Health care access disparities among children entering kindergarten in Nevada

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HEALTH CARE ACCESS DISPARITIES AMONG CHILDREN ENTERING KINDERGARTEN IN NEVADA

by

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Atma Jaya Catholic University, Jakarta, Indonesia
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A thesis submitted in partial fulfillment of the requirements for the

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ABSTRACT

Health Care Access Disparities among Children Entering Kindergarten
In Nevada

by

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Access to health care is an important factor for the well-being of America’s children. The principal goal of this study was examine the 2008-2009 Kindergarten Health Survey data to advance understanding and appreciation of the health status of children in addition to their discrepancies in accessing health care in the state of Nevada (n = 11,073). This dataset serves as a secondary data source to determine whether socio-demographic and medical factors are associated with disparity in accessing health care for children entering kindergarten.

This study looked at both independent and combined effects of annual household income, race/ethnicity, primary language spoken in the family, rural/urban residence, and existing medical condition for preventive health care. A Chi-Square test of association was calculated to test for the statistical significance of the differences between select predictor and outcome variables. A binary logistic regression with forward likelihood ratio (LR) of covariates method selection was performed to obtain a validated estimate of the predictive quality. Odds ratio estimates with corresponding 95% confidence intervals (CIs) are presented for significant variables.
Results from analyses indicate that annual household income for the sample was a significant predictor of access to health care, with low income category having less opportunity for consistent access to care than those in the middle or high income category. The significance of independent effects indicates that Caucasian sample participants were more likely than all other minority categories to have access to routine preventive care. Results also showed that families with limited English skills had greater barriers to health care. Indeed, those who are Hispanic but speak English were over 2.5 times more likely to have regular access to care than Hispanics who primarily speak Spanish. Findings indicate that rural residents had decreased odds of access to preventive care and having a primary care provider. However, unexpectedly, rural residents have increased odds of having access to dental care compared to Clark County residents. When looking at the independent effects of medical conditions on health care outcomes, parents of children with no medical conditions were more likely to have access to care than those with medical condition. Evaluating health care access outcomes and their potential predictors gives public health officials an idea of where the emphasis should be placed for possibly reducing barriers to care. The consequences for not addressing health care access issues include deteriorating health and well being for vulnerable sociodemographic groups in the state. Altogether these findings suggest that programs and policies within the state must be sensitive to the specific needs of at risk groups, including minorities, those with low income, regionally- and linguistically- isolated residents.
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CHAPTER 1

INTRODUCTION

Public health scientists and school policymakers share an interest in the health status of children and its impact on their academic achievement. This interest has been catalyzed by research results that collectively point to a positive relationship between good health status and the academic performance of students (Sigfúsdóttir, Kristjánsson and Allegrante 2007). Fransoo et al (2008) examined the relationship between children’s health status and outcomes related to school progress and performance. They concluded that children with poor health status generally do not perform as well as their healthy counterparts in educational progress and performance. Therefore addressing their health concerns is essential to increase the likelihood of academic success. Ensuring that children have their basic needs met, including receiving adequate health care, can directly impact a child’s academic achievement as well as increase their opportunity for post secondary education or better prospects for employment later in life (Bloom 2007).

The Nevada Institute for Children’s Research and Policy (NICRP) is a research center housed within the University of Nevada, Las Vegas (UNLV). This not-for-profit, non-partisan organization is dedicated to improving the lives of children via academic and community-based research that guides the development of policies, programs and services that enhance the health and well-being of Nevada's children. To gain baseline information on the health status of children entering the school system and better track student health status, NICRP, in partnership with the state’s 17 school districts, the Southern Nevada Health District (SNHD), and the Nevada State Health Division, conducted the Kindergarten Health Survey, a health survey examining the health status of children entering kindergarten in the state. Although there has been increasing attention paid to
racial/ethnic disparities in health and health care, most of the focus is on adults, with relatively little emphasis on children (Flores and Tomany-Korman 2008). To our knowledge, the Kindergarten Health Survey, which was collected in November 2008, is the first survey in United States to assess the health of children entering kindergarten. It is hoped that research findings from this survey will provide a general understanding of the overall health status of children at this developmental and social stage.

Access to health care is an important factor for the well-being of America’s children as those who have better access to care also have improved health status (Shi, Green and Kazakova 2004). Although recent policy changes have attempted to increase children’s access to care thereby ensuring that children obtain needed health care (Beal 2004; Telfair, Bronheim and Harrison 2009; Wilkinson and Marmot 2003), there is a substantial number of children who still lack adequate access to health care, particularly racial minority children (Flores and Tomany-Korman 2008; Weinick and Krauss 2000) as well as children residing in low-income households (Kenney, McFeeters and Yee 2006), rural areas (DeVoe, Krois, and Stenger 2009) and families whose first language is not English (Flores and Tomany-Korman 2008; Stevens and Shi 2003). Data from 2009 America’s Children: Key National Indicators of Well-Being, the latest data on children’s health to date, show that there were still 5 percent of children ages 5-17 nationwide speak a language other than English at home and who have difficulty speaking English. The data also detail that 6 percent of children ages 0-17 have no usual source of care, and 23 percent had no dental visits in the past year (The Federal Interagency Forum on Child and Family Statistics 2009).

Nationally, Nevada does not fare well compared to other states for pediatric health
care functioning. For example, the National Survey of Children’s Health (NSCH) in 2007 found that overall child health status in Nevada was significantly lower than nationwide (79.8 percent [CI: 76.9 - 82.7] and 84.4 percent [CI: 83.7 - 85.0], respectively). Further, the state of Nevada was recently ranked as one of the twelve states at the bottom quartile of child health system performance (Shea, Davis, and Schor 2008). These states have children who lag behind their peers on multiple indicators, such as access to and quality of care, costs, and the state’s potential to contribute to healthy lives.

Iowa and Vermont are two states with the highest performance of child health system performance (Shea, Davis, and Schor 2008). Both states have successfully created children’s health care systems that deliver high-quality care which is accessible and equitable. Also, they have also adopted policies to expand children’s access to care and, at the same time, improve their quality of care. Both states mandated that all child health plans, local and regional children’s health system, publicly report data on the quality of care. Their achievement indicates that such policies can make a difference in advancing children’s access to care.

Understanding accessibility of the pediatric health care systems and population factors such as socioeconomic demographics will improve efforts to increase affordability of and access to health care. For this reason, a major goal of this thesis was to examine the Kindergarten Health Survey data to advance our understanding and appreciation of the health status of children of Nevada in addition to their discrepancies in accessing health care. In this thesis, the 2008 -2009 Kindergarten Health Survey (year one) served as a secondary data source to determine whether annual household income,
race/ethnicity, primary language spoken in the family, rural/urban residence, and existing medical condition are associated with disparity in accessing health care for children entering kindergarten.
CHAPTER 2
LITERATURE REVIEW

Sociodemographic and Medical Factors Correlate of Access to Care

In general, racial/ethnic minority children are more likely to live in low income families and have poorer health statuses than their non-minority peers (National Center for Children in Poverty [NCCP] 2008; Weigers, Weinick and Cohen 1998). Multiple factors, existing both inside and outside the health care delivery system, explain many of these disparities. An important factor within the health care delivery system is quality of the health care itself. It is commonly known that having health insurance is necessary to eliminate disparities in care. However, having health insurance is not sufficient for adequate coverage. That is, the availability of health insurance does not guarantee access to care – and it does not guarantee access to high quality of care. For example, DeVoe, Petering and Krois (2008) found that insured children, with no usual source of care, had higher rates of unmet medical need [odds ratio (OR) = 2.18; 95 percent confidence interval (CI): 1.27-3.73] and no doctor visits in 12 months (OR = 6.77; 95 percent CI: 3.80-12.06).

Meanwhile, outside factors which help explain disparities in care are individual socioeconomic status and the psychosocial characteristics of the neighborhood in which one lives. For example, deteriorating housing and other ambient risk as well as lack of resources such as transportation are significant contributions to health inequalities and the ability to access care. These individual and social factors are directly related to access to care (Lurie and Dubowits 2007), and access to care is important because it is believed to be correlated with better health. However, racial/ethnic minority children,
particularly African American and Hispanic children, are known to be more likely to lack a usual source of care and to go without treatment for common but significant health problems than are Caucasian children (Newacheck, Hughes, and Stoddard 1996). These disadvantages may reduce Black and Hispanic children’s continuity of care, with potentially adverse health outcomes. Additionally, a more recent study found that these two categories of racial/ethnic minority children were twice as likely to use urgent care for their medical conditions (i.e., asthma) as Caucasian or Asian children (Stingone and Claudio 2006). Urgent care was also reported to be used twice as much by asthmatic children living in household with the lowest income level ($0-$20,000) as those in higher income household ($40,000 or more) (p<0.001) (Stingone and Claudio 2006).

The National Center for Children in Poverty (NCCP 2008) reported that, in 2007, 39 percent of children nationally were living in low-income families (i.e., annual household income less than twice the federal poverty threshold). The federal poverty threshold for a family of four in 2009 was listed as $22,050. In Nevada, there are more than 240,000 children living in low-income families; of these, 79 percent are racial/ethnic minorities, 41 percent of which are children under six years old (NCCP 2008). In 2002, Case, Lubotsky and Paxton (2002) did a detailed analysis of the relationship between family income and child health using data from the US National Health Interview Survey. They found that there was a significant positive income gradient, with children in poorer families having significantly worse health than children from wealthier families. A study conducted in Los Angeles County found that children in poorer families were more likely to experience barriers to needed health care than children that are not poor, even
though they are publicly insured, due to transportation and language barriers (Kenney, McFeeters and Yee 2006).

Another significant barrier to access to health care is primary language spoken in the household. One in 5 people in the United States, or approximately 55 million Americans, speak a language other than English at home (US Census Bureau 2008). For children with parents with limited English skills, the availability of health care providers who speak their native language and understand their knowledge and beliefs about health care may be essential to ensuring these children have adequate access to health care. If the parents cannot find a primary care provider with whom they can clearly and comfortably communicate, their children may lack a usual source of care. For example, Weinick and Krauss (2000) found that children whose interview for the Medical Expenditure Panel Survey (MEPS) Household Component was conducted in English were more than two times as likely to have a usual source of care as children whose interview was conducted in Spanish. However, the effect of Hispanic ethnicity itself was non-significant in their research. These findings suggest that Hispanic children are less likely to have a primary care provider than Caucasian children primarily because of language ability rather than ethnic origin. Also, from the 2005–2006 National Survey of Children with Special Health Care Needs, Yu and Singh (2009) found that children with special health care needs from non-English primary language households were twice as likely to lack usual source of care and family-centered care. They were also significantly more likely to be Hispanic or other races and reside in urban areas (Yu and Singh 2009).

The geographic area where children reside is another salient factor in pediatric health. Skinner & Slifkin (2007) reported that children with special health care needs
that live in rural area were more likely to have unmet health care needs due to transportation difficulties or because care was not available in the area. This study also indicated that these children were less likely to be seen by a pediatrician than urban children. Further, their families were more likely to report financial difficulties associated with their children’s medical needs and more likely to provide care at home for their children. Rural children were also reported to have greater unmet dental needs compare to their urban peers (Skinne, Slifkin and Mayer 2006; Al Agili, Bronstein and Greene-McIntyre 2005). Reasons that might contribute to geographic health care disparities are rural residents must have the means to travel to the location of care (Valet, Perry and Hartert 2009), distances to obtain care are greater than urban residents (Probst et al 2001), and/or geographically maldistributed physician, with too few in rural school or residence district area (Rosenthal, Zaslavsky, and Newhouse 2005). A recent study stated that on average, a child in United States must travel more than 24 miles to receive care from a pediatric subspecialist (Mayer 2006). This is unfortunate for rural residents because travelling great distances for care is a risk for increased morbidity and mortality (Nicholl et al 2007; Strauss et al 2006).

The Federal Maternal and Child Health Bureau defines children with special health care needs (SHCN) as those children who have or are at increased risk for chronic physical, developmental, behavioral, or emotional conditions and who also require health care-related services of a type or amount beyond that required by children generally (McPherson et al 1998, p. 138). There were approximately 12.8 percent SHCN children in the US in 2001 (van Dyke et al 2003), with 10 percent of these children having delayed or forgone care (Gnanasekaran et al 2008). Moreover, SHCN children
who are poor and minority are more likely to have infrequent access to and utilization of health services (Mayer, Skinner and Slifkin 2004). This population represents children with severe or persistent medical conditions and therefore who are at increased risk for behavioral health problems (Newacheck, McManus and Fox 1991), bed days and school absence days, unmet health care needs (Newacheck et al 1998), and unscheduled intensive care unit admissions (Dosa, Boeing and Kanter 2001).

Access to Care

Access to care may have more than one meaning. For example, Andersen and Aday (1978) have identified two types of access to care: potential access, which facilitates entry to health care but does not ensure the use of health services and realized access, or the actual use of care. Having a usual source of care is an example of potential access. Meanwhile, realized access can be measured along three dimensions: 1) any type of doctor visit, 2) routine preventive medical checkups, and 3) dental care checkups. Both potential access and realized access are essential prerequisites for further identification of quality of care (Seid and Stevens 2005). The six quality-of-care domains: safety, effectiveness, patient-or family-centeredness, timeliness, efficiency, and equity have become increasing important in the recent development of child health policy, including health care coverage and access (Simpson and Fairbrother 2009).

Having a usual source of health care from which families can seek advice and treatment has clear benefits for children. These benefits include the ability to prevent complications from acute conditions like appendicitis (Chande and Kinnane 1996), reduce emergency department use and hospitalizations (Christakis et al 2001), and
improve receipt of preventive care services (Newacheck, Hughes and Stoddard 1996; Short and Letkowitz 1992). Unfortunately, a recent study by Hoilette et al (2009) found that the absolute number of children without a usual source of care was higher in 2006 (2.4 million) than in 1998 (2.2 million). Furthermore, racial and ethnic minority and poor children are less likely than their non-minority counterparts to have regular sources of timely care. Also, impoverished minority children are more likely to report no usual source of care over time (Hoilette et al 2009; Newacheck and Halfon 1988; Newacheck, Hughes and Stoddard 1996).

Well-child care is the maintenance of health and prevention of disease or injury. This preventive care recommendation has been in effect since the 1930s and now has become an axiom of American pediatric practice, valued by both parents and pediatricians (Olson et al 2004). In order to achieve well-child care goals, repeated medical evaluation of healthy children is recommended. The American Academy of Pediatrics, Health Supervision Guidelines III, recommends 28 visits by 21 years of age, with approximately 6 to 8 visits during the first two years of life for optimal well-child care (Dinkenvich and Ozuah 2002), and a routine checkup at least once per year afterwards. The well-child care approach has been shown to be advantageous in improving the child and family’s health simultaneously. For example, this approach is credited with advancing pediatric care, improving mother-child interaction and decreasing social isolation (Schempf et al 2007; Telleen, Herzog and Kilban 1989).

Healthy People 2010 and the US Surgeon General’s report, Oral Health in America, indicate that the oral health of pre-school children is a growing public health issue, particularly tooth decay (or caries). Tooth decay is a severe problem among low-income,
minority pre-school children because of their limited access to dental care (US Department of Health and Human Services 2000a; 2000b). In 2007, the state of Nevada was reported as having the lowest preventive dental care for young children (Lewis et al 2007). Having a regular source of dental care and receiving preventive services is beneficial for both mother and child oral care, especially in terms of building positive dental knowledge and attitudes and self- and child-care practices (Grembrowski, Andersen and Chen 1989; Grembowski, Spikerman and Milgrom 2007). However, children from low income and minority families who are known to have poorer oral health are more likely to have fewer dental visits (Mouradian, Wehr, and Crall 2000) and both near-poor (100–199 percent of the federal poverty level) and poor (100 percent of the federal poverty level) children were both 3 times more likely to have an unmet dental need as non-poor children (Newacheck et al 2000).

In conclusion, previous studies have found disparities in accessing health care for: a) racial/ethnic minority children, b) children living in low-income families, c) children from family whose first language is not English, d) children living in rural areas, and e) children with special health care needs. In Nevada, there has not been a study to examine the relationship between those factors and access to health care (i.e., both potential and realized access). Using the Kindergarten Health Survey data, this study investigated how pre-school children in the state of Nevada access health care.
CHAPTER 3
METHODOLOGY

Data for this study were derived from the 2008-2009 Kindergarten Health Survey as described in the pilot study population below. The goal of this survey was to provide a general understanding of the overall health status of children residing in the state of Nevada when they enter elementary school. The relationship between select predictor variables and the outcome, access to care, were examined using Chi-Square and binary logistic regression analyses. In this way, the study looked at both the independent and combined effects of predictors on the outcome.

Pilot Study Population

The pilot study population came from self-report data of parents who had children entering kindergarten in 2008. Data were collected from 17 public school districts, both urban and rural and from the smallest student body to largest, in the state of Nevada with more than 10,000 participants. The 22-item questionnaire was created by the Nevada Institute for Children’s Research and Policy (NICRP) partnered with Clark County School District (CCSD) and Southern Nevada Health District (SNHD). The survey was one page in length with one side written in English and the other side in Spanish. These questionnaires were distributed to kindergarten teachers in all public elementary schools in the state. Teachers then distributed the surveys to parents during the first part of the school year. Parents who chose to participate returned the survey to either the school office or their child’s teacher. Completed surveys were returned to NICRP via mail and then accessed by NICRP staff. The surveys completed in Spanish were entered into the
Research Question, Objectives and Hypotheses

Research Question

- Are race/ethnicity, annual household income, language spoken in the family (English/Spanish), urban/rural residence of children entering kindergarten, and having a medical condition associated with access to health care?

Objectives

- This study will determine whether there are disparities for children entering kindergarten in the state of Nevada.
- This study will determine whether children at high-risk, particularly children with medical condition/special health care needs, are reporting access to health care.

Hypotheses

1. \( H_1 \): Annual household income is associated with accessing health care for children entering kindergarten in Nevada.

\( H_0 \): Annual household income has no relationship with accessing health care for children entering kindergarten in Nevada.

Predictions:

Children entering kindergarten who live in a family with lower annual household income will have no or low access to health and preventive care compared to higher income households. Specifically:
a. Children entering kindergarten who live in a family with lower annual household income will be less likely to see a medical provider for routine check up in the past 12 months.
b. Children entering kindergarten who live in a family with lower annual household income will be less likely to see a medical provider for routine check up at least once per year since birth.
c. Children entering kindergarten who live in a family with lower annual household income will be less likely to have a primary care provider.
d. Children entering kindergarten who live in a family with lower annual household income will be less likely to see a dentist in the past 12 months.


H₀: Race/ethnicity has no relationship with accessing health care for children entering kindergarten in Nevada.

Predictions:

Non-Caucasian children will have no or low access to health and preventive care compared to Caucasian children. Specifically:

a. Non-Caucasian children will be less likely to see a medical provider for routine check up in the past 12 months.
b. Non-Caucasian children will be less likely to see a medical provider for routine check up at least once per year since birth.
c. Non-Caucasian children will be less likely to have a primary care provider.

d. Non-Caucasian children will be less likely to see a dentist in the past 12 months.

3. $H_1$: Language spoken in the family (English/Spanish) is associated with accessing health care for children entering kindergarten in Nevada.

$H_0$: Language spoken in the family (English/Spanish) has no relationship with accessing health care for children entering kindergarten in Nevada.

Predictions:

Children that live with a non-English speaking family will have no or low access to health and preventive care compared to children in Spanish-speaking households. Specifically:

a. Children that live with a non-English speaking family will be less likely to see a medical provider for routine check up in the past 12 months.

b. Children that live with a non-English speaking family will be less likely to see a medical provider for routine check up at least once per year since birth.

c. Children that live with a non-English speaking family will be less likely to have a primary care provider.

d. Children that live with a non-English speaking family will be less likely to see a dentist in the past 12 months.

4. $H_1$: Whether a child resides in an urban or rural setting is associated with accessing health care for children entering kindergarten in Nevada.
H₀: Whether a child resides in an urban or rural setting has no relationship with accessing health care for children entering kindergarten in Nevada.

Predictions:

Children that live in rural areas will have no or low access to health and preventive care compared to children that live in more urban areas. Specifically:

a. Children that live in rural areas will be less likely to see a medical provider for routine check up in the past 12 months.

b. Children that live in rural areas will be less likely to see a medical provider for routine check up at least once per year since birth.

c. Children that live in rural areas will be less likely to have a primary care provider.

d. Children that live in rural areas will be less likely to see a dentist in the past 12 months.

5. H₁: Having a medical condition is associated with accessing health care for children entering kindergarten in Nevada.

H₀: Having a medical condition has no relationship with accessing health care for children entering kindergarten in Nevada.

Predictions:

Children that have an existing medical condition will be more likely have high or regular access to health and preventive care. Specifically:

a. Children with a medical condition will be more likely to see a medical provider for routine check up in the past 12 months.
b. Children with a medical condition will be more likely to see a medical provider for routine check up at least once per year since birth.

c. Children with a medical condition will be more likely to have a primary care provider.

d. Children with a medical condition will be more likely to see a dentist in the past 12 months.

Measurements

Outcome Variables

The following four survey items were used as outcome variables in the analysis. Each of these items had dichotomized categories to indicate level of access to medical care for sample respondents. Has your child been seen by a medical provider for a routine check-up (not for an illness) in the past 12 months (0=no; 1=yes)? Has your child been seen by a medical provider at least once per year for a routine check-up (not for an illness) since birth (0=no; 1=yes)? Does your child have a primary care provider (regular doctor, nurse practitioner or physician’s assistant) (0=no; 1=yes)? Has your child seen a dentist in the past 12 months (0=no; 1=yes)?

These items were also summed into a composite measure, Access to Care Index. This measure had a mean of 3.14 (standard deviation: 1.12) with a range of 0-4. Scores ranging from 0-2 indicate no or low access to health and preventive care; a score of 3 indicates intermediate or inconsistent access to health care or preventive care; and a score of 4 indicates high or regular access to health care. This index was moderately reliable with a Cronbach’s alpha of .63.
Predictor Variables

The following survey items were used as predictor variables in the analysis. Annual household income was a self-report measure with 1=$0-$14,999; 2=$15,000-$24,999; 3=$25,000-$34,999; 4=$35,000-$44,999; 5=$45,000-$54,000; 6=$55,000-$64,999; and 7=$65,000+. This item was collapsed into 3 ordinal categories with 1=low income ($0-$34,999); 2=middle income ($35,000-$64,999); and 3=high income ($65,000 or more).

Children's race/ethnicity was reported by parents in the survey and were re-coded with 1=others/multiple races, 2=African American, 3=Asian/Pacific Islander (PI), 4=Native American/Alaskan Native (NA/AN), 5=Hispanic, and 6=Caucasian. Participants could answer more than one race/ethnicity as directed in the question (circle all that apply).

Parents completed the survey in the language with which they were most comfortable—English or Spanish—and this language preference was used as a proxy for parental English-language ability. This variable was re-coded into a dichotomous variable representing English versus Spanish language survey (1=English; 2=Spanish).

When each school district returned the survey to NICRP, the county of the child’s residence was recorded. This particular variable is used to determine whether the child lives in an urban (Clark or Washoe counties) or rural (other counties) setting.

To assess the kindergarteners’ medical condition, parents were asked: Have you been told that your child has a medical condition which requires specialized treatment or visits to a specialty medical care provider? This variable was dichotomous (0=no; 1=yes). If the parent answered yes, they were then asked what kind of medical condition(s) the child has, e.g., asthma/airway disorder, diabetes, seizures, hearing aid/impairment,
physical disability, mental health condition, glasses/contacts, ADD/ADHD, cancer or others (please specify). Parent participants were asked to please check all that apply to the child’s medical condition.

Analytic Strategy

Both a Chi-Square test of association and binary logistic regression tests were used to assess the Kindergarten Health Survey data. The independent and combined effects of access to care were analyzed for each of the predictor variables, race/ethnicity, annual household income, language spoken, urban/rural setting, and existing with medical conditions. Both descriptive results and hypothesis testing was performed with SPSS version 17.0 (SPSS Inc., Chicago). Odd ratios (ORs) with appropriate confidence intervals (CIs) will be reported for each variable.

In addition, a sub-sample of the overall sample was selected for specified descriptive analysis. Respondents who reported Hispanic ethnicity or wrote down Hispanic as one of multi races were selected for further analysis. Specifically, the relationship between language and health access variables for Hispanic respondents was examined. This analysis was performed to determine if language spoken by Hispanics was a significant barrier to health care access.

The overall goal of this study is to analyze the Kindergarten Health Survey data to better understand children and their discrepancies in accessing health care. The specific aim of this study is to evaluate whether race/ethnicity, annual household family income, language speaking in the family (English/Spanish), and urban/rural setting are correlated with disparity in accessing health care for children entering kindergarten, which will be signified by whether the sample children: 1) had a routine check up in the past 12
months, 2) received a routine check up at least once a year, 3) have a primary care provider and 4) have seen a dentist in the past 12 months.
CHAPTER 4

RESULTS

Sample Characteristic

The total number of kindergarten students enrolling in the fall of 2008 was provided by each school district. In the entire state of Nevada, it was estimated that there were 30,744 kindergarteners enrolled at the beginning of the school year. Data from a total of 11,073 respondents were received and entered thus resulting in a 36 percent response rate for the state. Response rate from each school district ranged from 0 (Lyon County and Lander County) to 100 percent (Eureka County). For the two urban counties in Nevada, Clark County’s response rate was 37.4 percent and Washoe County’s was 22.7 percent. Washoe County delayed the distribution of surveys to parents in that district, which may have accounted for a lower response rate. Total response rate for all other counties (rural counties) was 43.9 percent. This state-wide sampling survey was the first Kindergarten Health Survey to be distributed to parents who had children entering kindergarten and it will function as the initial survey data that will be delivered annually in Nevada.

The majority of kindergarteners were Caucasian (40.1 percent), Hispanic (33.4 percent), and others/multiracial (13.8 percent). About 39 percent of kindergarteners were Hispanic or multiple races that included Hispanic. Additionally, minority races include Asian/Pacific Islander (6.0 percent), African American (5.9 percent), and Native American/Alaskan Native (NA/AN) (0.9 percent). Of the 11,073 completed surveys, the majority of parents (79.5 percent) completed the survey in English while 20.5 percent completed it in Spanish.

Additionally, information on the gender of the kindergarten student indicated that the sample was evenly divided between male and female with approximately 38 percent each.
Approximately 23 percent of the data were missing for this item. The majority of sample kindergarteners lived in urban settings (87.6 percent) while 12.4 percent lived in rural areas. The majority of kindergarteners’ family had an annual household income of $65,000 or more (32.6 percent) while the rest of the sample varied from $0-$14,999 (12.9 percent), $15,000-$24,999 (14.3 percent), $25,000-$34,999 (13.8 percent), $35,000-$44,999 (9.8 percent), $45,000-$54,000 (9.1 percent), and $55,000-$64,999 (7.5 percent). The median annual household income of participating parents was $45,000, representing the middle value in a distribution and the best measure of central tendency to reduce the impact of outliers in the distribution.

According to the results, 1,281 respondents reported having a child with medical conditions. Of these respondents, 64 percent reported having regular access to care, 23 percent had intermediate access to care, and 13 percent had no or low access to care. Almost 36 percent of the sample with a medical condition had no regular source of care for their child.

Chi-Square Analysis

Presented below are results from cross tabulations calculation for the access to care index and kindergarteners’ sociodemographic and medical background. A Chi-Square statistic was calculated to test for the statistical significance of the differences between select predictor (i.e., annual household income, race/ethnicity, language spoken, children’s residence, and children’s medical condition) and outcome variables (i.e., health category). The information contained in these results provides an advance from baseline data regarding the basic health status of children entering kindergarten in Nevada.
Annual Household Income and Health Category

A significant difference is reported between family annual household income and access to health (p<0.001). Table 1 shows that the observed value for high income respondents for the high health category is greater than the expected value (2284.0 and 1645.3, respectively). Similarly, respondents in the low income category have a higher observed value than expected for low access care (1342.0 and 821.9, respectively). At the same time, the high income category respondent has a lower than expected for low access to care. Table 1 also shows that a greater percent of respondents with higher income were more likely to have regular access to care than respondents in lower income categories. For example, 45 percent of respondents reporting $65,000+ annually had consistent access to care than compared to 26 percent of middle and 29 percent of low income groups. Likewise, those with lower incomes were more likely than those with higher incomes to have no or little health care (70 percent and 11 percent, respectively). Table 2 supports these results using the original annual income categories.

Additionally, annual household income was significant (p<0.001) for all four component of access to care. Respondents in low income category were less likely than respondents in middle or high income categories to have access to a routine check-up (i.e., not for an illness) in the past twelve months, a routine check-up once per year since birth, a primary care provider (e.g., regular doctor, nurse practitioner, or physician’s assistant), and a dental visit in the past twelve months. For all four indicators of access to care, between 53 and 76 percent of low income category respondents had no access to care (p<0.001) (data not shown).

Table 2 shows the annual household income with the seven original categories in the
Table 1. Number of Children by Health Category and Three Annual Household Income Categories for Kindergarteners’ Family (n=9,600; low income category was \( \leq \$34,999 \), middle income category was \$35,000-$64,999, and high income category was \( \geq \$65,000 \))

<table>
<thead>
<tr>
<th>Health Category</th>
<th>Low Income</th>
<th>Middle Income</th>
<th>High Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Health Category</td>
<td>1342.0</td>
<td>448.0</td>
<td>217.0</td>
</tr>
<tr>
<td>Expected</td>
<td>821.9</td>
<td>530.3</td>
<td>654.8</td>
</tr>
<tr>
<td>Percentage</td>
<td>69.9</td>
<td>22.3</td>
<td>10.8</td>
</tr>
<tr>
<td>Middle Health Category</td>
<td>1127.0</td>
<td>790.0</td>
<td>630.0</td>
</tr>
<tr>
<td>Expected</td>
<td>1043.0</td>
<td>673.0</td>
<td>831.0</td>
</tr>
<tr>
<td>Percentage</td>
<td>44.2</td>
<td>31.0</td>
<td>24.7</td>
</tr>
<tr>
<td>High Health Category</td>
<td>1461.0</td>
<td>1298.0</td>
<td>2284.0</td>
</tr>
<tr>
<td>Expected</td>
<td>2065.1</td>
<td>1332.6</td>
<td>1645.3</td>
</tr>
<tr>
<td>Percentage</td>
<td>29.0</td>
<td>25.7</td>
<td>45.3</td>
</tr>
</tbody>
</table>

\( \chi^2 = 1.136^* \)

*p < 0.001

Kindergarten Health Survey. It showed that 47 percent of those with no or low access to care made less than \$25,000 annually. Of those who reporting regular access to care, 45 percent earned \$65,000 or more annually.

Race/Ethnicity and Health Category

In Table 3 the data show that Hispanics had the lowest access to care. Hispanic respondents were twice as likely as Caucasians to have no or low access to care (55 percent and 26 percent, respectively). At the same time, Caucasian respondents had the highest access to care. Forty eight percent of Caucasian respondents had regular access to care compared to 23 percent of Hispanics, 15 percent of other/multiple, 6 percent of Asian/Pacific Islander, 6 percent African Americans, and 1 percent of American Indian/Alaskan Natives.

Table 3 shows significant racial/ethnic differences for the sample for access to care
Table 2. Number of Children by the Health Category and the Original Annual Household Income Categories for Kindergarteners’ Family in the Kindergarten Health Survey
(n=9,600)

<table>
<thead>
<tr>
<th>Income Level</th>
<th>Low Health Category</th>
<th>Middle Health Category</th>
<th>High Health Category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Observed</td>
<td>Expected</td>
<td>Observed</td>
</tr>
<tr>
<td></td>
<td>493.0</td>
<td>258.7</td>
<td>342.0</td>
</tr>
<tr>
<td>$0-14,999</td>
<td>454.0</td>
<td>286.5</td>
<td>385.0</td>
</tr>
<tr>
<td>$15,000-24,999</td>
<td>395.0</td>
<td>276.7</td>
<td>400.0</td>
</tr>
<tr>
<td>$25,000-34,999</td>
<td>221.0</td>
<td>197.2</td>
<td>297.0</td>
</tr>
<tr>
<td>$35,000-44,999</td>
<td>151.0</td>
<td>181.9</td>
<td>276.0</td>
</tr>
<tr>
<td>$45,000-54,000</td>
<td>76.0</td>
<td>151.2</td>
<td>217.0</td>
</tr>
<tr>
<td>$55,000-64,999</td>
<td>217.0</td>
<td>654.8</td>
<td></td>
</tr>
<tr>
<td>$65,000+</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ \chi^2 = 1.226^* \]

*\( p < 0.001 \)

Indeed, the expected value for Caucasian respondents was lower than observed for high health care access. Conversely, the expected value was higher than observed for Hispanic respondents for same category. Interestingly, the expected value was lower than observed for Asian/Pacific Islander for high access to care, making these respondents the only minority group with a pattern similar to that of Caucasians for access to care. However, for African Americans and American Indian/Alaskan Natives, the expected value was higher than the observed for same category.

Race/ethnicity was also significant for each of the four access to care survey items (\( p < 0.001 \)). Caucasian respondents were more likely than the respondents of all other racial/ethnic categories to have access for a routine check-up in the past twelve months,
Table 3. Number of Children listed by Health Category and the Kindergarteners’ Race/Ethnicity (n=10,529)

<table>
<thead>
<tr>
<th></th>
<th>Caucasian</th>
<th>African-American</th>
<th>Asian/Pacific Islander</th>
<th>American Indian/Alaskan Natives</th>
<th>Hispanic</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low Health Category</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed</td>
<td>596.0</td>
<td>94.0</td>
<td>108.0</td>
<td>30.0</td>
<td>1250.0</td>
<td>207.0</td>
</tr>
<tr>
<td>Expected</td>
<td>915.4</td>
<td>134.8</td>
<td>137.2</td>
<td>20.6</td>
<td>762.5</td>
<td>314.4</td>
</tr>
<tr>
<td>Percentage</td>
<td>26.1</td>
<td>4.1</td>
<td>4.7</td>
<td>1.3</td>
<td>54.7</td>
<td>9.1</td>
</tr>
<tr>
<td><strong>Middle Health Category</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed</td>
<td>999.0</td>
<td>207.0</td>
<td>172.0</td>
<td>17.0</td>
<td>994.0</td>
<td>400.0</td>
</tr>
<tr>
<td>Expected</td>
<td>1117.3</td>
<td>164.6</td>
<td>167.5</td>
<td>25.2</td>
<td>930.7</td>
<td>383.7</td>
</tr>
<tr>
<td>Percentage</td>
<td>35.8</td>
<td>7.4</td>
<td>6.2</td>
<td>.6</td>
<td>35.6</td>
<td>14.3</td>
</tr>
<tr>
<td><strong>High Health Category</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed</td>
<td>2621.0</td>
<td>320.0</td>
<td>352.0</td>
<td>48.0</td>
<td>1268.0</td>
<td>841.0</td>
</tr>
<tr>
<td>Expected</td>
<td>2183.3</td>
<td>321.6</td>
<td>327.3</td>
<td>49.2</td>
<td>1818.7</td>
<td>749.9</td>
</tr>
<tr>
<td>Percentage</td>
<td>48.1</td>
<td>5.9</td>
<td>6.5</td>
<td>.9</td>
<td>23.3</td>
<td>15.4</td>
</tr>
</tbody>
</table>

\( \chi^2 \)  
7.813*  
*p < 0.001

...a routine check-up once per year since birth, a primary care provider, and a dental visit in the past twelve months. For all four of these indicators of access to care, between 41 and 46 percent of Caucasian respondents had access to care.

**Language Spoken and Health Category**

Table 4 demonstrates significant difference for primary language spoken in the household and access to care (p<0.001). The expected value for households with Spanish as primary language was much higher than observed for high or regular health care access. At the same time, English speaking respondents had a lower expected value than observed for the same health access category. Conversely, the expected value was lower than observed for Spanish speaking respondents for the no or low health care access...
category. The differences between English and Spanish speaking respondents are
striking at the intermediate and high levels of access to care. For example, 80 percent of
English speaking respondents had intermediate access to care, compared to 20 percent of
Spanish speakers. These differences are even more disparate with high access to care
where 90 percent of English speakers compared to 10 percent of Spanish speakers have a
regular source of care.

Table 4. Number of Children by Health Category and Language Spoken in
Kindergarteners’ Family (n=11,073)

<table>
<thead>
<tr>
<th>Health Category</th>
<th>English</th>
<th>Spanish</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Health Category</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed</td>
<td>1373.0</td>
<td>1110.0</td>
</tr>
<tr>
<td>Expected</td>
<td>1975.1</td>
<td>507.9</td>
</tr>
<tr>
<td>Percentage</td>
<td>55.3</td>
<td>44.7</td>
</tr>
<tr>
<td>Middle Health Category</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed</td>
<td>2339.0</td>
<td>604.0</td>
</tr>
<tr>
<td>Expected</td>
<td>2341.0</td>
<td>602.0</td>
</tr>
<tr>
<td>Percentage</td>
<td>79.5</td>
<td>20.5</td>
</tr>
<tr>
<td>High Health Category</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed</td>
<td>5092.0</td>
<td>550.0</td>
</tr>
<tr>
<td>Expected</td>
<td>4487.9</td>
<td>1154.1</td>
</tr>
<tr>
<td>Percentage</td>
<td>90.3</td>
<td>9.7</td>
</tr>
</tbody>
</table>

| \( \chi^2 \)       | 1.295*   |
| *p < 0.001          |

There were significant differences between households where English was a primary
language compared to homes with Spanish as primary language for the individual health
access items of routine check-up in the past twelve months, routine check-up once per
year since birth, primary care provider, and dental visit in the past twelve months
(p<0.001). For the four components of access to care, over 80 percent of English
speaking respondents had access to care compared to 20 percent of Spanish speakers.
To determine if primary language spoken is an important factor for those of Hispanic ethnicity, a Chi-square test between language and access to care was run for respondents of Hispanic ethnicity. Table 5 demonstrates that those who are Hispanic but speak English are over 2.5 times more likely to have regular access to care than Hispanics who primarily speak Spanish. To this end, Hispanics that only speak Spanish were 2 times more likely than English speaking Hispanics to have low or no access to care (p<0.001). For example, 72 percent of English speaking Hispanics had regular access to care compared to 28 percent of Spanish-speaking Hispanics.

Among Hispanic respondents, the observed value for English speakers in the high health access category is greater than the expected value (1239.0 and 952.5, respectively). Similarly, Spanish speaking Hispanics had a higher observed value than expected for low access care (910.0 and 610.4, respectively). At the same time, English speaking Hispanic respondents had lower than expected values for low access to care. Selecting only respondents who responded “yes” to the Hispanic origin survey item, a Chi-Square analysis was tested for language with the individual health access items. Results showed that a greater percent of English speaking Hispanics had a routine check-up in the past twelve months, a routine check-up once per year since birth, a primary care provider, and a dental visit in the past twelve months compared to Spanish speaking Hispanics (p<0.001). Specifically, over 60 percent of those of Hispanic origin with English as a primary language had access to the four individual components of care compared to 30-40 percent of Spanish speakers.

Children’s Residence and Health Category

Table 6 shows that across three levels of the health index, Clark County had a higher
Table 5. Number of Children by Health Category for Language Spoken in Hispanic Kindergarteners’ Family (n=4,284)

<table>
<thead>
<tr>
<th></th>
<th>English</th>
<th>Spanish</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low Health Category</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed</td>
<td>469.0</td>
<td>910.0</td>
</tr>
<tr>
<td>Expected</td>
<td>768.6</td>
<td>610.4</td>
</tr>
<tr>
<td>Percentage</td>
<td>34.0</td>
<td>66.0</td>
</tr>
<tr>
<td><strong>Middle Health Category</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed</td>
<td>678.0</td>
<td>515.0</td>
</tr>
<tr>
<td>Expected</td>
<td>664.9</td>
<td>528.1</td>
</tr>
<tr>
<td>Percentage</td>
<td>56.8</td>
<td>43.2</td>
</tr>
<tr>
<td><strong>High Health Category</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed</td>
<td>1239.0</td>
<td>470.0</td>
</tr>
<tr>
<td>Expected</td>
<td>952.5</td>
<td>756.5</td>
</tr>
<tr>
<td>Percentage</td>
<td>72.5</td>
<td>27.5</td>
</tr>
</tbody>
</table>

$\chi^2 = 4.591^*$

*p < 0.001

percent of low, intermediate, and regular access to care than Washoe or rural counties.

When running analysis with column percent rather than row percent, Clark, Washoe and rural counties had higher percentages of regular access to care than intermediate or low (50.6 percent, 54.2 percent, and 51 percent, respectively).

There were almost no differences between the expected and observed values for Clark and Washoe residents for all health care access categories. Similarly, the expected and observed values were almost equal for rural residents for middle and high access index. Further, the observed value was much lower than expected for rural residents for low access to care.

For access to routine check-up since birth, routine check-up in the past twelve months, and dental visit in the past twelve months there were significant regional differences ($p<0.001$). For these three components, residents of Clark County were more likely, in terms of percentages, to have access to care than Washoe County or rural
Table 6. Number of Children by Health Category and Area of Residence of Kindergarteners (n=11,073)

<table>
<thead>
<tr>
<th>Health Category</th>
<th>Rural</th>
<th>Washoe</th>
<th>Clark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Health Category</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed</td>
<td>37.0</td>
<td>237.0</td>
<td>1909.0</td>
</tr>
<tr>
<td>Expected</td>
<td>306.9</td>
<td>218.5</td>
<td>1957.6</td>
</tr>
<tr>
<td>Percentage</td>
<td>13.6</td>
<td>9.5</td>
<td>76.9</td>
</tr>
<tr>
<td>Middle Health Category</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed</td>
<td>334.0</td>
<td>209.0</td>
<td>2400.0</td>
</tr>
<tr>
<td>Expected</td>
<td>363.8</td>
<td>259.0</td>
<td>2320.3</td>
</tr>
<tr>
<td>Percentage</td>
<td>11.3</td>
<td>7.1</td>
<td>81.5</td>
</tr>
<tr>
<td>High Health Category</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed</td>
<td>697.0</td>
<td>528.0</td>
<td>4417.0</td>
</tr>
<tr>
<td>Expected</td>
<td>697.3</td>
<td>496.5</td>
<td>4448.1</td>
</tr>
<tr>
<td>Percentage</td>
<td>12.4</td>
<td>9.4</td>
<td>78.3</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 22.763^* \]

*\( p < 0.001 \)

Residents of Nevada. Results indicate that regional differences were not significant for having a primary care provider.

**Children’s Medical Condition and Health Category**

Table 7 presents results for children’s medical condition and access to care. Of those reporting no or low access to care, 7 percent are parents with children with one or more medical conditions (asthma, diabetes, seizures, hearing aid/impairment, physical disability, mental health condition, glasses/contacts, ADD/ADHD, cancer). At the same time, it showed that 10 percent of those with inconsistent or intermediate access to care are parents of children with medical condition.

On a positive note, the observed value for children with medical conditions on the low health category is lower than the expected value (160.0 and 286.8, respectively). At the same time, children with medical condition have a higher than expected for high access to care.
Table 7. Number of Children with and without an Existing Medical Condition by Health Category (n=11,010)

<table>
<thead>
<tr>
<th></th>
<th>No Known Medical Condition</th>
<th>With Known Medical Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low Health Category</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed</td>
<td>2305.0</td>
<td>160.0</td>
</tr>
<tr>
<td>Expected</td>
<td>2178.2</td>
<td>286.8</td>
</tr>
<tr>
<td>Percentage</td>
<td>93.5</td>
<td>6.5</td>
</tr>
<tr>
<td><strong>Middle Health Category</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed</td>
<td>2632.0</td>
<td>296.0</td>
</tr>
<tr>
<td>Expected</td>
<td>2587.3</td>
<td>340.7</td>
</tr>
<tr>
<td>Percentage</td>
<td>89.9</td>
<td>10.1</td>
</tr>
<tr>
<td><strong>High Health Category</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed</td>
<td>4792.0</td>
<td>825.0</td>
</tr>
<tr>
<td>Expected</td>
<td>4963.5</td>
<td>653.5</td>
</tr>
<tr>
<td>Percentage</td>
<td>85.3</td>
<td>14.7</td>
</tr>
</tbody>
</table>

\( \chi^2 = 1.210^* \)

*\( p < 0.001 \)

Parents of children with no known medical conditions were more likely to have access to routine check-up in the past twelve months, a routine check-up once per year since birth, a primary care provider, and a dental visit in the past twelve months compared to parents of children with known medical condition(s). Specifically, over 85 percent of parents of children with no medical condition had access to each component of care compared to only 13 percent of parents of children with a known medical condition (\( p < 0.001 \)).

Binary Logistic Regression Analysis

The following are results from dichotomous logistic regression for each health access indicator question and kindergarteners’ demographic background. A binary logistic regression with forward likelihood ratio (LR) of covariates method selection was
performed to obtain a validated estimate of the predictive quality. For all variables, odds ratio estimates with corresponding 95% Wald Confidence Intervals (CIs) are presented.

For all four access to care variables; preventive care in the past 12 months, routine check-up at least once per year since birth, primary care provider and dental care in the past 12 months, low income category has the strongest association compared to others predictor variables. Interestingly, for preventive care in the past 12 months, routine check-up at least once per year since birth, and primary care provider, language was one of the strong predictor variables.

Logistic Regression for Children’s Routine Check-up in Past 12 Months

Table 8 presents results for binary logistic regression for children’s routine check-up (i.e., not an illness) in the past 12 months. Having low income is the strongest predictor for having a routine check-up in the past 12 months, followed by speaking English language and not having a medical condition. Rural residents were significantly different from the reference category, Clark County, for children’s routine check-up in the past 12 months (p<0.001). Washoe County residents were significantly different at p<0.05. Not having a medical condition was significantly different from the reference category (p<0.001). African American, Hispanic, and Other categories were significantly different from Caucasians (p<0.01). Asian/Pacific Islander were significantly different at p<0.05. American Indian/Alaskan Natives were not significantly different. English speakers were significantly different from Spanish speakers at p<0.001. Both low and middle income categories were significantly different from high income category for seeing a medical provider for a routine check-up in the past 12 months (p< 0.001).

The odds that children had routine check-up (not an illness) in the past 12 months
are decreased by a factor of 0.639 when respondent lives in rural areas and 0.795 when respondent lives in Washoe County compared to residence in Clark County, controlling for other variables in the model. The odds of preventive care in the past 12 months are decreased by 0.5 when the child does not have a medical condition. The odds of having a routine check-up compared to not having a routine check-up in the past 12 months are increased by a factor of 1.381 for Other/multiple races and 1.580 for African American compared to Caucasians, controlling for other variables. On the contrary, the odds of a having routine check-up in the past 12 months are decreased by a factor of 0.733 for Asians/ Pacific Islanders and 0.790 for Hispanics compared to Caucasians. Strikingly, the odds of having a routine check-up in the past 12 months were increased by a factor of 2.1 for an English-speakers compared to Spanish-speaking respondents. Lastly, the odds of having preventive care in the past 12 months are decreased by a factor of 0.372 when having low income and 0.579 when having middle income compared to high income.

Logistic Regression for Children’s Routine Check-up At Least Once Per Year Since Birth

Table 9 presents results for binary logistic regression for children’s routine check-up (not an illness) at least once per year since birth. The effects of African American and low income are the two strongest predictors for having a routine check-up at least once per year since birth, followed by speaking English language. Rural residents were significantly different from the reference category Clark County for children’s routine check-up in the past 12 months (p<0.001). The difference for Washoe County residents was not significant. Not having a medical condition was significantly different from the reference category (p<0.001). African American, Hispanic, and Other categories were
Table 8. Logistic Regression Results for Select Predictors on Preventive Care in Past 12 Months (n=10,986)

<table>
<thead>
<tr>
<th>Variables</th>
<th>β</th>
<th>S.E.</th>
<th>Odds Ratio [Exp(B)]</th>
<th>Confidence Intervals</th>
<th>Significance Levels</th>
</tr>
</thead>
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<td><strong>Region</strong></td>
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<tr>
<td>Reference: Clark County</td>
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</tr>
<tr>
<td>Rural</td>
<td>-0.448</td>
<td>0.087</td>
<td>0.639</td>
<td>0.539</td>
<td>0.758</td>
</tr>
<tr>
<td>Washoe County</td>
<td>-0.229</td>
<td>0.100</td>
<td>0.795</td>
<td>0.654</td>
<td>0.968</td>
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<td><strong>Medical Condition</strong></td>
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<td>Reference: Yes</td>
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</tr>
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<td>No</td>
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<td>0.115</td>
<td>0.498</td>
<td>0.397</td>
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<td><strong>Race/Ethnicity</strong></td>
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<td>Reference: Caucasian</td>
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<td>Other</td>
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<td>1.114</td>
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<td>AA</td>
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<td>Hispanic</td>
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<td>0.087</td>
<td>0.790</td>
<td>0.666</td>
<td>0.936</td>
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<td><strong>Language</strong></td>
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<td>Reference: Spanish</td>
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<td>English</td>
<td>0.742</td>
<td>0.083</td>
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<td><strong>Income</strong></td>
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<td>Reference: High</td>
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<tr>
<td>Low</td>
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<td>0.090</td>
<td>0.372</td>
<td>0.312</td>
<td>0.444</td>
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<tr>
<td>Middle</td>
<td>-0.547</td>
<td>0.094</td>
<td>0.579</td>
<td>0.482</td>
<td>0.695</td>
</tr>
</tbody>
</table>

AA=African American, PI=Pacific Islander, AN=American Indian, AN=Alaskan Natives, β=regression coefficient, and S.E. = Standard Error.

Significantly different from Caucasians (p<0.001). Similar to routine check-up in the past 12 months, Asians/Pacific Islanders were significantly different at p<0.05; American Indians/Alaskan Natives were not significant. English speakers were significantly different from Spanish speakers at p<0.001. Both low and middle income categories.
were significantly different from high income category for seeing a medical provider for a routine check-up at least once per year since birth (p<0.001).

The odds that children had a routine check-up (not an illness) at least once per year since birth are decreased by a factor of 0.594 when respondent lives in rural areas compared to Clark County residence, controlling for other variables in the model. The odds of preventive care at least once per year since birth are decreased by 0.544 when the child does not have medical condition. The odds of having a routine check-up compared to not having routine check-up at least once per year since birth are increased by a factor of 1.754 for Other/multiple races, 2.517 for African Americans, 1.425 for Asians/Pacific Islanders, and 1.533 for Hispanics compared to Caucasians, controlling for other variables. The odds of having a routine check-up at least once per year since birth are increased by a factor of 2.3 for English-speakers compared to Spanish-speaking respondents. Lastly, the odds of having preventive care in the past 12 months are decreased by a factor of 0.388 when having low income and 0.589 when having middle income compared to high income.

**Logistic Regression for Having a Primary Care Provider**

Table 10 presents results for binary logistic regression for having a primary care provider (e.g., regular doctor, nurse practitioner, or physician’s assistant). Low income is the strongest predictors for having a primary care provider, followed by middle income and English language. Rural residents were significantly different from the reference category, Clark County, for having a primary care provider (p<0.01). Washoe County residents were not significantly different. Not having a medical condition was significantly different from the reference category (p<0.001). American Indian/Alaskan
Table 9. Logistic Regression Results for Select Predictors on Preventive Care At Least Once Per Year Since Birth (n=10,987)

<table>
<thead>
<tr>
<th>Variables</th>
<th>β</th>
<th>S.E.</th>
<th>Odds Ratio [Exp(B)]</th>
<th>Confidence Intervals</th>
<th>Significance Levels</th>
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<tbody>
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<td><strong>Region</strong></td>
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<tr>
<td>Reference: Clark County</td>
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<tr>
<td>Rural</td>
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<td>0.594</td>
<td>0.499</td>
<td>0.707</td>
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<tr>
<td>Washoe County</td>
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<td>0.111</td>
<td>0.894</td>
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<td><strong>Medical Condition</strong></td>
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<td>No</td>
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<td>0.544</td>
<td>0.429</td>
<td>0.692</td>
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<td>Other</td>
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<td>1.754</td>
<td>1.401</td>
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<td>1.533</td>
<td>1.268</td>
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<td><strong>Language</strong></td>
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<td>Reference: High</td>
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<tr>
<td>Low</td>
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<td>0.322</td>
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<tr>
<td>Middle</td>
<td>-0.529</td>
<td>0.098</td>
<td>0.589</td>
<td>0.486</td>
<td>0.714</td>
</tr>
</tbody>
</table>

AA=African American, PI=Pacific Islander, AN=American Indian, AN=Alaskan Natives, β=regression coefficient, and S.E. =Standard Error.

Natives and Hispanic categories were significantly different from Caucasians (p<0.001).
Asian/Pacific Islander respondents were significantly different (p<0.05). African American and Other/multiply races were not significant. English speakers were significantly different from Spanish speakers (p<0.001). Both low and middle income category were significantly different from high income categories for having a primary
The odds that children have a primary care provider compared to not having primary care provider were decreased by a factor of 0.758 when respondent lives in rural areas compared to residence in Clark County, controlling for other variables in the model. The odds of having a primary care provider were decreased by 0.483 when the child does not have a medical condition. The odds of having a primary care provider compared to not having one were decreased by a factor of 0.717 for Asians/Pacific Islanders, 0.306 for American Indians/Alaskan Natives, and 0.695 for Hispanics compared Caucasians, controlling for other variables. Interestingly, the odds of having a primary care provider were increased by a factor of 3.356 for English-speakers compared to Spanish-speaking respondents. Lastly, the odds of having a primary care provider (e.g., regular doctor, nurse practitioner, or physician’s assistant) were decreased by a factor of 0.106 for low income and 0.262 for middle income compared to high income.

Logistic Regression for Dental Care in the Past 12 Months

Table 11 presents results for binary logistic regression for seeing a dentist in the past 12 months. Race/ethnicity was not in the equation when modeled for dental care (i.e., race/ethnicity was not a predictor for dental care in the past 12 months according to results). Low income was the strongest predictors for having a dental visit in the past year, followed by middle income and residence in Washoe County. Rural and Washoe County residents were significantly different from the reference category, Clark County, for having dental care in the past 12 months (p<0.001). Not having a medical speakers were significantly different from Spanish speakers at p<0.001. Both low and middle
### Table 10. Logistic Regression Results for Having Primary Care Provider (n=10,954)

<table>
<thead>
<tr>
<th>Variables</th>
<th>β</th>
<th>S.E.</th>
<th>Odds Ratio [Exp(B)]</th>
<th>Confidence Intervals</th>
<th>Significance Levels</th>
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<tbody>
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<td><strong>Region</strong></td>
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<tr>
<td>Reference: Clark County</td>
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</tr>
<tr>
<td>Rural</td>
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<td>0.093</td>
<td>0.758</td>
<td>0.632</td>
<td>0.909</td>
</tr>
<tr>
<td>Washoe County</td>
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<td>0.939</td>
<td>0.765</td>
<td>1.152</td>
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<td>0.483</td>
<td>0.386</td>
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<td></td>
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<td>Reference: Caucasian</td>
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<tr>
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<td>English</td>
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<tr>
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<td>0.124</td>
<td>0.262</td>
<td>0.206</td>
<td>0.334</td>
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</tbody>
</table>

AA=African American, PI=Pacific Islander, AN=American Indian, AN=Alaskan Natives, β=regression coefficient, and S.E. = Standard Error.

Income categories were significantly different from high income category for having dental care in the past 12 months (p<0.001).

The odds of children having dental care in the past 12 months compared to not seeing a dentist in the past 12 months were increased by a factor of 1.485 when respondent lives in rural areas and 1.757 when respondent lives in Washoe County compared to living in Clark County, controlling for other variables in the model. The
odds of having dental care in the past 12 months were decreased by 0.772 when the child does not have a medical condition. The odds of seeing a dentist compared to not having dental care in the past 12 months were increased by a factor of 1.328 for English-speakers compared to Spanish-speaking respondents. Lastly, the odds of having dental care in the past 12 months were decreased by a factor of 0.343 when having low income and 0.417 when having middle income compared to high income, controlling for other variables in the model.

### Table 11. Logistic Regression Results for Dental Care in the Past 12 Months (n=11,007)

<table>
<thead>
<tr>
<th>Variables</th>
<th>β</th>
<th>S.E.</th>
<th>Exp(B)</th>
<th>Confidence Intervals</th>
<th>Significance Levels</th>
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<td>Reference: Clark County</td>
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<tr>
<td>Rural</td>
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<td>1.485</td>
<td>1.286</td>
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<tr>
<td>Washoe County</td>
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<td>1.757</td>
<td>1.479</td>
<td>2.088</td>
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<td><strong>Medical Condition</strong></td>
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<tr>
<td>Reference: Yes</td>
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<td>0.075</td>
<td>0.772</td>
<td>0.667</td>
<td>0.893</td>
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<td>Reference: Spanish</td>
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<tr>
<td>English</td>
<td>0.284</td>
<td>0.062</td>
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<td>1.176</td>
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<td>0.064</td>
<td>0.417</td>
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<td>0.472</td>
</tr>
</tbody>
</table>

AA=African American, PI=Pacific Islander, AN=American Indian, AN=Alaskan Natives, β=regression coefficient, and S.E. =Standard Error.
CHAPTER 5
DISCUSSION, LIMITATIONS, AND CONCLUSIONS

Discussions

The principal objective of this study was to examine the Kindergarten Health Survey data to advance understanding and appreciation of the health status of children in addition to their discrepancies in accessing health care. In this thesis, the Kindergarten Health Survey served as a secondary data source to determine whether annual household income, race/ethnicity, primary language spoken in the family, rural/urban residence and having a medical condition are associated with disparity in accessing health care for children entering kindergarten in the state of Nevada. This study looked at both independent effects of sociodemographic and medical factors, and the combine effects of these variables for preventive health care.

Hypothesis 1 states that children entering kindergarten who live in a family with lower annual household income will be more likely to have no or low access to health and preventive care. Results from both Chi-Square and logistic regression analyses indicate that annual household income for the sample was a significant predictor of access to health care, with the low income category having less opportunity for consistent access to care than those in the middle or high income category. These findings support existing empirical evidence which shows that children in low income families experience greater barriers to needed health care than children from wealthier families (Kenney, McFeeters and Yee 2006).

Hypothesis 2 states that non-Caucasian children will be more likely have no or low access
to preventive and dental care. Chi-Square results showed that Caucasian sample participants were more likely than all other minority categories to have access to routine preventive care. Hispanic respondents were approximately twice as likely as Caucasians to have no or low access to care. This result support previous findings of minority children lacking access to health care (National Center for Children in Poverty [NCCP] 2008; Weigers, Weinick and Cohen 1998).

However, when looking at combined effects of predictor variables on individuals health outcome variables, African American and Other/multi racial categories were more likely to have access to routine check-up in the past 12 months while Asians/Pacific Islanders and Hispanics had decreased access to preventive care compared to Caucasians. The racial category American Indian/Alaskan Natives was not significant (p = 0.334). For routine check-up at least once per year since birth, all racial ethnic categories except American Indian/Alaskan Natives were significantly different (Other/multi racial, African American and Hispanic p<0.001; Asian/Pacific Islander p=0.026; American Indian/Alaskan Native p=0.532) from Caucasians. Interestingly, these categories have more access to preventive care than Caucasians. For primary care provider, Asian/Pacific Islander, American Indian/Alaskan Natives, and Hispanic respondents were less likely than Caucasians to have access to care. African American and Other/multi racial ethnic categories were not significant (African American p=0.645; Other/multi racial p=0.859). Finally, for dental care in the year, race/ethnicity was not was not in the equation when modeled for dental care (i.e., race/ethnicity was not a predictor for dental care in the past 12 months according to logistic regression results).

The inconsistent findings of the logistic regression analysis likely reflect the
relative significant of other predictors in the model compared to race/ethnicity. These findings reflect nuances likely missed in previous studies that do not taken to account region, disparities primary language spoken, income, and medical conditions. Therefore, this study adds to the general knowledge base on child health outcome and brings to light the need to continue research in this specialty area.

Hypothesis 3 states that children that live with a non-English (Spanish) speaking family will be more likely have no or low access to preventive care. Chi-Square results support this prediction by showing that Spanish speaking respondents have greater observed than expected values for low access to care. These descriptive results also showed that English speaking respondents had higher than expected values for regular or inconsistent access to care. When the effect of language was taken into account with the effects of other predictors of the model, results showed that English speaking participants had access to preventive care, primary care physicians, and dental visits. The independent and combined results are consistent with the literature which indicates that families with limited English skills had greater barriers to health care (Yu & Singh 2009; Weinick and Krauss 2000).

The US Census Bureau (2000) classified a household as “linguistically isolated” when members (aged 14 or over) speak language other than English at home, and speak English less than “very well”. In the US, 4.5 percent of households are considered linguistically isolated, and of these, half speak Spanish (Link et al 2006). According to the US Census Bureau (2000), a significant number are situated in the southwest. In 2000, Nevada had 11 to 23 percent of the linguistically isolated households in the US and also had the largest percentage increased (193 percent) of non-English language
speakers from 1990 to 2000 (US Census Bureau 2000). This is likely an important factor for the strength of this predictor for health care access for this sample.

Hypothesis 4 states that children that live in rural areas will be more likely to have no or low access to health and preventive care. Chi-Square results showed significant regional differences ($p<0.001$) for the sample with Clark County residents having greater access to care than Washoe County or rural residents with the exception of having a primary care provider. Logistic regression results showed that rural residents have decreased odds of access to preventive care and having a primary care provider. Unexpectedly, rural residents have increased odds of having access to dental care compared to Clark County residents. Further, Washoe County residents had decreased odds of preventive care in the past 12 months but increased odds of dental care compared to Clark County. Washoe County was not significantly different ($p=0.311$) than Clark County for preventive care at least once per year since birth or having a primary care provider. The descriptive findings support previous evidence which show children living in rural areas had unmet health care needs (Skinner and Slifkin 2007). However, logistic regression results both support and refute existing evidence. For example, the literature shows that rural children tend to have greater unmet dental needs compared to urban peers (Skinner and Slifkin 2006; Al Agili 2005), but this Nevada study’s findings showed the opposite. This might be partly explained by Nevada’s Oral Health Profile, which indicates there are 15 community-based, low-income dental clinics and 3 mobile dental clinic programs for preventative services. Further, the Nevada State Dental Public Health Activities is responsible for various population-based programs (e.g., early childhood caries prevention, fluoride varnish, oral health surveys, and oral
Hypothesis 5 states that children that have an existing medical condition will be more likely to have high or regular access to health and preventive care. Results from Chi-Square and logistic regression analysis both support and refute this prediction. Looking at the independent effects of medical condition on health care outcomes, parents of children with no medical condition were actually more likely to have access to care. However, when the effects of medical condition are considered with the effects of other selected predictors in the model, parents of children with no medical condition had decreased odds of preventive care, primary care and dental care. To the author’s knowledge, there are no studies that looked at the effects of medical condition along with region, race/ethnicity, language spoken and income. To this end, these results advance understanding of access to care for parents with children with medical condition. This brings attention to the fact that families in medical need in the state of Nevada are facing significant barriers to health care, when factors such as race/ethnicity, language spoken, income, and region are considered. Program and policies therefore should be attentive to these factors when considering this segment of the population.

To supplement analysis, only those respondents who indicate Hispanic ethnicity were selected. Chi-Square results showed that English speaking Hispanics had greater access to preventive care, a primary care provider and dental care than Spanish-speaking counterparts. In fact, more than half of the English speaking Hispanics reported regular/consistent access to the four individual components of care.

Numerous studies had shown that those with limited English proficiency (LEP) have a more difficult time accessing health care than English speakers. Although efforts such
as Culturally and Linguistically Appropriate Services (CLAS) standards and guidelines (Shaw-Taylor 2002) work to improve access; persons with LEP have more difficulty accessing needed health care services. Even when patients with LEP do obtain care, language barriers can still increase the risk of miscommunication between patient and health care provider and thus reduce the quality of care. This is a challenge for both patients and health care providers in Nevada.

Limitations

As with all cross sectional survey research designs, this study has some limitations. Specifically, causality between select predictor and outcome variables cannot be established. Also, the income variable on the original survey instrument had a void response category for $45,000-$54,000 (supposedly $54,999) and $55,000-$64,999. However, the two nonexclusive categories represent middle income and therefore are not distinct indicators in the collapsed variable representing the original income variable. Also, although a response rate of 36 percent is typical for surveys of this type (i.e., take home survey), it may have resulted in response bias. That is, sociodemographic and health behaviors of study participants may be different from those who refused to participate in the study.

Some of the regression models only explain approximately 10 percent of the variance for the respective outcome variables. Therefore, future research should include other variables such as Body Mass Index (BMI) or waist-hip ratio. The present study was unable to assess the relationship between height/weight and health outcome variable due a large number of missing data for this item.
Conclusions

Evaluating health care access outcomes and their potential predictors gives public health officials an idea of where the emphasis should be placed for possibly reducing barriers to care for residents of Nevada. The consequences for not addressing health care access issues include deteriorating health and well being for vulnerable socio-demographic groups in the state. Specifically, certain minority, Spanish-speaking, low income, and rural residents are at risk for unmet health care needs. As such, the foci for policies programs to reduce personal and social consequences and long-term costs of health care barriers should extend beyond the independent effects of select predictors and include combined effects of these risk factors.

Knowledge of general access to health care through national trends continues to be a vital source of information for understanding health and well being. However, what is lost in the overall picture is the local variation within state populations in terms of income, language, racial/ethnic, regional, and medical diversity. For example, African American and Hispanic residents are subsets that are both culturally and socially unique from their Caucasian counterparts, and their particular social environments may inflate barriers to care.

Programs and policies within the state must be sensitive to the specific needs of such groups at risk, including low income, regionally- and linguistically-isolated residents. The success of these efforts is related to perceived utility of these programs. In sum, prevention and intervention must be sensitive to demographic distinctions in target populations. The results of this study suggest that the emphasis for policy and programs should be directed at those groups facing limitations to preventive, primary and dental
Suggestions for improving access to care include Spanish-speaking physicians and other health care providers; culturally-specific programs; targeted outreach; and community liaisons. Each of these recommendations not only will improve quantity of care but quality as well. Also to analyze current trends and estimate future ones, the Kindergarten Health Survey, should be conducted annually.

The strengths of this study are indicated in its empirical contributions to the public health literature, especially the subdiscipline of pediatric health research. For example, this study not only confirmed or refuted existing predictions/hypotheses and empirical evidence but also made a unique contribution to both by testing the independent and combined effects of a unique set of predictors on health access outcomes for families. By doing so, this research improves thinking and knowledge about how income, race/ethnicity, language, region, existing medical condition are associated with health, especially preventive, primary, and dental care for pediatric subgroups.
## APPENDIX I

### KINDERGARTEN HEALTH SURVEY

**English**

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**UNLV University of Nevada, Las Vegas**

**Kindergarten Health Survey**

**DEAR PARENT OR GUARDIAN:** The following survey has been designed by the Nevada Institute for Children's Research and Policy at the University of Nevada Las Vegas, in partnership with the Southern Nevada Health District and the Clark County School District. The information gathered in this survey will be used to help understand the health of children entering kindergartens this year. You have been asked to participate because you have a child in kindergarten. All information gathered will be used to discuss children's health on a group level, not an individual level. Your child’s name will never be connected to your responses in any way. Confidentiality will be maintained without qualification.

<table>
<thead>
<tr>
<th>Child's Date of Birth:</th>
<th>Elementary School Name:</th>
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</thead>
<tbody>
<tr>
<td>Gender of Child (circle one): Male Female</td>
<td>Weight of Child:     lbs</td>
</tr>
<tr>
<td>Annual household income (circle one):</td>
<td>1. Caucasian</td>
</tr>
<tr>
<td>1. $0-$14,999</td>
<td>2. African American</td>
</tr>
<tr>
<td>2. $15,000-$24,999</td>
<td>3. Asian</td>
</tr>
<tr>
<td>3. $25,000-$34,999</td>
<td></td>
</tr>
<tr>
<td>4. $35,000-$44,999</td>
<td></td>
</tr>
</tbody>
</table>

How many other children are living in the home? (circle one): 0 1 2 3 4 5 6+

Please answer the following questions for the child that is enrolled in kindergarten this year.

1. Is your child currently covered by medical insurance? □Yes □No
   - If yes, what type of insurance? □ Private □ Medicaid □ Nevada Check Up □ Other: __________________________

2. Has your child been seen by a medical provider for a routine check-up (not for an illness) in the past 12 months? □Yes □ No
   - Has your child been seen by a medical provider at least once per year for a routine check-up (not for an illness) since birth? □Yes □ No

3. Does your child have a primary care provider (regular doctor, nurse practitioner or physician's assistant)? □ Yes □ No

4. Has your child seen a dentist in the past 12 months? □Yes □ No
   - Within the last 12 months, how many times have you taken your child to the Emergency Room or Urgent Care for an illness or injury that was not life-threatening? □ None (0) □ 1-2 □ 3-5 □ 6-9 □ 10 or more

5. If immunizations were not required for school, would you still have your child immunized? □Yes □ No

6. If you have been told that your child has a medical condition which requires specialized treatment or visits to a specialty medical care provider? □ Yes □ No
   - If yes, please check all conditions that apply: □ Asthma/Airway Disorder □ Diabetes □ Seizures □ ADD/ADHD □ Cancer □ Other (specify): __________________________

7. Do you think that your child may have a medical problem that he/she has not gone to see a doctor for? □Yes □ No
   - If yes, please specify:

8. Where do you take your child for immunizations (shots)? If you have used more than one type of facility, please indicate the most recent: □ Primary Care Provider (regular doctor) □ Health District □ School-Based Health Clinic □ Community Health Clinic □ Other (specify): __________________________

9. Have you ever tried to get mental or behavioral health services for your child? □ Yes □ No
   - If yes, have you had trouble getting services? □ Yes, explain: __________________________

10. In general, are you able to follow your doctor’s recommendations in regard to medications and/or follow up visits? □ All of the time □ Most of the time □ Some of the time □ None of the time
    - If you were unable to follow your doctor’s recommendations “all of the time”, please list the primary reason(s) why not: __________________________

11. How will your child get to school this year? □ Bus □ Walk □ Ride Bike □ Car □ Other: __________________________

Thank you for your participation. If you are interested in participating in future research please contact the Nevada Institute for Children's Research and Policy at (702) 895-1040 or via email at nicrp@unlvc.nevada.edu.
Cuestionario de Salud de Kinder

ESTIMADOS PADRES DE FAMILIA O TUTORES: La siguiente encuesta ha sido diseñada por el Nevada Institute Children’s Research and Policy en la Universidad de Nevada Las Vegas, en colaboración con el Centro de Salud de Las Vegas y el Distrito Escolar del Condado de Clark. La información adquirida en este estudio se utilizará para ayudar a comprender la salud de los niños que comienzan preescolar este año. Le hemos pedido que participe porque usted tiene niño en preescolar. Todo la información obtenida será utilizada para descubrir y entender el nivel de salud en grupo pero individual. No habrá conexión entre el nombre de su niño(a) y sus respuestas. Este estudio será confidencial.

Fecha de nacimiento del niño: __________/________/______ Nombre de la escuela primaria: ______________________

Sexo del niño(a) (círculo uno): ________________ Peso Del Niño(a): ________________ 
Masculino Fenomino 

Ingreso anual del hogar (círculo uno): ________________ Estatura del Niño(a): ________________
1. $30.000 - $44.999 5. $65.000 - $69.999
2. $35.000 - $34.999 6. $55.000 - $64.999
3. $25.000 - $34.999 7. $65.000 +
4. $35.000 - $44.999

¿Cuántos niños viven en casa? (círculo uno) 0 1 2 3 4 5 6+

Por favor conteste las siguientes preguntas sobre el niño(a) que va a matricular en primer año.

1. ¿Su niño(a) en este momento cuenta con seguro médico? __ Sí __ No

2. ¿Encabeza su casa? __ Sí __ No

3. ¿Su niño(a) ha sido visto por un proveedor de servicio médico este año para un examen de rutina? __ Sí __ No

4. ¿Cuántas veces ha tenido el niño(a) una consulta con un proveedor de salud en el último año? __ Sí __ No

5. ¿Ha tenido el niño(a) un episodio de salud mental o de discapacidad en el último año? __ Sí __ No

6. ¿Ha tenido el niño(a) un episodio de salud mental o de discapacidad en el último año? __ Sí __ No

7. ¿Ha tenido el niño(a) una infección respiratoria en el último año? __ Sí __ No

8. ¿Ha tenido el niño(a) una infección respiratoria en el último año? __ Sí __ No

9. ¿Cuántas veces ha tenido el niño(a) una consulta con un proveedor de salud en el último año? __ Sí __ No

10. ¿Ha tenido el niño(a) una infección respiratoria en el último año? __ Sí __ No

11. ¿Ha tenido el niño(a) una infección respiratoria en el último año? __ Sí __ No

12. ¿Ha tenido el niño(a) una infección respiratoria en el último año? __ Sí __ No

13. ¿Ha tenido el niño(a) una infección respiratoria en el último año? __ Sí __ No

14. ¿Ha tenido el niño(a) una infección respiratoria en el último año? __ Sí __ No

15. ¿Ha tenido el niño(a) una infección respiratoria en el último año? __ Sí __ No

16. ¿Ha tenido el niño(a) una infección respiratoria en el último año? __ Sí __ No

VUELVA POR FAVOR ESTA INSPECCION A MAESTRO DE SU NIÑO POR EL VIERNES, 9/12/08

Gracias por su participación. Si está interesado en participar en investigaciones futuras por favor póngase en contacto con el Nevada Institute for Children’s Research and Policy al (702) 895-1040 o vía email al nicpr@unlv.nevada.edu

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APPENDIX II
CITI COMPLETION CERTIFICATION
General

CITI Collaborative Institutional Training Initiative

Human Research Curriculum Completion Report
Printed on

Learner: Nadia Deashinta (username: deashinta)
Institution: University of Nevada, Las Vegas
Contact Information: Phone: 702-823-8404
Email: nadia.deashinta@gmail.com

Group 2:
Stage. Basic Course Passed on 10/07/08 (Ref # 2175054)

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For this Completion Report to be valid, the learner listed above must be affiliated with a CITI participating institution. Falsified information and unauthorized use of the CITI course site is unethical, and may be considered scientific misconduct by your institution.

Paul Braunschweiger Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Course Coordinator

Return

https://www.citiprogram.org/members/learnersII/csvystage.asp?strKeyID=97CAD3DC-42... 6/30/2009

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Biomedical

CITI Collaborative Institutional Training Initiative (CITI)

Responsible Conduct of Research Curriculum Completion Report
Printed on

Learner: Nadia Deashinta (username: deashint)
Institution: University of Nevada, Las Vegas
Contact Information: Department: School of Public Health
Phone: 702-823-8404
Email: nadia.deashinta@gmail.com

Biomedical Responsible Conduct of Research Course 1:

Stage 1: Biomed RCR Passed on 10/07/08 (Ref # 2175055)

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<td>Introduction to the Responsible Conduct of Research</td>
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For this Completion Report to be valid, the learner listed above must be affiliated with a CITI participating institution. Falsified information and unauthorized use of the CITI course site is unethical, and may be considered scientific misconduct by your institution.

Paul Braunschweiger Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Course Coordinator

Return

APPENDIX III

INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL

Social/Behavioral IRB – Exempt Review
Approved as Exempt

DATE: August 28, 2009
TO: Dr. Michelle Chino, Center for Health Disparities Research
FROM: Office for the Protection of Research Subjects
RE: Notification of IRB Action by Dr. Paul Jones, Chair
Protocol Title: Access to Care Disparities among Children Entering Kindergarten
OPRS# 0907-3149

This memorandum is notification that the project referenced above has been reviewed by the UNLV Social/Behavioral Institutional Review Board (IRB) as indicated in Federal regulatory statutes 45CFR46.

The protocol has been reviewed and deemed exempt from IRB review. It is not in need of further review or approval by the IRB.

Any changes to the exempt protocol may cause this project to require a different level of IRB review. Should any changes need to be made, please submit a Modification Form.

If you have questions or require any assistance, please contact the Office for the Protection of Research Subjects at OPRSHumanSubjects@unlv.edu or call 895-2794.

Office for the Protection of Research Subjects
4505 Maryland Parkway • Box 451047 • Las Vegas, Nevada 89154-4147


VITA

Graduate College
University of Nevada, Las Vegas

Nadia Deashinta

Degree:
Bachelor of Science, Biotechnology. Minor: Biology, Molecular Biology 2006
Atma Jaya Catholic University, Jakarta, Indonesia

Publications:
of *Vibrio cholerae* Detection from School Street Foods in Jakarta. Short Comm.
*Hayati Journal of Bioscience*, 14, 71-75.

Thesis Title:
Health Care Access Disparities among Children Entering Kindergarten In
Nevada.

Thesis Examination Committee:
Chairperson: Dr. Michelle Chino, Ph. D.
Committee Member: Dr. Linda Stetzenbach, Ph. D.
Committee Member: Denise Tanata Ashby, J.D.
Graduate Faculty Representative, Dr. Katherine Howard, Ph. D.