No	269 (92.05)	4365 (90.27)		143 (92.79)	3020 (86.53)	
Not Insured			< 0.01			< 0.01
Yes	174 (69.35)	818 (18.61)		84 (58.34)	494 (14.49)	
No	120 (30.65)	4150 (81.39)		71 (41.66)	3073 (85.51)	
Language of Interview			0.64			0.60
English	260 (87.50)	4648 (89.01)		153 (97.89)	3505 (96.53)	
Other	38 (12.50)	331 (10.99)		3 (2.11)	68 (3.47)	
Maternal Education			0.02			< 0.01
< High School	82 (47.66)	1021 (36.17)		19 (33.29)	257 (15.84)	
High School	80 (23.08)	1860 (36.21)		45 (23.71)	1223 (40.17)	
Some College	87 (21.04)	1297 (21.53)		52 (33.45)	1191 (32.73)	
≥ 4 Yr College Degree	38 (8.22)	637 (6.09)		35 (9.56)	788 (11.26)	

Race			0.31			0.03
White only	154 (47.66)	3116 (57.25)		113 (56.87)	2688 (69.22)	
Black only	74 (30.53)	1024 (26.59)		25 (15.50)	433 (18.36)	
Multi-racial	16 (9.01)	256 (4.66)		7 (4.29)	163 (4.12)	
Other	49 (12.80)	546 (11.51)		11 (23.35)	274 (8.30)	
Region			0.10			< 0.01
Northeast	33 (16.65)	803 (19.56)		14 (4.74)	664 (20.11)	
Midwest	52 (13.93)	1012 (19.23)		39 (23.69)	874 (24.26)	
South	125 (48.14)	1887 (42.80)		48 (35.75)	1113 (37.67)	
West	88 (23.28)	1277 (18.40)		55 (35.82)	922 (17.96)	
Relation to Child			0.02			0.09
Mother	249 (76.65)	4268 (83.52)		132 (67.25)	3054 (84.34)	
Other	49 (23.35)	711 (16.48)		24 (32.75)	518 (15.66)	
Sex			< 0.01			0.20
Male	168 (48.01)	3025 (58.17)		93 (65.89)	2164 (60.66)	
Female	130 (51.99)	1954 (41.83)		63 (34.11)	1407 (39.34)	
	No Mean (SE)	Yes Mean (SE)	p	No Mean (SE)	Yes Mean (SE)	p
Age (years)	11.14 (0.42)	8.75 (0.08)	< 0.01	9.97 (0.96)	9.12 (0.12)	< 0.01
Severity of Condition	5.98 (0.24)	5.28 (0.08)	< 0.01	5.32 (0.58)	4.61 (0.09)	< 0.01
Total adults	1.97 (0.12)	1.92 (0.05)	0.20	2.25 (0.09)	2.00 (0.03)	0.49
Total kids	2.43 (0.12)	2.50 (0.04)	0.60	2.69 (0.20)	2.30 (0.04)	0.59

*SE = standard error; p = p value; FPL = federal poverty level

Percents, means, and standard errors are based on weighted analysis

< 133% of FPL ≈ Very Poor; 133 – 199% of FPL ≈ Working Poor; 200 – 299% of FPL ≈ Lower Working to Middle Class; ≥ 300% of FPL ≈ Upper Class

Table 10. Descriptive Characteristics by SES – Routine Preventive Care*

	133 – 199% of FPL		p	≥ 300% of FPL		p
	No n (%)	Yes n (%)		No n (%)	Yes n (%)	
Age (years)			< 0.01			0.45
0-4	11 (8.30)	752 (15.60)		8 (19.15)	1548 (14.24)	
5-9	13 (11.38)	1427 (30.35)		22 (14.50)	3009 (26.87)	
10-14	42 (59.18)	1725 (35.07)		45 (36.35)	4363 (36.93)	
15-17	28 (21.14)	1035 (18.99)		35 (30.00)	2858 (21.97)	
Ethnicity			< 0.01			< 0.01
Hispanic	17 (25.15)	341 (9.16)		8 (15.93)	617 (6.10)	
Other	77 (74.85)	4587 (90.84)		102 (84.07)	11133 (93.90)	
Insurance						
Medicaid			0.37			0.86
Yes	13 (11.01)	747 (15.98)		6 (4.56)	588 (5.04)	
No	81 (88.99)	4197 (84.02)		104 (95.44)	11194 (94.96)	
Private			< 0.01			< 0.01
Yes	58 (54.50)	4183 (84.63)		91 (82.74)	11282 (95.07)	
No	36 (45.50)	761 (15.37)		19 (17.26)	500 (4.93)	
SCHIP			< 0.01			0.21
Yes	1 (0.57)	180 (5.18)		2 (3.25)	96 (1.21)	
No	67 (99.43)	3313 (94.82)		79 (96.75)	8018 (98.79)	
Other			0.73			0.22
Yes	12 (14.19)	667 (12.21)		13 (5.45)	1215 (10.22)	
No	82 (85.81)	4277 (87.79)		97 (94.55)	10567 (89.78)	
Not Insured			< 0.01			< 0.01
Yes	39 (46.80)	455 (9.62)		29 (41.71)	412 (3.94)	
No	54 (53.20)	4477 (90.38)		80 (58.29)	11363 (96.06)	
Language of Interview			0.70			-
English	92 (99.32)	4912 (99.08)		110 (100.00)	11759 (99.75)	
Other	2 (0.68)	32 (0.92)		0	23 (0.25)	
Maternal Education			0.86			0.03
< High School	7 (6.88)	183 (7.42)		7 (6.11)	149 (3.12)	
High School	23 (26.27)	1257 (32.49)		15 (17.03)	1636 (20.97)	
Some College	29 (45.39)	1665 (38.32)		36 (52.20)	2928 (35.36)	
≥ 4 Yr College Degree	33 (21.47)	1701 (21.77)		50 (24.66)	6687 (40.55)	

Race			< 0.01			< 0.01
White only	68 (55.88)	4087 (79.38)		85 (63.71)	10291 (84.74)	
Black only	12 (28.71)	406 (12.58)		9 (24.63)	687 (8.63)	
Multi-racial	4 (2.03)	168 (2.39)		8 (4.88)	323 (2.82)	
Other	10 (13.39)	262 (5.66)		6 (6.78)	441 (3.80)	
Region			< 0.01			< 0.01
Northeast	13 (9.19)	912 (21.03)		19 (14.24)	2559 (20.19)	
Midwest	30 (30.67)	1373 (26.11)		21 (13.18)	2989 (24.66)	
South	25 (26.89)	1371 (32.61)		42 (35.24)	3585 (34.54)	
West	26 (33.25)	1288 (20.26)		28 (37.34)	2649 (20.61)	
Relation to Child			0.73			0.07
Mother	78 (77.92)	4141 (80.36)		92 (59.12)	9484 (78.44)	
Other	16 (22.08)	803 (19.64)		18 (40.88)	2297 (21.56)	
Sex			0.55			0.06
Male	61 (66.93)	3026 (61.20)		66 (76.24)	7013 (59.18)	
Female	33 (33.07)	1915 (38.80)		43 (23.76)	4768 (40.82)	
	No Mean (SE)	Yes Mean (SE)	p	No Mean (SE)	Yes Mean (SE)	p
Age (years)	11.49 (0.51)	9.81 (0.11)	< 0.01	10.23 (1.53)	10.22 (0.07)	0.02
Severity of Condition	5.14 (0.22)	4.18 (0.08)	< 0.01	4.78 (0.23)	3.58 (0.04)	< 0.01
Total adults	2.17 (0.08)	2.12 (0.02)	0.89	2.16 (0.07)	2.12 (0.01)	0.73
Total kids	2.10 (0.14)	2.24 (0.04)	0.74	2.27 (0.27)	1.90 (0.02)	0.54

*SE = standard error; p = p value; FPL = federal poverty level

Percents, means, and standard errors are based on weighted analysis

< 133% of FPL ≈ Very Poor; 133 – 199% of FPL ≈ Working Poor; 200 – 299% of FPL ≈ Lower Working to Middle Class; ≥ 300% of FPL ≈ Upper Class

Table 10. Descriptive Characteristics by SES – Care from a Specialist*

	< 133% of FPL		p	133 – 199% of FPL		p
	No n (%)	Yes n (%)		No n (%)	Yes n (%)	
Age (years)			< 0.01			0.64
0-4	59 (15.98)	653 (22.42)		27 (12.46)	454 (18.77)	
5-9	109 (22.33)	984 (31.34)		67 (35.41)	813 (31.37)	
10-14	152 (31.80)	1121 (31.72)		81 (33.25)	846 (32.48)	
15-17	98 (29.89)	550 (14.52)		65 (18.88)	456 (17.38)	
Ethnicity			0.30			0.06
Hispanic	81 (19.45)	520 (24.07)		27 (9.79)	266 (15.25)	
Other	333 (80.55)	2778 (75.94)		212 (90.21)	2299 (84.75)	
Insurance						
Medicaid			< 0.01			0.46
Yes	213 (45.22)	2306 (72.22)		55 (40.52)	908 (36.52)	
No	207 (54.78)	1004 (27.78)		185 (59.48)	1663 (63.48)	
Private			0.42			< 0.01
Yes	99 (24.86)	1036 (30.01)		128 (41.78)	1697 (62.68)	
No	321 (75.14)	2274 (69.99)		112 (58.22)	874 (37.32)	
SCHIP			0.11			0.12
Yes	67 (15.08)	599 (20.76)		30 (22.47)	269 (14.23)	
No	252 (84.92)	1853 (79.24)		150 (77.53)	1575 (85.77)	
Other			0.28			0.83
Yes	48 (8.33)	465 (12.15)		32 (15.03)	434 (16.26)	
No	372 (91.67)	2845 (87.85)		208 (84.97)	2137 (83.74)	
Not Insured			< 0.01			< 0.01
Yes	184 (45.96)	528 (18.45)		100 (39.20)	353 (14.91)	
No	232 (54.04)	2775 (81.55)		140 (60.80)	2211 (85.09)	
Language of Interview			0.81			0.09
English	372 (87.50)	3080 (86.88)		233 (97.63)	2511 (95.58)	
Other	48 (12.50)	230 (13.12)		7 (2.37)	60 (4.42)	
Maternal Education			0.52			0.62
< High School	99 (42.76)	672 (36.63)		19 (10.79)	182 (14.86)	
High School	121 (31.34)	1207 (35.11)		78 (46.80)	888 (40.61)	
Some College	126 (18.73)	858 (21.63)		75 (31.48)	856 (33.61)	
≥ 4 Yr College Degree	59 (7.17)	466 (6.63)		63 (10.93)	569 (10.92)	

Race			0.78			0.23
White only	254 (60.51)	2192 (60.44)		191 (72.74)	2015 (72.48)	
Black only	78 (20.80)	562 (23.02)		25 (12.17)	265 (15.96)	
Multi-racial	23 (4.48)	166 (4.92)		7 (8.66)	108 (4.18)	
Other	59 (14.22)	365 (11.63)		17 (6.43)	174 (7.38)	
Region			0.02			0.09
Northeast	53 (14.58)	510 (17.80)		22 (10.13)	423 (18.68)	
Midwest	72 (13.86)	722 (21.18)		57 (21.19)	642 (23.90)	
South	167 (43.65)	1257 (43.57)		81 (50.96)	834 (39.13)	
West	128 (27.91)	821 (17.45)		80 (17.73)	672 (18.29)	
Relation to Child			0.55			0.80
Mother	364 (86.12)	2864 (84.64)		211 (84.19)	2230 (85.71)	
Other	55 (13.88)	446 (15.36)		29 (15.81)	340 (14.29)	
Sex			0.93			0.89
Male	264 (57.67)	1964 (58.01)		154 (58.83)	1521 (57.99)	
Female	155 (42.33)	1346 (41.99)		86 (41.17)	1049 (42.01)	
	No Mean (SE)	Yes Mean (SE)	p	No Mean (SE)	Yes Mean (SE)	p
Age (years)	10.66 (0.60)	8.80 (0.11)	< 0.01	9.96 (0.35)	9.37 (0.24)	< 0.01
Severity of Condition	6.16 (0.22)	5.65 (0.10)	0.01	5.64 (0.27)	5.17 (0.08)	< 0.01
Total adults	1.93 (0.10)	1.96 (0.05)	0.94	1.85 (0.09)	2.04 (0.03)	0.93
Total kids	2.52 (0.07)	2.42 (0.04)	0.90	2.27 (0.08)	2.29 (0.05)	0.03

*SE = standard error; p = p value; FPL = federal poverty level

Percents, means, and standard errors are based on weighted analysis

< 133% of FPL ≈ Very Poor; 133 – 199% of FPL ≈ Working Poor; 200 – 299% of FPL ≈

Lower Working to Middle Class; ≥ 300% of FPL ≈ Upper Class

Table 10. Descriptive Characteristics by SES – Care from a Specialist*

	200 – 299% of FPL		p	≥ 300% of FPL		p
	No n (%)	Yes n (%)		No n (%)	Yes n (%)	
Age (years)			< 0.01			0.70
0-4	16 (7.04)	542 (16.40)		26 (9.84)	1102 (15.28)	
5-9	44 (20.04)	1022 (29.60)		54 (26.56)	2092 (26.91)	
10-14	88 (50.30)	1147 (33.70)		95 (37.24)	2828 (33.90)	
15-17	51 (22.62)	773 (20.30)		92 (26.36)	2103 (23.90)	
Ethnicity			0.87			0.26
Hispanic	21 (10.32)	241 (9.75)		15 (8.80)	377 (5.73)	
Other	177 (89.68)	3232 (90.25)		251 (91.20)	7729 (94.27)	
Insurance						
Medicaid			0.57			0.05
Yes	36 (20.93)	564 (18.05)		27 (9.83)	464 (6.09)	
No	163 (79.07)	2924 (81.95)		240 (90.17)	7664 (93.91)	
Private			< 0.01			< 0.01
Yes	144 (69.20)	2969 (84.26)		230 (78.88)	7808 (95.15)	
No	55 (30.80)	519 (15.74)		37 (21.12)	320 (4.85)	
SCHIP			0.59			0.63
Yes	3 (3.50)	132 (4.98)		2 (1.69)	74 (1.18)	
No	161 (96.50)	2337 (95.02)		194 (98.31)	5492 (98.82)	
Other			0.92			0.79
Yes	28 (12.59)	507 (12.94)		24 (11.20)	861 (10.05)	
No	171 (87.41)	2981 (87.06)		243 (88.80)	7267 (89.95)	
Not Insured			< 0.01			< 0.01
Yes	47 (30.63)	279 (8.82)		36 (15.75)	261 (3.52)	
No	149 (69.37)	3202 (91.18)		231 (84.25)	7864 (96.78)	
Language of Interview			0.15			0.50
English	197 99.48()	3456 (98.39)		266 (99.65)	8114 (99.81)	
Other	2 (0.52)	32 (1.61)		1 (0.35)	14 (0.19)	
Maternal Education			0.18			< 0.01
< High School	15 (10.55)	126 (6.64)		8 (5.54)	91 (2.47)	
High School	37 (23.02)	888 (32.50)		40 (16.61)	1104 (20.53)	
Some College	71 (36.76)	1144 (38.89)		83 (48.92)	1975 (33.99)	
≥ 4 Yr College Degree	72 (29.67)	1232 (21.97)		125 (28.93)	4717 (43.01)	

Table 10. Descriptive Characteristics by SES – Care from a Specialist*

	200 – 299% of FPL		p	≥ 300% of FPL		p
	No n (%)	Yes n (%)		No n (%)	Yes n (%)	
Age (years)			< 0.01			0.70
0-4	16 (7.04)	542 (16.40)		26 (9.84)	1102 (15.28)	
5-9	44 (20.04)	1022 (29.60)		54 (26.56)	2092 (26.91)	
10-14	88 (50.30)	1147 (33.70)		95 (37.24)	2828 (33.90)	
15-17	51 (22.62)	773 (20.30)		92 (26.36)	2103 (23.90)	
Ethnicity			0.87			0.26
Hispanic	21 (10.32)	241 (9.75)		15 (8.80)	377 (5.73)	
Other	177 (89.68)	3232 (90.25)		251 (91.20)	7729 (94.27)	
Insurance						
Medicaid			0.57			0.05
Yes	36 (20.93)	564 (18.05)		27 (9.83)	464 (6.09)	
No	163 (79.07)	2924 (81.95)		240 (90.17)	7664 (93.91)	
Private			< 0.01			< 0.01
Yes	144 (69.20)	2969 (84.26)		230 (78.88)	7808 (95.15)	
No	55 (30.80)	519 (15.74)		37 (21.12)	320 (4.85)	
SCHIP			0.59			0.63
Yes	3 (3.50)	132 (4.98)		2 (1.69)	74 (1.18)	
No	161 (96.50)	2337 (95.02)		194 (98.31)	5492 (98.82)	
Other			0.92			0.79
Yes	28 (12.59)	507 (12.94)		24 (11.20)	861 (10.05)	
No	171 (87.41)	2981 (87.06)		243 (88.80)	7267 (89.95)	
Not Insured			< 0.01			< 0.01
Yes	47 (30.63)	279 (8.82)		36 (15.75)	261 (3.52)	
No	149 (69.37)	3202 (91.18)		231 (84.25)	7864 (96.78)	
Language of Interview			0.15			0.50
English	197 (99.48)	3456 (98.39)		266 (99.65)	8114 (99.81)	
Other	2 (0.52)	32 (1.61)		1 (0.35)	14 (0.19)	
Maternal Education			0.18			< 0.01
< High School	15 (10.55)	126 (6.64)		8 (5.54)	91 (2.47)	
High School	37 (23.02)	888 (32.50)		40 (16.61)	1104 (20.53)	
Some College	71 (36.76)	1144 (38.89)		83 (48.92)	1975 (33.99)	
≥ 4 Yr College Degree	72 (29.67)	1232 (21.97)		125 (28.93)	4717 (43.01)	

Table 10. Descriptive Characteristics by SES – Mental Health Care or Counseling*

	< 133% of FPL		p	133 – 199% of FPL		p
	No n (%)	Yes n (%)		No n (%)	Yes n (%)	
Age (years)			< 0.01			0.05
0-4	41 (8.39)	110 (6.39)		9 (2.43)	31 (2.49)	
5-9	150 (29.72)	612 (32.44)		73 (26.39)	386 (35.47)	
10-14	236 (34.39)	872 (44.58)		128 (42.94)	501 (43.11)	
15-17	130 (27.50)	355 (16.59)		87 (28.24)	248 (18.93)	
Ethnicity			0.04			0.53
Hispanic	76 (11.33)	257 (19.95)		35 (11.73)	114 (13.97)	
Other	477 (88.67)	1688 (80.05)		259 (88.27)	1047 (86.03)	
Insurance						
Medicaid			< 0.01			0.25
Yes	325 (55.37)	1474 (78.76)		83 (35.95)	473 (46.23)	
No	233 (44.63)	478 (21.24)		214 (64.05)	693 (53.77)	
Private			0.46			0.61
Yes	146 (27.88)	536 (23.92)		162 (49.23)	699 (52.54)	
No	412 (72.12)	1416 (76.08)		135 (50.77)	467 (47.46)	
SCHIP			0.06			0.80
Yes	77 (13.71)	364 (20.46)		38 (18.58)	153 (16.94)	
No	344 (86.29)	1058 (79.54)		173 (81.42)	680 (83.06)	
Other			0.70			0.62
Yes	55 (11.90)	238 (10.88)		30 (14.06)	168 (11.80)	
No	503 (88.10)	1714 (89.12)		267 (85.94)	998 (88.20)	
Not Insured			< 0.01			< 0.01
Yes	209 (34.41)	305 (17.79)		96 (27.93)	164 (14.36)	
No	344 (65.59)	1637 (82.21)		200 (72.07)	1000 (85.64)	
Language of Interview			0.36			0.94
English	526 (94.88)	1865 (93.39)		290 (97.23)	1153 (97.04)	
Other	32 (5.12)	87 (6.61)		7 (2.77)	13 (2.96)	
Maternal Education			0.84			0.75
< High School	131 (34.46)	434 (37.71)		26 (14.50)	101 (17.49)	
High School	174 (38.43)	732 (34.80)		92 (39.07)	394 (40.66)	
Some College	153 (21.22)	482 (22.15)		100 (34.26)	387 (32.20)	
≥ 4 Yr College Degree	77 (8.59)	217 (5.34)		69 (12.17)	238 (9.65)	

Race			0.03			0.88
White only	342 (56.15)	1334 (63.47)		228 (70.03)	908 (71.46)	
Black only	135 (31.50)	329 (22.38)		31 (19.90)	119 (17.88)	
Multi-racial	29 (5.31)	103 (4.12)		12 (4.24)	57 (3.31)	
Other	48 (7.05)	173 (10.03)		24 (5.83)	75 (7.35)	
Region			< 0.01			< 0.01
Northeast	76 (15.79)	325 (21.24)		42 (14.09)	198 (18.22)	
Midwest	100 (16.50)	440 (20.91)		68 (21.40)	310 (24.65)	
South	207 (37.86)	700 (42.24)		91 (33.96)	334 (38.88)	
West	175 (29.85)	487 (15.61)		96 (30.55)	324 (18.24)	
Relation to Child			< 0.01			0.43
Mother	473 (75.81)	1631 (82.68)		256 (75.84)	974 (81.21)	
Other	84 (24.19)	321 (17.32)		41 (24.16)	191 (18.79)	
Sex			0.27			0.18
Male	345 (56.93)	1291 (60.58)		200 (67.93)	755 (63.96)	
Female	212 (43.07)	661 (39.42)		97 (32.07)	410 (36.04)	
	No Mean (SE)	Yes Mean (SE)	p	No Mean (SE)	Yes Mean (SE)	p
Age (years)	10.91 (0.42)	10.44 (0.15)	0.08	11.84 (0.29)	10.78 (0.15)	< 0.01
Severity of Condition	6.54 (0.15)	5.96 (0.11)	< 0.01	6.10 (0.16)	5.50 (0.09)	< 0.01
Total adults	1.96 (0.10)	1.88 (0.04)	0.18	1.92 (0.06)	1.98 (0.04)	0.77
Total kids	2.64 (0.16)	2.43 (0.04)	0.81	2.17 (0.11)	2.28 (0.07)	0.13

*SE = standard error; p = p value; FPL = federal poverty level

Percents, means, and standard errors are based on weighted analysis

< 133% of FPL ≈ Very Poor; 133 – 199% of FPL ≈ Working Poor; 200 – 299% of FPL ≈ Lower Working to Middle Class; ≥ 300% of FPL ≈ Upper Class

Table 10. Descriptive Characteristics by SES – Mental Health Care or Counseling*

	200 – 299% of FPL		p	≥ 300% of FPL		p
	No n (%)	Yes n (%)		No n (%)	Yes n (%)	
Age (years)			0.03			0.58
0-4	8 (3.19)	41 (3.70)		13 (4.37)	66 (2.63)	
5-9	61 (19.84)	418 (32.02)		63 (24.88)	644 (24.47)	
10-14	118 (49.13)	609 (40.92)		131 (38.35)	1219 (43.22)	
15-17	85 (27.84)	377 (23.34)		132 (32.39)	931 (29.67)	
Ethnicity			0.90			0.52
Hispanic	26 (10.00)	95 (10.40)		15 (4.75)	150 (5.69)	
Other	244 (90.00)	1347 (89.60)		323 (95.25)	2699 (94.31)	
Insurance						
Medicaid			0.20			0.99
Yes	59 (23.67)	326 (28.10)		24 (9.29)	278 (9.36)	
No	213 (76.33)	1121 (71.90)		315 (90.71)	2583 (90.64)	
Private			0.05			< 0.01
Yes	183 (69.10)	1148 (76.56)		295 (76.50)	2642 (91.31)	
No	89 (30.90)	299 (23.44)		44 (23.50)	219 (8.69)	
SCHIP			0.77			0.01
Yes	17 (7.52)	71 (6.40)		10 (7.69)	43 (2.41)	
No	185 (92.48)	931 (93.60)		242 (92.31)	1926 (97.59)	
Other			0.86			0.09
Yes	46 (16.05)	212 (16.84)		31 (6.68)	318 (10.96)	
No	226 (83.95)	1235 (83.16)		308 (93.32)	2543 (89.04)	
Not Insured			< 0.01			< 0.01
Yes	73 (22.14)	144 (11.25)		42 (16.63)	132 (4.96)	
No	199 (77.86)	1296 (88.75)		295 (83.37)	2726 (95.04)	
Language of Interview			0.08			0.58
English	267 (96.78)	1437 (98.37)		338 (99.68)	2857 (99.83)	
Other	5 (3.22)	10 (1.63)		1 (0.32)	4 (0.17)	
Maternal Education			0.11			0.48
< High School	24 (11.34)	80 (11.04)		10 (5.67)	51 (3.22)	
High School	49 (25.07)	367 (31.30)		57 (25.95)	407 (23.36)	
Some College	92 (31.29)	493 (38.42)		84 (37.57)	744 (34.83)	
≥ 4 Yr College Degree	97 (32.30)	447 (19.25)		173 (30.80)	1537 (38.59)	

Race			0.33			0.05
White only	209 (79.52)	1225 (83.10)		298 (86.90)	2511 (85.17)	
Black only	21 (9.89)	83 (8.61)		10 (3.82)	137 (8.75)	
Multi-racial	12 (4.85)	50 (1.86)		15 (6.55)	79 (2.66)	
Other	28 (5.74)	84 (6.42)		13 (2.73)	126 (3.43)	
Region			0.15			0.01
Northeast	40 (14.56)	269 (21.12)		59 (16.89)	617 (17.02)	
Midwest	62 (21.65)	412 (27.00)		75 (22.33)	716 (24.81)	
South	74 (41.12)	370 (30.41)		111 (43.45)	797 (32.92)	
West	96 (22.67)	396 (21.47)		94 (17.32)	731 (25.25)	
Relation to Child			0.29			0.32
Mother	220 (73.72)	1156 (77.71)		277 (76.86)	2243 (71.61)	
Other	52 (26.28)	291 (22.29)		62 (23.14)	617 (28.39)	
Sex			0.02			0.15
Male	168 (61.97)	954 (69.01)		209 (68.04)	1772 (61.83)	
Female	104 (38.03)	493 (30.99)		130 (31.96)	1089 (38.17)	
	No Mean (SE)	Yes Mean (SE)	p	No Mean (SE)	Yes Mean (SE)	p
Age (years)	11.92 (0.28)	11.22 (0.15)	0.06	11.85 (0.28)	11.89 (0.09)	0.15
Severity of Condition	5.81 (0.15)	5.21 (0.11)	< 0.01	5.62 (0.21)	4.59 (0.07)	< 0.01
Total adults	1.94 (0.09)	2.11 (0.04)	0.09	2.05 (0.04)	2.05 (0.03)	0.53
Total kids	2.08 (0.10)	2.19 (0.05)	0.09	1.88 (0.06)	1.87 (0.03)	0.98

*SE = standard error; p = p value; FPL = federal poverty level

Percents, means, and standard errors are based on weighted analysis

< 133% of FPL ≈ Very Poor; 133 – 199% of FPL ≈ Working Poor; 200 – 299% of FPL ≈

Lower Working to Middle Class; ≥ 300% of FPL ≈ Upper Class

Table 10. Descriptive Characteristics by SES – Comprehensive, Coordinated Care in a Medical Home*

	< 133% of FPL		p	133 – 199% of FPL		p
	No n (%)	Yes n (%)		No n (%)	Yes n (%)	
Age (years)			0.01			< 0.01
0-4	739 (19.66)	591 (18.26)		354 (14.20)	470 (18.20)	
5-9	1271 (30.09)	1177 (36.14)		763 (30.38)	928 (32.48)	
10-14	1573 (33.63)	1222 (31.95)		946 (36.59)	1058 (34.69)	
15-17	763 (16.61)	499 (13.65)		506 (18.83)	480 (14.62)	
Ethnicity			< 0.01			0.02
Hispanic	814 (24.66)	413 (15.47)		317 (16.44)	252 (11.71)	
Other	3507 (75.34)	3072 (84.53)		2246 (83.56)	2677 (88.29)	
Insurance						
Medicaid			< 0.01			0.04
Yes	2916 (66.10)	2380 (71.61)		876 (37.95)	839 (31.14)	
No	1433 (33.90)	1113 (28.39)		1695 (62.05)	2098 (68.86)	
Private			0.14			< 0.01
Yes	1221 (26.45)	1091 (29.65)		1572 (56.96)	1968 (64.17)	
No	3128 (73.55)	2402 (70.35)		999 (43.04)	969 (35.83)	
SCHIP			0.03			0.15
Yes	723 (17.65)	610 (21.26)		287 (17.84)	315 (14.28)	
No	2543 (82.35)	1942 (78.74)		1582 (82.16)	1820 (85.72)	
Other			0.16			0.02
Yes	554 (10.42)	371 (8.79)		427 (14.54)	365 (11.25)	
No	3795 (89.58)	3122 (91.21)		2144 (85.46)	2572 (88.75)	
Not Insured			< 0.01			< 0.01
Yes	974 (25.80)	513 (16.50)		506 (22.00)	440 (16.45)	
No	3350 (74.20)	2976 (83.50)		2059 (78.00)	2493 (83.55)	
Language of Interview			< 0.01			< 0.01
English	3949 (85.61)	3387 (95.49)		2493 (95.44)	2899 (97.31)	
Other	400 (14.39)	106 (4.51)		78 (4.56)	38 (2.69)	
Maternal Education			< 0.01			0.82
< High School	1078 (42.13)	652 (31.42)		246 (18.65)	233 (16.79)	
High School	1627 (33.82)	1361 (39.13)		900 (39.29)	1063 (41.22)	
Some College	989 (18.46)	923 (23.21)		814 (31.68)	956 (31.96)	
≥ 4 Yr College Degree	493 (5.59)	439 (6.24)		526 (10.39)	596 (10.03)	

Race			< 0.01			0.08
White only	2552 (51.82)	2390 (61.24)		1881 (67.49)	2321 (73.19)	
Black only	992 (29.70)	618 (26.53)		336 (19.37)	319 (16.71)	
Multi-racial	198 (4.52)	186 (5.17)		109 (3.36)	117 (3.76)	
Other	569 (13.96)	274 (7.07)		229 (9.79)	174 (6.34)	
Region			< 0.01			< 0.01
Northeast	588 (15.76)	538 (19.69)		377 (14.10)	473 (18.29)	
Midwest	867 (18.84)	777 (22.60)		604 (23.78)	762 (24.22)	
South	1733 (44.89)	1299 (41.99)		824 (39.24)	971 (40.78)	
West	1161 (20.51)	879 (15.72)		766 (22.88)	731 (16.70)	
Relation to Child			0.27			< 0.01
Mother	3703 (82.36)	3020 (84.07)		2146 (78.27)	2554 (87.59)	
Other	645 (17.64)	473 (15.93)		424 (21.73)	383 (12.41)	
Sex			0.65			0.08
Male	2649 (58.63)	2057 (57.57)		1576 (62.64)	1757 (57.80)	
Female	1698 (41.37)	1435 (42.43)		994 (37.36)	1179 (42.20)	
	No Mean (SE)	Yes Mean (SE)	p	No Mean (SE)	Yes Mean (SE)	p
Age (years)	9.31 (0.13)	9.00 (0.10)	< 0.01	9.96 (0.21)	9.15 (0.12)	< 0.01
Severity of Condition	5.56 (0.07)	4.85 (0.06)	< 0.01	5.12 (0.8)	4.15 (0.10)	< 0.01
Total adults	1.97 (0.05)	1.90 (0.03)	0.03	2.03 (0.03)	1.98 (0.02)	0.73
Total kids	2.51 (0.05)	2.51 (0.04)	0.29	2.28 (0.05)	2.35 (0.03)	< 0.01

*SE = standard error; p = p value; FPL = federal poverty level

Percents, means, and standard errors are based on weighted analysis

< 133% of FPL ≈ Very Poor; 133 – 199% of FPL ≈ Working Poor; 200 – 299% of FPL ≈

Lower Working to Middle Class; ≥ 300% of FPL ≈ Upper Class

Table 10. Descriptive Characteristics by SES – Comprehensive, Coordinated Care in a Medical Home*

	200 – 299% of FPL		p	≥ 300% of FPL		p
	No n (%)	Yes n (%)		No n (%)	Yes n (%)	
Age (years)			0.53			< 0.01
0-4	377 (14.81)	522 (13.02)		665 (11.99)	1087 (13.65)	
5-9	852 (29.04)	1208 (31.16)		1370 (26.62)	2489 (27.19)	
10-14	1081 (37.36)	1477 (36.31)		2011 (36.08)	3555 (37.98)	
15-17	672 (18.78)	823 (19.50)		1526 (25.31)	2151 (21.19)	
Ethnicity			< 0.01			0.16
Hispanic	246 (10.83)	251 (8.43)		308 (6.78)	462 (6.01)	
Other	2735 (89.07)	3767 (91.57)		5250 (93.21)	8801 (93.99)	
Insurance						
Medicaid			< 0.01			< 0.01
Yes	530 (19.27)	445 (11.71)		387 (6.92)	354 (4.04)	
No	2459 (80.73)	3586 (88.29)		5187 (93.08)	8931 (95.96)	
Private			0.03			< 0.01
Yes	2410 (81.07)	3493 (85.25)		5217 (92.62)	8933 (95.47)	
No	579 (18.93)	538 (14.75)		357 (7.38)	352 (4.59)	
SCHIP			0.70			0.03
Yes	125 (5.75)	125 (5.13)		61 (1.73)	61 (1.00)	
No	2036 (94.25)	2731 (94.87)		3903 (98.27)	6263 (99.00)	
Other			< 0.01			< 0.01
Yes	483 (14.68)	456 (9.45)		655 (11.90)	893 (9.23)	
No	2506 (85.32)	3575 (90.55)		4919 (88.10)	8392 (90.77)	
Not Insured			0.06			< 0.01
Yes	367 (12.72)	376 (10.20)		289 (5.97)	291 (3.73)	
No	2610 (87.28)	3651 (89.81)		5281 (94.03)	8987 (96.27)	
Language of Interview			0.36			0.262
English	2963 (98.83)	4011 (99.18)		5556 (99.62)	9274 (99.82)	
Other	26 (1.17)	20 (0.82)		18 (0.38)	11 (0.18)	
Maternal Education			0.10			0.95
< High School	150 (9.66)	162 (8.80)		106 (3.89)	125 (3.69)	
High School	796 (32.95)	1107 (34.96)		831 (21.86)	1408 (22.59)	
Some College	946 (36.31)	1376 (38.21)		1409 (35.40)	2358 (34.96)	
≥ 4 Yr College Degree	984 (21.09)	1286 (18.02)		3027 (38.85)	5090 (38.77)	

Race			< 0.01			< 0.01
White only	2398 (76.43)	3450 (84.52)		4765 (82.02)	8211 (85.69)	
Black only	272 (13.95)	270 (9.92)		346 (9.32)	491 (8.38)	
Multi-racial	105 (2.48)	116 (2.01)		164 (3.18)	253 (2.69)	
Other	199 (7.14)	178 (3.55)		278 (5.48)	298 (3.24)	
Region			< 0.01			< 0.01
Northeast	485 (18.28)	639 (18.23)		114 (18.56)	1796 (17.23)	
Midwest	756 (22.16)	1209 (29.00)		1370 (23.90)	2500 (26.09)	
South	861 (34.57)	1162 (33.82)		1668 (33.60)	2915 (36.78)	
West	887 (24.99)	1021 (18.94)		1422 (23.94)	2074 (19.90)	
Relation to Child			< 0.01			0.09
Mother	2400 (76.66)	3423 (82.14)		4393 (75.50)	7462 (77.93)	
Other	588 (23.34)	608 (17.86)		1180 (24.50)	1823 (22.07)	
Sex			0.25			0.13
Male	1828 (62.03)	2449 (60.19)		3315 (60.44)	5505 (59.07)	
Female	1157 (37.97)	1581 (39.81)		2258 (39.56)	3776 (40.93)	
	No Mean (SE)	Yes Mean (SE)	p	No Mean (SE)	Yes Mean (SE)	p
Age (years)	9.97 (0.15)	10.04 (0.16)	0.08	10.62 (0.09)	10.22 (0.07)	< 0.01
Severity of Condition	4.62 (0.07)	3.75 (0.08)	< 0.01	4.06 (0.06)	3.32 (0.06)	< 0.01
Total adults	2.15 (0.02)	2.11 (0.02)	< 0.01	2.08 (0.02)	2.12 (0.01)	0.06
Total kids	2.27 (0.05)	2.18 (0.03)	0.65	1.90 (0.02)	1.89 (0.02)	0.05

*SE = standard error; p = p value; FPL = federal poverty level

Percents, means, and standard errors are based on weighted analysis

< 133% of FPL ≈ Very Poor; 133 – 199% of FPL ≈ Working Poor; 200 – 299% of FPL ≈ Lower Working to Middle Class; ≥ 300% of FPL ≈ Upper Class

APPENDIX D
FULL REGRESSION TABLES

Table 11. Full Regression Tables for Routine Preventive Care

Variable	< 133% of FPL					133 – 199% of FPL				
	S β	SE	p	OR	95% CI	S β	SE	p	OR	95% CI
Age	0.24	0.06	0.93	1.01	0.89, 1.14	6.75	0.09	0.07	1.19	0.99, 1.43
Severity	4.13	0.14	0.22	1.19	0.91, 1.55	7.61	0.37	0.38	1.39	0.67, 2.90
Sex										
Male	-	-	-	-	-	-	-	-	-	-
Female	- 1.87	0.19	0.03	0.66	0.45, 0.95	0.19	0.28	0.87	1.05	0.61, 1.79
Race										
White	-	-	-	-	-	-	-	-	-	-
Black	- 5.27	0.31	< 0.01	0.26	0.14, 0.48	- 0.25	0.38	0.85	0.93	0.44, 1.96
Other	- 5.01	0.55	0.01	0.23	0.08, 0.68	- 1.45	0.51	0.35	0.62	0.23, 1.70
Ethnicity										
Non-Hispanic	-	-	-	-	-	-	-	-	-	-
Hispanic	2.15	0.38	0.15	1.72	0.82, 3.60	4.49	0.30	< 0.01	3.89	2.18, 6.94
Maternal Education										
\geq 4 yr College Degree	-	-	-	-	-	-	-	-	-	-
Some College	2.26	0.56	0.27	1.85	0.62, 5.55	- 0.26	0.39	0.87	0.94	0.44, 2.01
\leq High School	2.17	0.56	0.33	1.72	0.58, 5.11	1.18	0.40	0.49	1.31	0.60, 2.87
Insurance										
Private	-	-	-	-	-	-	-	-	-	-
Medicaid	5.02	0.24	< 0.01	3.21	1.99, 5.19	3.07	0.28	0.01	2.10	1.21, 3.67
SCHIP	3.42	0.28	< 0.01	2.62	1.50, 4.55	- 0.07	0.49	0.97	0.98	0.38, 2.55
Uninsured	- 13.60	0.90	< 0.01	0.03	0.01, 0.17	- 5.82	0.76	0.02	0.18	0.04, 0.80
Other	- 0.26	0.49	0.84	0.91	0.35, 2.37	0.29	0.45	0.83	1.10	0.46, 2.67
Region										
Northeast	-	-	-	-	-	-	-	-	-	-
Midwest	1.23	0.30	0.17	1.52	0.84, 2.73	- 4.03	0.49	0.01	0.28	0.11, 0.73

South	1.34	0.36	0.40	1.35	0.67, 2.71		- 3.02	0.65	0.28	0.49	0.14, 1.77
West	0.53	0.48	0.77	1.15	0.45, 2.94		- 4.42	1.04	0.26	0.31	0.04, 2.36
Relationship											
Other	-	-	-	-	-		-	-	-	-	-
Mother	2.66	0.26	< 0.01	2.34	1.41, 3.91		3.04	0.34	< 0.01	2.71	1.39, 5.28
Total Adults	- 0.75	0.22	0.67	0.91	0.59, 1.41		- 1.14	0.15	0.25	0.84	0.62, 1.13
Total Kids	- 2.07	0.08	0.04	0.84	0.71, 0.99		- 1.37	0.06	0.02	0.88	0.78, 0.98
Age * Severity	- 5.89	0.01	0.08	0.98	0.93, 1.00		- 11.53	0.02	0.03	0.96	0.93, 0.99
Region * Severity	- 1.97	0.03	0.45	0.98	0.92, 1.04		- 1.94	0.08	0.76	0.98	0.83, 1.14
Uninsured * Race	6.06	0.35	0.02	2.28	1.15, 4.54		- 1.74	0.53	0.61	0.76	0.27, 2.16

*SE = standard error; S β = standardized beta; p = p value; FPL = federal poverty level

Regression models represent weighted analyses

< 133% of FPL \approx Very Poor; 133 – 199% of FPL \approx Working Poor; 200 – 299% of FPL \approx Lower Working to Middle Class; \geq 300% of FPL \approx Upper Class

Table 11. Full Regression Tables for Routine Preventive Care

Variable	200 – 299% of FPL					≥ 300% of FPL				
	S β	SE	p	OR	95% CI	S β	SE	p	OR	95% CI
Age	- 5.83	0.08	0.06	0.86	0.73, 1.00	- 0.16	0.08	0.96	0.100	0.85, 1.17
Severity	0.73	0.31	0.91	1.03	0.57, 1.89	- 3.88	0.22	0.44	0.84	0.54, 1.30
Sex										
Male	-	-	-	-	-	-	-	-	-	-
Female	1.39	0.35	0.34	1.40	0.70, 2.80	4.75	0.47	0.03	2.84	1.13, 7.18
Race										
White	-	-	-	-	-	-	-	-	-	-
Black	- 4.56	0.60	0.01	0.19	0.06, 0.61	- 2.00	0.44	0.09	0.48	0.20, 1.13
Other	- 0.09	0.68	0.96	0.96	0.26, 3.62	- 0.65	0.70	0.69	0.76	0.19, 3.00
Ethnicity										
Non-Hispanic	-	-	-	-	-	-	-	-	-	-
Hispanic	- 2.30	0.51	0.08	0.41	0.15, 1.10	- 1.03	0.61	0.47	0.64	0.20, 2.11
Maternal Education										
≥ 4 yr College Degree	-	-	-	-	-	-	-	-	-	-
Some College	- 0.94	0.65	0.72	0.79	0.22, 2.82	- 1.02	0.26	0.38	0.80	0.48, 1.33
≤ High School	2.90	0.64	0.27	2.02	0.58, 7.10	1.13	0.59	0.63	1.33	0.42, 4.26
Insurance										
Private	-	-	-	-	-	-	-	-	-	-
Medicaid	0.52	0.68	0.79	1.20	0.32, 4.53	0.55	0.62	0.65	1.32	0.39, 4.43
SCHIP	4.16	1.13	0.04	10.24	1.11, 94.57	- 1.46	0.96	0.13	0.24	0.04, 1.55
Uninsured	- 3.06	0.93	0.18	0.29	0.05, 1.80	- 3.48	0.55	< 0.01	0.18	0.06, 0.52
Other	- 1.41	0.54	0.34	0.60	0.21, 1.72	3.74	0.49	0.01	3.77	1.44, 9.89
Region										
Northeast	-	-	-	-	-	-	-	-	-	-

Midwest	- 4.11	0.76	0.10	0.28	0.06, 1.25		0.05	0.65	0.98	1.01	0.28, 3.63
South	- 0.23	0.69	0.93	0.94	0.24, 3.67		- 5.06	0.72	0.11	0.32	0.08, 1.31
West	- 1.55	1.07	0.70	0.66	0.08, 5.37		- 6.32	0.85	0.07	0.21	0.04, 1.13
Relationship											
Other	-	-	-	-	-		-	-	-	-	-
Mother	0.77	0.66	0.71	1.27	0.35, 4.59		3.54	0.44	0.03	2.65	1.12, 6.30
Total Adults	- 2.69	0.34	0.16	0.62	0.32, 1.21		- 0.46	0.24	0.72	0.92	0.58, 1.46
Total Kids	3.03	0.18	0.09	1.36	0.95, 1.94		- 5.56	0.14	< 0.01	0.52	0.40, 0.68
Age * Severity	1.73	0.01	0.63	1.01	0.98, 1.03		- 7.20	0.01	0.09	0.98	0.95, 1.00
Region * Severity	- 4.82	0.07	0.38	0.94	0.82, 1.08		7.54	0.04	0.02	1.11	1.02, 1.20
Uninsured * Race	- 2.59	0.54	0.21	0.51	0.17, 1.47		- 1.83	0.46	0.16	0.53	0.21, 1.30

*SE = standard error; S β = standardized beta; p = p value; FPL = federal poverty level

Regression models represent weighted analyses

< 133% of FPL \approx Very Poor; 133 – 199% of FPL \approx Working Poor; 200 – 299% of FPL \approx Lower Working to Middle Class; \geq 300% of FPL \approx Upper Class

Table 11. Full Regression Tables for Care from a Specialist

Variable	< 133% of FPL					133 – 199% of FPL				
	S β	SE	p	OR	95% CI	S β	SE	p	OR	95% CI
Age	- 3.68	0.06	0.12	0.91	0.82, 1.02	0.82	0.06	0.73	1.02	0.90, 1.16
Severity	3.44	0.13	0.23	1.16	0.91, 1.49	- 0.13	0.22	0.98	0.99	0.65, 1.52
Sex										
Male	-	-	-	-	-	-	-	-	-	-
Female	0.23	0.21	0.79	1.06	0.70, 1.59	1.21	0.31	0.35	1.34	0.73, 2.47
Race										
White	-	-	-	-	-	-	-	-	-	-
Black	0.10	0.33	0.93	1.03	0.54, 1.97	2.06	0.35	0.05	1.97	1.00, 3.90
Other	- 1.00	0.54	0.58	0.74	0.26, 2.13	- 2.33	0.52	0.11	0.43	0.16, 1.20
Ethnicity										
Non-Hispanic	-	-	-	-	-	-	-	-	-	-
Hispanic	8.99	0.79	< 0.01	10.19	2.17, 47.95	0.25	1.23	0.95	1.08	0.10, 11.94
Maternal Education										
\geq 4 yr College Degree	-	-	-	-	-	-	-	-	-	-
Some College	0.78	0.52	0.67	1.25	0.45, 3.48	0.82	0.41	0.61	1.23	0.55, 2.75
\leq High School	- 1.30	0.41	0.42	0.72	0.32, 1.60	0.43	0.38	0.79	1.11	0.53, 2.31
Insurance										
Private	-	-	-	-	-	-	-	-	-	-
Medicaid	3.42	0.29	< 0.01	2.28	1.29, 4.03	- 0.61	0.27	0.57	0.86	0.51, 1.46
SCHIP	1.08	0.31	0.32	1.37	0.74, 2.52	- 0.90	0.43	0.48	0.74	0.32, 1.71
Uninsured	- 2.71	0.97	0.46	0.49	0.07, 3.28	- 7.75	1.16	0.04	0.09	0.01, 0.86
Other	0.23	0.53	0.87	1.09	0.39, 3.07	- 0.27	0.55	0.88	0.92	0.31, 2.68
Region										
Northeast	-	-	-	-	-	-	-	-	-	-

Midwest	2.88	0.52	0.05	2.81	1.02, 7.70	- 1.18	0.47	0.40	0.67	0.27, 1.70
South	4.65	0.52	0.04	2.93	1.07, 8.05	- 6.23	0.66	0.02	0.22	0.06, 0.81
West	4.71	0.45	< 0.01	3.56	1.48, 8.59	- 5.92	0.83	0.04	0.19	0.04, 0.95
Relationship										
Other	-	-	-	-	-	-	-	-	-	-
Mother	- 0.56	0.43	0.65	0.82	0.35, 1.92	0.45	0.59	0.79	1.17	0.37, 3.73
Total Adults	1.93	0.13	0.06	1.29	0.99, 1.67	6.28	0.28	< 0.01	2.73	1.57, 4.73
Total Kids	- 1.92	0.08	0.05	0.85	0.72, 1.00	- 0.63	0.11	0.57	0.94	0.75, 1.17
Age * Severity	1.10	0.01	0.64	1.00	0.99, 1.02	- 4.26	0.01	0.17	0.99	0.97, 1.01
Region * Severity	- 7.44	0.04	0.02	0.91	0.84, 0.99	0.83	0.06	0.85	1.01	0.90, 1.31
Uninsured * Severity	- 0.80	0.05	0.52	0.97	0.87, 1.07	1.73	0.10	0.40	1.09	0.89, 1.34
Uninsured * Race	- 0.73	0.39	0.80	0.91	0.42, 1.96	- 0.55	0.40	0.78	0.89	0.41, 1.97
Ethnicity * Region	- 5.72	0.22	0.04	0.64	0.42, 0.98	2.73	0.40	0.51	1.30	0.59, 2.87
Uninsured * Region	- 0.18	0.23	0.95	0.99	0.63, 1.53	2.33	0.26	0.35	1.28	0.77, 2.13

*SE = standard error; S β = standardized beta; p = p value; FPL = federal poverty level

Regression models represent weighted analyses

< 133% of FPL \approx Very Poor; 133 – 199% of FPL \approx Working Poor; 200 – 299% of FPL \approx Lower Working to Middle Class; \geq 300% of FPL \approx Upper Class

Table 11. Full Regression Tables for Care from a Specialist

Variable	200 – 299% of FPL					≥ 300% of FPL				
	S β	SE	p	OR	95% CI	S β	SE	p	OR	95% CI
Age	- 2.52	0.07	0.31	0.94	0.82, 1.07	2.95	0.03	0.03	1.07	1.01, 1.14
Severity	- 7.61	0.18	0.05	0.71	0.50, 1.00	- 0.17	0.11	0.94	0.99	0.80, 1.23
Sex										
Male	-	-	-	-	-	-	-	-	-	-
Female	0.05	0.26	0.97	1.01	0.61, 1.68	2.28	0.32	0.11	1.67	0.90, 3.12
Race										
White	-	-	-	-	-	-	-	-	-	-
Black	- 0.78	0.43	0.47	0.74	0.32, 1.70	- 1.15	0.31	0.12	0.62	0.33, 1.14
Other	0.32	0.44	0.77	1.14	0.48, 2.68	- 1.75	0.80	0.35	0.47	0.10, 2.28
Ethnicity										
Non-Hispanic	-	-	-	-	-	-	-	-	-	-
Hispanic	11.78	3.96	0.25	93.32	0.04, 1000	2.87	1.91	0.49	3.69	0.09, 155.55
Maternal Education										
≥ 4 yr College Degree	-	-	-	-	-	-	-	-	-	-
Some College	2.75	0.41	0.09	1.99	0.90, 4.40	- 3.17	0.21	< 0.01	0.48	0.32, 0.73
≤ High School	3.32	0.38	0.03	2.28	1.08, 4.84	- 0.89	0.26	0.37	0.79	0.47, 1.32
Insurance										
Private	-	-	-	-	-	-	-	-	-	-
Medicaid	- 0.65	0.39	0.58	0.81	0.38, 1.73	0.03	0.33	0.97	1.01	0.53, 1.95
SCHIP	2.10	0.74	0.10	3.35	0.78, 14.33	- 0.41	0.92	0.65	0.66	0.11, 3.96
Uninsured	- 1.85	1.46	0.59	0.46	0.03, 8.10	- 4.36	1.32	0.07	0.09	0.01, 1.23
Other	- 0.46	0.35	0.64	0.85	0.43, 1.70	- 0.36	0.48	0.78	0.88	0.35, 2.24
Region										

Northeast	-	-	-	-	-	-	-	-	-	-
Midwest	- 3.11	0.68	0.15	0.38	0.10, 1.43	2.04	0.18	< 0.01	1.78	1.25, 2.54
South	- 5.49	0.91	0.13	0.25	0.04, 1.49	1.43	0.32	0.30	1.39	0.74, 2.59
West	- 5.87	1.12	0.15	0.20	0.02, 1.81	2.65	0.52	0.20	1.94	0.70, 5.40
Relationship										
Other	-	-	-	-	-	-	-	-	-	-
Mother	2.34	0.41	0.05	2.20	0.99, 4.88	0.62	0.35	0.61	1.19	0.61, 2.35
Total Adults	0.79	0.14	0.32	1.15	0.87, 1.53	0.01	0.20	0.99	1.00	0.67, 1.49
Total Kids	- 0.32	0.10	0.73	0.97	0.79, 1.18	- 1.26	0.16	0.33	0.85	0.62, 1.17
Age * Severity	- 1.06	0.01	0.70	1.00	0.98, 1.02	- 5.57	0.01	< 0.01	0.98	0.97, 0.99
Region * Severity	5.73	0.06	0.21	1.08	0.96, 1.21	0.27	0.02	0.87	1.00	0.96, 1.05
Uninsured * Severity	0.68	0.20	0.79	1.05	0.72, 1.54	1.54	0.06	0.01	1.19	1.05, 1.34
Uninsured * Race	- 3.81	0.44	0.01	0.34	0.14, 0.81	3.34	0.69	0.05	3.81	0.99, 14.63
Ethnicity * Region	- 9.69	1.10	0.31	0.33	0.04, 2.81	- 4.08	0.48	0.25	0.58	0.23, 1.48
Uninsured * Region	0.17	0.24	0.92	1.03	0.64, 1.65	- 3.18	0.28	0.03	0.55	0.32, 0.95

*SE = standard error; S β = standardized beta; p = p value; FPL = federal poverty level

Regression models represent weighted analyses

< 133% of FPL \approx Very Poor; 133 – 199% of FPL \approx Working Poor; 200 – 299% of FPL \approx Lower Working to Middle Class; \geq 300% of FPL \approx Upper Class

Table 11. Full Regression Tables for Mental Health Care or Counseling

Variable	< 133% of FPL					133 – 199% of FPL				
	S β	SE	p	OR	95% CI	S β	SE	p	OR	95% CI
Age	2.41	0.07	0.31	1.07	0.94, 1.23	- 6.89	0.08	0.01	0.80	0.68, 0.94
Severity	5.45	0.19	0.19	1.29	0.88, 1.89	- 3.48	0.15	0.24	0.83	0.62, 1.13
Sex										
Male	-	-	-	-	-	-	-	-	-	-
Female	- 0.69	0.16	0.33	0.85	0.62, 1.18	1.13	0.16	0.08	1.32	0.97, 1.79
Race										
White	-	-	-	-	-	-	-	-	-	-
Black	- 3.89	0.33	< 0.01	0.36	0.19, 0.69	- 1.32	0.39	0.28	0.66	0.30, 1.42
Other	- 1.52	0.36	0.18	0.62	0.30, 1.25	- 1.70	0.45	0.16	0.54	0.22, 1.29
Ethnicity										
Non-Hispanic	-	-	-	-	-	-	-	-	-	-
Hispanic	3.21	0.39	0.02	2.47	1.15, 5.29	2.62	0.53	0.11	2.32	0.82, 6.61
Maternal Education										
\geq 4 yr College Degree	-	-	-	-	-	-	-	-	-	-
Some College	1.49	0.22	0.06	1.50	0.98, 2.31	1.55	0.41	0.35	1.47	0.65, 3.30
\leq High School	- 0.05	0.29	0.96	0.99	0.56, 1.74	2.78	0.40	0.11	1.92	0.87, 4.23
Insurance										
Private	-	-	-	-	-	-	-	-	-	-
Medicaid	5.33	0.28	< 0.01	3.61	2.10, 6.21	0.73	0.41	0.68	1.19	0.53, 2.66
SCHIP	1.67	0.24	0.04	1.62	1.01, 2.60	- 0.93	0.43	0.51	0.75	0.33, 1.73
Uninsured	1.51	0.71	0.58	1.48	0.37, 5.96	- 7.61	1.61	0.15	0.10	0.00, 2.27
Other	0.06	0.36	0.95	1.02	0.50, 2.08	- 0.64	0.40	0.58	0.80	0.37, 1.76
Region										
Northeast	-	-	-	-	-	-	-	-	-	-
Midwest	2.33	0.38	0.03	2.24	1.08, 4.68	2.59	0.41	0.05	2.22	0.99, 4.99

South	4.49	0.44	0.02	2.76	1.16, 6.58		5.28	0.43	< 0.01	3.49	1.50, 8.15
West	1.51	0.44	0.38	1.48	0.62, 3.54		3.45	0.52	0.08	2.51	0.91, 6.91
Relationship											
Other	-	-	-	-	-		-	-	-	-	-
Mother	1.49	0.29	0.10	1.59	0.91, 2.78		0.11	0.43	0.93	1.04	0.44, 2.42
Total Adults	0.55	0.15	0.65	1.07	0.79, 1.45		0.86	0.16	0.43	1.14	0.83, 1.56
Total Kids	- 3.25	0.11	0.02	0.77	0.62, 0.95		1.79	0.10	0.14	1.17	0.95, 1.43
Age *	- 4.35	0.01	0.17	0.99	0.97, 1.01		6.88	0.01	0.05	1.03	1.00, 1.05
Severity											
Region *	- 5.61	0.03	0.04	0.94	0.88, 1.00		- 7.80	0.03	< 0.01	0.90	0.84, 0.95
Severity											
Uninsured *	- 4.70	0.11	0.08	0.83	0.68, 1.02		1.21	0.11	0.60	1.06	0.85, 1.33
Severity											
Uninsured *	- 0.19	0.44	0.95	0.97	0.41, 2.31		6.45	0.72	0.06	3.94	0.97, 16.05
Race											
Uninsured *	2.29	0.44	0.02	2.77	1.17, 6.56		- 2.86	1.27	0.05	0.08	0.01, 1.02
Ethnicity											
Uninsured *	- 1.13	0.23	0.67	0.91	0.58, 1.43		- 0.47	0.31	0.88	0.95	0.52, 1.74
Region											
Private *	- 2.53	0.27	< 0.01	0.40	0.23, 0.67		0.86	0.51	0.50	1.41	0.52, 3.82
Medicaid											

*SE = standard error; S β = standardized beta; p = p value; FPL = federal poverty level

Regression models represent weighted analyses

< 133% of FPL \approx Very Poor; 133 – 199% of FPL \approx Working Poor; 200 – 299% of FPL \approx Lower Working to Middle Class; \geq 300% of FPL \approx Upper Class

Table 11. Full Regression Tables for Mental Health Care or Counseling

Variable	200 – 299% of FPL					≥ 300% of FPL				
	S β	SE	p	OR	95% CI	S β	SE	p	OR	95% CI
Age	- 0.25	0.09	0.93	0.99	0.84, 1.18	- 1.31	0.8	0.62	0.96	0.83, 1.12
Severity	2.30	0.18	0.49	1.13	0.79, 1.62	- 8.70	0.20	0.05	0.67	0.45, 0.99
Sex										
Male	-	-	-	-	-	-	-	-	-	-
Female	- 0.93	0.20	0.24	0.79	0.53, 1.17	1.96	0.25	0.08	1.55	0.95, 2.52
Race										
White	-	-	-	-	-	-	-	-	-	-
Black	0.25	0.36	0.78	1.11	0.54, 2.25	2.32	0.68	0.19	2.44	0.65, 9.20
Other	0.97	0.35	0.26	1.49	0.75, 2.98	- 1.29	0.29	0.04	0.56	0.32, 0.98
Ethnicity										
Non-Hispanic	-	-	-	-	-	-	-	-	-	-
Hispanic	- 0.99	0.43	0.41	0.70	0.30, 1.64	2.15	0.88	0.25	2.73	0.49, 15.19
Maternal Education										
≥ 4 yr College Degree	-	-	-	-	-	-	-	-	-	-
Some College	3.41	0.41	0.04	2.35	1.05, 5.22	- 1.70	0.35	0.28	0.68	0.34, 1.36
≤ High School	4.75	0.37	< 0.01	3.13	1.52, 6.44	- 0.82	0.28	0.48	0.82	0.47, 1.42
Insurance										
Private	-	-	-	-	-	-	-	-	-	-
Medicaid	- 0.55	0.29	0.60	0.86	0.48, 1.53	1.67	0.61	0.29	1.90	0.58, 6.24
SCHIP	- 0.20	0.73	0.89	0.90	0.22, 3.75	- 2.32	0.57	0.01	0.23	0.08, 0.71
Uninsured	4.69	1.22	0.17	5.32	0.49, 57.68	0.57	1.47	0.87	1.27	0.07, 22.49
Other	- 0.48	0.30	0.61	0.86	0.48, 1.54	2.19	0.38	0.04	2.16	1.04, 4.51
Region										
Northeast	-	-	-	-	-	-	-	-	-	-

Midwest	0.64	0.46	0.66	1.22	0.50, 3.02		0.62	0.23	0.45	1.19	0.76, 1.85
South	0.58	0.38	0.70	1.16	0.55, 2.43		- 1.37	0.49	0.53	0.74	0.28, 1.93
West	2.03	0.44	0.22	1.72	0.73, 4.08		1.18	0.79	0.73	1.32	0.28, 6.19
Relationship											
Other	-	-	-	-	-		-	-	-	-	-
Mother	1.53	0.33	0.16	1.58	0.83, 3.01		- 0.21	0.26	0.83	0.95	0.57, 1.56
Total Adults	0.90	0.19	0.44	1.16	0.80, 1.68		- 0.85	0.20	0.45	0.86	0.59, 1.27
Total Kids	0.68	0.11	0.54	1.07	0.86, 1.33		- 1.27	0.10	0.10	0.85	0.70, 1.03
Age *	- 2.07	0.01	0.58	0.99	0.97, 1.02		0.78	0.02	0.87	1.00	0.97, 1.03
Severity											
Region *	- 3.48	0.04	0.22	0.95	0.88, 1.03		3.26	0.04	0.32	1.04	0.96, 1.13
Severity											
Uninsured *	- 4.89	0.14	0.03	0.74	0.56, 0.98		2.71	0.09	0.02	1.24	1.04, 1.49
Severity											
Uninsured *	- 4.42	0.38	< 0.01	0.33	0.16, 0.70		1.78	0.60	0.35	1.74	0.54, 5.64
Race											
Uninsured *	2.49	0.80	0.03	5.69	1.18, 27.35		- 1.56	1.57	0.11	0.08	0.00, 1.72
Ethnicity											
Uninsured *	1.41	0.26	0.54	1.17	0.07, 1.95		- 7.80	0.33	< 0.01	0.32	0.17, 0.60
Region											
Private *	2.28	0.59	0.14	2.39	0.75, 7.64		0.88	0.93	0.59	1.66	0.27, 10.34
Medicaid											

*SE = standard error; S β = standardized beta; p = p value; FPL = federal poverty level

Regression models represent weighted analyses

< 133% of FPL \approx Very Poor; 133 – 199% of FPL \approx Working Poor; 200 – 299% of FPL \approx Lower Working to Middle Class; \geq 300% of FPL \approx Upper Class

Table 11. Full Regression Tables for Comprehensive, Coordinated Care in a Medical Home

Variable	< 133% of FPL					133 – 199% of FPL				
	S β	SE	p	OR	95% CI	S β	SE	p	OR	95% CI
Age										
15-17 years	-	-	-	-	-	-	-	-	-	-
10-14 years	0.29	0.12	0.58	1.07	0.84, 1.36	0.76	0.18	0.32	1.20	0.84, 1.73
5-9 years	1.72	0.16	0.01	1.52	1.11, 2.07	0.87	0.18	0.22	1.24	0.88, 1.75
0-4 years	0.12	0.12	0.78	1.04	0.81, 1.32	1.30	0.18	0.03	1.51	1.05, 2.16
Severity	- 3.05	0.02	< 0.01	0.88	0.85, 0.91	- 2.96	0.02	< 0.01	0.88	0.85, 0.91
Sex										
Male	-	-	-	-	-	-	-	-	-	-
Female	- 0.13	0.11	0.79	0.97	0.78, 1.21	1.36	0.11	0.01	1.38	1.10, 1.73
Race										
White	-	-	-	-	-	-	-	-	-	-
Black	- 2.12	0.15	< 0.01	0.59	0.44, 0.79	0.38	0.17	0.50	1.12	0.80, 1.57
Multi-racial	- 0.52	0.31	0.37	0.76	0.42, 1.39	0.85	0.39	0.15	1.74	0.82, 3.70
Other	- 2.54	0.38	0.02	0.42	0.20, 0.89	2.51	0.45	0.02	2.75	1.14, 6.64
Ethnicity										
Non-Hispanic	-	-	-	-	-	-	-	-	-	-
Hispanic	0.44	0.18	0.52	1.12	0.79, 1.59	- 1.36	0.31	0.17	0.65	0.35, 1.21
Maternal Education										
\geq 4 yr College Degree	-	-	-	-	-	-	-	-	-	-
Some College	0.97	0.14	0.05	1.31	1.00, 1.74	0.89	0.20	0.27	1.25	0.84, 1.85
High School	0.44	0.13	0.41	1.11	0.87, 1.42	1.37	0.23	0.16	1.38	0.88, 2.17
< High	- 0.66	0.15	0.32	0.86	0.64, 1.61	1.09	0.27	0.23	1.38	0.82, 2.34

School										
Insurance										
Private	-	-	-	-	-	-	-	-	-	-
Medicaid	0.81	0.09	0.03	1.21	1.02, 1.44	- 0.31	0.22	0.72	0.93	0.61, 1.42
SCHIP	0.72	0.10	0.04	1.23	1.01, 1.50	- 0.42	0.19	0.48	0.88	0.60, 1.27
Uninsured	- 4.29	0.25	< 0.01	0.32	0.20, 0.53	- 0.72	0.39	0.59	0.81	0.38, 1.75
Other	- 0.80	0.17	0.07	0.73	0.53, 1.02	- 0.55	0.16	0.25	0.83	0.60, 1.14
Region										
Northeast	-	-	-	-	-	-	-	-	-	-
Midwest	- 0.62	0.12	0.09	0.81	0.64, 1.03	- 0.27	0.13	0.51	0.92	0.71, 1.19
South	- 2.22	0.13	< 0.01	0.61	0.47, 0.79	0.62	0.16	0.38	1.16	0.84, 1.59
West	- 2.15	0.21	0.01	0.56	0.37, 0.84	0.12	0.23	0.89	1.03	0.65, 1.63
Language of Interview										
English	-	-	-	-	-	-	-	-	-	-
Other	- 3.27	0.20	< 0.01	0.33	0.22, 0.49	- 0.59	0.37	0.37	0.72	0.34, 1.48
Relationship										
Other	-	-	-	-	-	-	-	-	-	-
Mother	- 0.04	0.18	0.94	0.99	0.69, 1.42	3.00	0.18	< 0.01	2.67	1.88, 3.80
Total Adults	0.52	0.06	0.25	1.07	0.95, 1.20	- 0.30	0.07	0.49	0.95	0.83, 1.09
Total Kids	0.31	0.06	0.67	1.03	0.91, 1.16	1.35	0.06	0.03	1.14	1.01, 1.29
Uninsured * Severity	3.73	0.03	< 0.01	1.18	1.10, 1.25	- 1.04	0.04	0.13	0.95	0.88, 1.02
Uninsured * Race	- 0.46	0.15	0.72	0.95	0.71, 1.27	0.43	0.22	0.79	1.06	0.69, 1.64
Uninsured * Ethnicity	- 0.10	0.20	0.84	0.96	0.65, 1.42	- 0.14	0.46	0.85	0.92	0.37, 2.27
Race * Region	1.09	0.04	0.40	1.04	0.96, 1.12	- 3.05	0.04	0.01	0.90	0.84, 0.97
Private * Medicaid	0.02	0.18	0.96	1.01	0.71, 1.43	- 1.08	0.22	0.03	0.62	0.41, 0.95

*SE = standard error; S β = standardized beta; p = p value; FPL = federal poverty level

Regression models represent weighted analyses

< 133% of FPL \approx Very Poor; 133 – 199% of FPL \approx Working Poor; 200 – 299% of FPL \approx Lower Working to Middle Class; \geq 300% of FPL \approx Upper Class

Table 11. Full Regression Tables for Comprehensive, Coordinated Care in a Medical Home

Variable	200 – 299% of FPL					≥ 300% of FPL				
	S β	SE	p	OR	95% CI	S β	SE	p	OR	95% CI
Age										
15-17 years	-	-	-	-	-	-	-	-	-	-
10-14 years	- 0.31	0.15	0.62	0.93	0.69, 1.25	1.42	0.07	< 0.01	1.37	1.20, 1.58
5-9 years	0.17	0.23	0.85	1.05	0.67, 1.63	0.93	0.13	0.08	1.26	0.97, 1.62
0-4 years	- 0.48	0.19	0.39	0.85	0.58, 1.24	1.34	0.09	< 0.01	1.53	1.28, 1.83
Severity	- 2.12	0.02	< 0.01	0.91	0.86, 0.95	- 2.87	0.02	< 0.01	0.88	0.85, 0.91
Sex										
Male	-	-	-	-	-	-	-	-	-	-
Female	0.32	0.08	0.34	1.08	0.92, 1.27	0.08	0.06	0.78	1.02	0.90, 1.15
Race										
White	-	-	-	-	-	-	-	-	-	-
Black	- 1.91	0.18	< 0.01	0.49	0.35, 0.70	- 0.01	0.13	0.98	1.00	0.77, 1.29
Multi-racial	- 1.49	0.39	< 0.01	0.29	0.14, 0.63	0.01	0.21	0.97	1.01	0.67, 1.52
Other	- 3.58	0.50	< 0.01	0.16	0.06, 0.44	- 0.47	0.36	0.48	0.78	0.39, 1.57
Ethnicity										
Non-Hispanic	-	-	-	-	-	-	-	-	-	-
Hispanic	0.08	0.13	0.80	1.03	0.81, 1.32	0.47	0.20	0.32	1.22	0.82, 1.81
Maternal Education										
≥ 4 yr College Degree	-	-	-	-	-	-	-	-	-	-
Some College	0.41	0.09	0.26	1.11	0.93, 1.32	0.25	0.07	0.40	1.06	0.93, 1.21
High School	0.30	0.11	0.51	1.08	0.86, 1.35	0.75	0.10	0.05	1.22	1.00, 1.49
< High	0.53	0.24	0.35	1.25	0.79, 1.98	0.37	0.20	0.31	1.22	0.83, 1.81

School										
Insurance										
Private	-	-	-	-	-	-	-	-	-	-
Medicaid	- 0.37	0.17	0.45	0.88	0.63, 1.23	- 0.87	0.18	0.02	0.65	0.46, 0.93
SCHIP	0.29	0.33	0.63	1.17	0.62, 2.23	- 0.30	0.29	0.30	0.74	0.42, 1.31
Uninsured	- 1.35	0.30	0.09	0.60	0.33, 1.09	- 1.77	0.35	0.01	0.42	0.21, 0.82
Other	- 1.04	0.17	0.02	0.68	0.49, 0.95	- 0.83	0.07	< 0.01	0.75	0.65, 0.86
Region										
Northeast	-	-	-	-	-	-	-	-	-	-
Midwest	0.65	0.19	0.30	1.22	0.84, 1.78	0.90	0.09	0.01	1.29	1.07, 1.54
South	- 1.73	0.23	0.07	0.66	0.41, 1.04	1.91	0.12	< 0.01	1.53	1.22, 1.93
West	- 2.91	0.44	0.08	0.46	0.20, 1.09	0.92	0.15	0.13	1.25	0.94, 1.67
Language of Interview										
English	-	-	-	-	-	-	-	-	-	-
Other	- 0.02	0.33	0.94	0.98	0.51, 1.86	- 0.25	0.84	0.52	0.58	0.11, 3.01
Relationship										
Other	-	-	-	-	-	-	-	-	-	-
Mother	1.07	0.17	0.05	1.39	1.00, 1.93	0.67	0.10	0.06	1.20	0.99, 1.45
Total Adults	- 0.47	0.06	0.16	0.92	0.83, 1.03	0.70	0.05	0.01	1.14	1.04, 1.26
Total Kids	- 1.55	0.08	0.05	0.85	0.73, 1.00	0.39	0.06	0.43	1.05	0.93, 1.17
Uninsured * Severity	- 0.72	0.06	0.33	0.95	0.85, 1.06	0.44	0.05	0.33	1.05	0.95, 1.15
Uninsured * Race	2.22	0.23	0.02	1.69	1.08, 2.64	0.95	0.31	0.34	1.35	0.73, 2.48
Uninsured * Ethnicity	- 0.55	0.67	0.43	0.59	0.16, 2.21	- 1.38	1.17	0.05	0.11	0.01, 1.05
Race * Region	2.66	0.05	0.04	1.11	1.01, 1.23	-0.91	0.03	0.16	0.97	0.92, 1.01
Private * Medicaid	- 0.75	0.27	0.18	0.69	0.41, 1.18	0.16	0.27	0.68	1.12	0.66, 1.89

*SE = standard error; S β = standardized beta; p = p value; FPL = federal poverty level

Regression models represent weighted analyses

< 133% of FPL \approx Very Poor; 133 – 199% of FPL \approx Working Poor; 200 – 299% of FPL \approx Lower Working to Middle Class; \geq 300% of FPL \approx Upper Class

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