Summer 2001

Barrier to Utilization of Primary Healthcare Resources in Children Two Years of Age and Under

Ruth A. Waibel
Old Dominion University

Follow this and additional works at: https://digitalcommons.odu.edu/healthservices_etds

Part of the Primary Care Commons, and the Public Health Commons

Recommended Citation
Waibel, Ruth A.. "Barrier to Utilization of Primary Healthcare Resources in Children Two Years of Age and Under" (2001). Doctor of Philosophy (PhD), dissertation, Old Dominion University, DOI: 10.25777/chvp-fb68
https://digitalcommons.odu.edu/healthservices_etds/83

This Dissertation is brought to you for free and open access by the College of Health Sciences at ODU Digital Commons. It has been accepted for inclusion in Health Services Research Dissertations by an authorized administrator of ODU Digital Commons. For more information, please contact digitalcommons@odu.edu.
BARRIERS TO UTILIZATION OF PRIMARY HEALTHCARE RESOURCES IN CHILDREN TWO YEARS OF AGE AND UNDER

Ruth A. Waibel
B.S. HEALTH SERVICES ADMINISTRATION
University of Phoenix

M.A. HUMAN RESOURCES & ORGANIZATIONAL BEHAVIORS
University of Phoenix

A Dissertation Submitted to the Faculty of Old Dominion University in Partial Fulfillment of the Requirement for the Degree of

DOCTOR OF PHILOSOPHY
URBAN SERVICES
OLD DOMINION UNIVERSITY
August 2001

Approved by:

Clare Houseman (Director)

Ardythe L. Morrow
(Member)

Katharine C. Kersey
(Member)
ABSTRACT

BARRIERS TO UTILIZATION OF PRIMARY HEALTHCARE RESOURCES IN CHILDREN TWO YEARS OF AGE AND UNDER.

Ruth A. Waibel
Old Dominion University, 2001
Dr. Clare Houseman

This is a retrospective longitudinal study of health service utilization using the Immunization Practice Data Set obtained from the Center for Pediatric Research, Norfolk, Virginia. Cluster sampling was used to identify a cohort of children (n=271), aged 0 to 24 months, from the city of Norfolk, Virginia. A two-year abstraction of medical records was used to determine utilization practice patterns for three categories of health: well-baby, acute and chronic care. The purpose of this study was to identify socio-demographic, need, and health system factors associated with under-utilization of primary care services using Aday's model. The proportion of children who met the American Academy of Pediatrics guidelines for the number of preventive care visits was identified.

As a group, half of the children in the first year-of-life failed to meet the AAP guidelines of 5 well-baby
visits (mean=4.64, SD 2.72) while most of those in the second year-of-life slightly exceeded the 3 well-baby visit standard (mean=4.04, SD 2.47). Compliance in the latter group was 76.6% of the cohort (n=82) and those that did not meet the AAP specification were 23.4% (n=25). The mean age of the child at first visit was 8.1 months and represents a highly significant lack of well baby/preventive care visits during the first year of life in the study cohort.

Results of this study concur with prior research in identifying risk factors/variables associated with access to healthcare providers and under utilization of primary care providers. Respondents who tended to under-utilize primary care services and over utilize emergency care providers were Black, single unsupported parents, from low-income families, with low education and those who lacked insurance. The major barriers reported by parents were location, lack of transportation, and cost.
Three very important figures have influenced my life's path and subsequently this research undertaking. My husband George, and my parents, Russell & Goldie Kyler, all three provided a foundation for my success. This work is dedicated in honor of my husband and in memory of my parents whose lives blessed my life and this completed work.
ACKNOWLEDGMENTS

I wish to acknowledge my children, Lisa Waibel Sheikhline & George Eric Waibel, and George Henry Waibel, Laura Waibel Plaisted, Julie Waibel McLaughlin, along with their respective families, for all the collective encouragement they provided.

I am grateful to The Center for Pediatric Research staff and particularly, Ardythe L. Morrow, Associate Director, who provided the databases and supportive resources.

My gratitude extends to Clare Houseman, Ph.D., for serving as my advisor and dissertation committee chair, and to Katharine L. Kersey, Ed.D, for serving on my guidance and dissertation committees.

Thanks to Jody Simons for countless hours helping me transform two databases into new SPSS files. To my friend, Ranjita Misra, PhD, for encouragement and assistance, an especial “thanks”.

Each one played a very important role in the dissertation phase of my life.

I applaud all of you. Thanks be to God!
# TABLE OF CONTENTS

LIST OF TABLES .......................... x
LIST OF FIGURES ........................ xi

## CHAPTER

<table>
<thead>
<tr>
<th>I. INTRODUCTION</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESEARCH OVERVIEW</td>
<td>1</td>
</tr>
<tr>
<td>BACKGROUND</td>
<td>1</td>
</tr>
<tr>
<td>PRIMARY MEDICAL CARE: UTILIZATION OF SERVICES AND COST-EFFECTIVENESS</td>
<td>4</td>
</tr>
<tr>
<td>PRIMARY CARE MEDICAL HOME AND HEALTH OUTCOMES</td>
<td>5</td>
</tr>
<tr>
<td>UTILIZATION AND COSTS OF EMERGENCY CARE PROVIDERS</td>
<td>8</td>
</tr>
<tr>
<td>IMPORTANCE OF COST FACTORS</td>
<td>9</td>
</tr>
<tr>
<td>SUMMARY: RESEARCH OVERVIEW</td>
<td>11</td>
</tr>
<tr>
<td>NATURE OF THE PROBLEM</td>
<td>12</td>
</tr>
<tr>
<td>FACTORS CONTRIBUTING TO UTILIZATION OF HEALTHCARE PROVIDERS</td>
<td>15</td>
</tr>
<tr>
<td>LEVEL OF PARENTAL KNOWLEDGE</td>
<td>15</td>
</tr>
<tr>
<td>ETHNICITY</td>
<td>16</td>
</tr>
<tr>
<td>TRAVEL DISTANCES/WAITING TIME</td>
<td>18</td>
</tr>
<tr>
<td>HEALTHCARE SYSTEMS STRUCTURE</td>
<td>20</td>
</tr>
<tr>
<td>EMERGENCY SERVICES</td>
<td>22</td>
</tr>
<tr>
<td>SUMMARY: NATURE OF THE PROBLEM</td>
<td>23</td>
</tr>
<tr>
<td>PURPOSE OF THE STUDY</td>
<td>24</td>
</tr>
<tr>
<td>RESEARCH AIMS</td>
<td>25</td>
</tr>
<tr>
<td>RESEARCH QUESTION</td>
<td>25</td>
</tr>
</tbody>
</table>
CHAPTER | PAGE
---|---
RESEARCH HYPOTHESES | 26
OVERVIEW OF THEORETICAL FRAMEWORK | 29
DEFINITIONS | 33
LIMITATIONS | 37
VARIABLES | 39
SIGNIFICANCE OF THE STUDY | 41
IMPORTANCE OF DETERMINING PRIMARY HEALTHCARE SERVICES UTILIZATION PATTERNS AND IDENTIFYING ACCESS BARRIERS | 41
IMPORTANCE OF RELIABLE AND VALID COMMUNITY PROFILES OF PEDIATRIC DATA | 42
IMPORTANCE OF UNDERSTANDING UNDER-UTILIZATION OF PRIMARY CARE SERVICES AND OVER-UTILIZATION OF EMERGENCY SERVICES | 43
CONCLUSION | 44
II REVIEW OF LITERATURE | 45
ACCESS TO MEDICAL HEALTHCARE | 45
THE DEVELOPMENT OF A MODEL TO UNDERSTAND ACCESS TO MEDICAL CARE | 46
COMPONENTS OF THE MODEL
POTENTIAL OR ACTUAL ACCESS TO MEDICAL CARE | 47
CHARACTERISTICS OF THE POPULATION
- AT-RISK PREDISPOSING OR ENABLING FACTORS | 48
CHARACTERISTICS OF THE DELIVERY SYSTEM | 48
UTILIZATION OF HEALTH SERVICES | 49
<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUSTOMER SATISFACTION</td>
<td>50</td>
</tr>
<tr>
<td>ACCESS FACTORS</td>
<td>51</td>
</tr>
<tr>
<td>INSURANCE</td>
<td>51</td>
</tr>
<tr>
<td>ETHNICITY</td>
<td>53</td>
</tr>
<tr>
<td>INCOME</td>
<td>56</td>
</tr>
<tr>
<td>FAMILY SUPPORT STATUS</td>
<td>57</td>
</tr>
<tr>
<td>EDUCATION</td>
<td>60</td>
</tr>
<tr>
<td>HEALTH SYSTEM FACTORS</td>
<td>61</td>
</tr>
<tr>
<td>UTILIZATION OF PRIMARY HEALTHCARE SERVICES</td>
<td>61</td>
</tr>
<tr>
<td>UTILIZATION OF PROVIDERS; PRIMARY VS EMERGENCY</td>
<td>62</td>
</tr>
<tr>
<td>CONCLUSION</td>
<td>66</td>
</tr>
<tr>
<td>III. METHODS</td>
<td>68</td>
</tr>
<tr>
<td>BACKGROUND</td>
<td>68</td>
</tr>
<tr>
<td>CURRENT STUDY</td>
<td>70</td>
</tr>
<tr>
<td>RESEARCH DESIGN</td>
<td>71</td>
</tr>
<tr>
<td>SOURCE OF DATA</td>
<td>71</td>
</tr>
<tr>
<td>SAMPLE</td>
<td>72</td>
</tr>
<tr>
<td>DATA COLLECTION, VERIFICATION, AND SORTING</td>
<td>73</td>
</tr>
<tr>
<td>HUMAN SUBJECTS REVIEW</td>
<td>75</td>
</tr>
<tr>
<td>SURVEY INSTRUMENTS</td>
<td>76</td>
</tr>
<tr>
<td>COMBINING INSTRUMENT DATA</td>
<td>78</td>
</tr>
<tr>
<td>CHAPTER</td>
<td>PAGE</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>DEPENDENT VARIABLE</td>
<td>79</td>
</tr>
<tr>
<td>INDEPENDENT VARIABLES</td>
<td>80</td>
</tr>
<tr>
<td>RESEARCH HYPOTHESIS TESTING</td>
<td>85</td>
</tr>
<tr>
<td>IV. ANALYSIS OF THE DATA</td>
<td>87</td>
</tr>
<tr>
<td>HYPOTHESIS 1</td>
<td>87</td>
</tr>
<tr>
<td>HYPOTHESIS 2</td>
<td>99</td>
</tr>
<tr>
<td>V. DISCUSSION</td>
<td>112</td>
</tr>
<tr>
<td>CONCLUSIONS</td>
<td>117</td>
</tr>
<tr>
<td>IDEAS FOR FURTHER STUDY</td>
<td>122</td>
</tr>
<tr>
<td>SUMMARY</td>
<td>125</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>126</td>
</tr>
<tr>
<td>APPENDIX</td>
<td></td>
</tr>
<tr>
<td>A. AMERICAN ACADEMY OF PEDIATRICS GUIDELINES FOR PREVENTIVE CARE VISITS</td>
<td>135</td>
</tr>
<tr>
<td>B. SURVEY B</td>
<td>137</td>
</tr>
<tr>
<td>C. SURVEY MISSED OPPORTUNITIES</td>
<td>147</td>
</tr>
<tr>
<td>D. HUMAN SUBJECTS WAIVER</td>
<td>156</td>
</tr>
<tr>
<td>E. HEALTHY PEOPLE 2000 NATIONAL HEALTH PROMOTION AND DISEASE PREVENTION OBJECTIVES</td>
<td>158</td>
</tr>
<tr>
<td>VITA</td>
<td>161</td>
</tr>
</tbody>
</table>
LIST OF TABLES

1. Cost Comparison of Primary and Emergency Services ........... 10
2. Access Barriers Reported for Children with Usual Sources of Care .... 19
3. Dependent Variable .................................. 79
4. Socio-demographic Characteristics of Children and Parents .......... 88
5. Primary Care Utilization in the Study Cohort (Frequency and Percent) ... 92
6. Primary Care Utilization in the Study Cohort (Mean And Standard Deviation) ... 94
7. Pearson’s Product Moment Correlations Among Demographic Factors for Primary Care Visits ....... 96
8. Utilization Outcomes: Comparison of Preventive Care Visits of the Study Cohort to the American Academy of Pediatrics Guidelines ........ 98
9. Characteristics of the Healthcare Delivery System for the Norfolk, VA Cohort ... 100
10. Utilization of Health Services ...... 102
11. Parent-Reported Reasons to Utilize Hospital Clinics for Primary Care in the Greater Norfolk, VA Region ........... 103
12. Utilization of Primary Care Providers by Need/Diagnoses by Type of Insurance . . 106
13. Utilization of Primary Providers by Insurance Status ........... 107
14. Customer Satisfaction on Factors in the Norfolk Cohort ............. 109

15. Summary of Hypothesis Testing Results for Hypothesis 1 ............. 114

16. Summary of Hypothesis Testing Results for Hypothesis 2 ............. 117

LIST OF FIGURES

1. Framework for the Study of Access to Medical Care (Aday, 1993) ........ 31

2. Adaptation of Current Study to the Framework for the Study of Access to Medical Care ............ 32

3. Variables of the Access to Primary Care Study .................. 40

4. Barriers to Utilization as Reported by Parents in Norfolk, VA ........ 105
CHAPTER I
INTRODUCTION

RESEARCH OVERVIEW

Providing access to healthcare services for at-risk populations has been an important concern of those within the healthcare delivery system. While healthcare systems have been integrated to deliver seamless care across the life span, problems still exist in meeting the needs of those at-risk.

The purpose of this study was to identify factors or barriers that affect the receipt of healthcare for children who may be in the at-risk category. The study was designed to identify primary care utilization for three levels of care, i.e. well-baby, acute and chronic conditions. Sociodemographic, need, and health system factors that contributed to under-utilization of primary care providers were studied and reported for a cohort of children under two years-of-age.

BACKGROUND

A major national study of barriers that interfere with access to adequate health care services and
utilization of the most appropriate resources was conducted during the late 1980's and early 1990's. A consortium of 50 states health officials and representatives from nearly 300-member organizations identified access to healthcare issues across the United States. Strategies to address negative aspects of their findings were incorporated into the Healthy People 2000 National Health Promotion and Disease Prevention Objectives (1992). Guidelines from The Healthy People 2000 document and subsequent revisions have been used to improve access to healthcare services and health outcomes.

While researchers, health care administrators, and others identify barriers to access healthcare providers, plan strategies for appropriate utilization of resources, and seek ways to improve the health status of all American citizens, they face major economic issues. For instance, spending for healthcare services and related products in the United States (US) has risen to over one trillion dollars annually. According to projections by economic experts, health expenditures were expected to be over 1.7 trillion dollars or 18.1% of the Gross Domestic Product (GDP) in the year 2000 (Altman & Reinhart, 1996).
Diverse factors such as increased consumer demand for services, insurance coverage for primary care needs, and advances in medical-surgical technology have contributed to the American healthcare-spending picture. The amount of healthcare related expenses per capita is higher for the United States (US) citizens than for any other nation. It should follow then that spending for new technology and increased services to meet the consumer demand would lead to significantly improved health outcomes of care, and better health indicators for the nation. However, this is not the case. In fact, infant mortality and longevity outcome data, two measures used to represent the health status of a country, indicate that the health status of citizens in the United States is worse than other nations where less is spent per capita for their healthcare needs (Healthy People 2000, 1992).

As studies of cost, access and outcomes continue to be reported, two major forces have been shown to contribute to the problem. The first force has been the lack of a primary medical care provider for healthcare needs that are preventive, acute or chronic in nature. The second factor reported has been utilization of urgent or emergency providers instead of primary care providers for non-emergency healthcare needs.
Primary Medical Care: Utilization Of Services And Cost-Effectiveness

The National Association of Children’s Hospitals and Related Institutions (NACHRI) convened a panel of experts in 1995 to define the healthcare needs of children, and to identify issues of healthcare delivery, cost, and utilization. The results of their work, Pediatric Excellence in Health Delivery Systems/PEHDS (NACHRI, 1996), established a framework for the development of the most cost-effective, quality driven and integrated pediatric healthcare delivery system. According to the PEHDS guidelines, an integrated child healthcare delivery system focuses on utilization of the pediatrician to provide primary, acute and chronic care in community settings and hospitals. Similarly, The Institute of Medicine defined primary care as having a provider for continuity of healthcare needs, an identified mechanism for the coordination of services, and an accountable system to record and report outcomes of care (1994).

The Children’s Defense Fund supports primary pediatric healthcare as the most cost-effective service
to ensure positive health outcomes (1992). The American Pediatric Association (1997), NACHRI (1998), Newacheck, Hughes & Stoddard (1996) and others report that the best utilization practice to ensure the future health of children is for parents to enroll them, from birth through adolescence, into a primary care medical home (PCMH). Although some parents do not understand the importance of establishing a primary care medical home for their child, when they do, the subsequent utilization practices lead to improved health outcomes and enhanced continuity of care (Berman, Bondy, Lezotte, Stone & Byrns, 1999). Studies on children, enrolled in a PCMH, have revealed an improvement in the health status of well babies (Starfield, Powe, Weiner, Stuart, Steinwachs, Scholle, & Gerstenberger, 1994), and children with acute or chronic needs (Cunningham & Hahn, 1994) and a reduction in costs for all preventive care.

The Primary Care Medical Home And Health Outcomes

Ideally, every child should receive healthcare through a medical home that includes a network of pediatricians, family physicians, pediatric subspecialists and other healthcare professionals.
(McAndrews, 1998). According to Haggerty (1995), an ongoing or continuous affiliation with a primary care medical home (PCMH) is the best method to promote the health of children and prevent diseases of childhood.

The medical home, which may be a physician's office, a community health center and/or a hospital-based clinic, should be easily accessible for regular or emergency visits. Additionally, a medical home should provide office hours to suit the parent's schedule, have an association with a hospital, and keep children's records readily available for electronic transfer or retrieval (Intelihealth; Johns Hopkins Health Information, 1998).

When utilization of the PCMH occurs, a building of trust between provider and child/family occurs as well as an improved health status and positive healthcare outcomes. Parents who regularly access primary care for their children more often report up-to-date immunization schedules, have developmental, cognitive and social measurements of progress recorded, receive results of screening tests for sight, hearing, or disabilities, and increase the possibility of having minor illnesses treated without complication.

In a PCMH, children receive ongoing preventive/well childcare, acute illness or episodic care, and care for
chronic conditions throughout their childhood. The American Academy of Pediatrics (1991) endorses the PCMH as the most appropriate choice for meeting children's changing healthcare needs, over time. According to Altman and Reinhardt, (1996), approximately 30% of all children have acute medical problems, such as otitis media, or chronic conditions such as asthma. These children have an even greater need for a primary care medical home than "well" children. Parents who have established primary care medical homes for their children have greater opportunity to receive parenting tips, educational materials, and preventive healthcare advice as well as ongoing support for their family.

Utilization of PC providers as the most appropriate resource then, may not only reduce unnecessary costs or improve the overall quality of services provided (Hirsh & Barela, 1996), but may also improve the health status of children. Even though numerous experts and pediatric associations believe that all children should have a primary care medical home, primary care resources continue to be underutilized and the problem of universal access to primary healthcare providers remains.
Concurrent with the primary care utilization issue is the concern of over-utilization of hospital emergency rooms (ER) for non-urgent conditions such as well-baby care, otitis media or mild to moderate asthma (American Academy of Pediatrics 1994; Aday, 1993; Rosenbaum, 1993; DeAngelis, Fosarelli & Duggan, 1985; Orr, Charney, Straus & Bloom, 1991; Cristoffel, Gaiside & Tokich, 1985). This over-utilization, then, contributes to the cost of healthcare because more expensive resources are tapped to meet children’s healthcare needs. When their child needs medical attention, parents may not be concerned with the differences in services, costs or resource utilization. Further, they may lack knowledge about the importance of continuity or on-going care that comes from having a permanent healthcare provider. Therefore, parents who choose an emergency room for their sick child’s needs may not always be choosing the most appropriate provider.

Yet, the cost of care for emergency services is significantly higher than for primary care, especially for well-baby assessments or acute services such as otitis media. The cost differences are less significant
when care for chronic conditions such as asthma are delivered in the ER.

Importance Of Cost Factors In The Utilization Of Pediatric Healthcare Resources

Researchers have documented that the cost of obtaining healthcare services may be a barrier in accessing any health care provider (Moon, 1993; Shirley, 1995). In Table 1, a comparison of costs of care, taken from actual files of providers of pediatric care for primary, acute and/or chronic conditions, is presented.
Table 1 Cost Comparison of Primary and Emergency Services

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Primary Care</th>
<th>Emergency Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well-Baby</td>
<td>$30 - $50</td>
<td>$60 - $110</td>
</tr>
<tr>
<td>Otitis Media</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unilateral</td>
<td>$30 - $50</td>
<td>$60 - $115</td>
</tr>
<tr>
<td>Bilateral</td>
<td>$30 - $50</td>
<td>$60 - $115</td>
</tr>
<tr>
<td>Asthma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild</td>
<td>$30 - $55</td>
<td>$60 - $135</td>
</tr>
<tr>
<td>Moderate</td>
<td>$35 - $70</td>
<td>$75 - $150</td>
</tr>
<tr>
<td>Severe</td>
<td>NA</td>
<td>$95 - $225</td>
</tr>
</tbody>
</table>

Cost Data by Provider, 1995 - 1997
Source: Children’s Hospital of The King’s Daughters

The cost of care per diagnosis as seen in Table 1 demonstrates that there are significantly higher costs to access an ER provider than a primary care provider for well baby, acute or chronic care. Severe asthmatic problems are the exception. Because of the nature of asthma in young children, it may be assumed that episodes of severe asthma attacks require urgent or emergency care. Although this may not always be the
case, no cost data is available to compare asthma primary care to urgent or emergent asthma care. As the example in Table 1 shows, and previous discussion supports, the costs and utilization of appropriate providers needs more study in order to understand the issues more fully.

SUMMARY: RESEARCH OVERVIEW

An integrated pediatric delivery system, where primary care practitioners address children’s needs in the most cost-effective environment, is essential to the health of the children. Currently, healthcare leaders are challenged to re-allocate resources, collect and analyze utilization data, manage dwindling fiscal assets and measure quality outcomes in order to produce cost-effective healthcare services. Leaders and researchers, working together, must develop plans to eliminate barriers that limit access to primary care. Utilization issues and access barriers must be identified and defined before strategies to improve access can be agreed upon.

This research examines a cohort of children in Norfolk, Virginia to determine utilization of primary care medical homes. This research explores the
relationship between access barriers to primary care and the utilization of preventive pediatric providers. Data for the study was obtained from the files of The Center for Pediatric Research (CPR), an affiliate of Children’s Hospital of The King’s Daughters and the Eastern Virginia Medical School in Norfolk, Virginia.

Researchers from the CPR gathered demographic and medical care data from families with young children over a specified period of time in order to assess their immunization status. As part of the earlier work, then, medical records of the children under prior study were available to be used for the current research. The data were in a format that allowed further assessment of the child’s diagnosis and any utilization of healthcare providers for the care associated with specific diagnoses. Additional qualitative data, on parent-reported barriers to access care and reasons why parents chose certain facilities/providers for the care, was also available for analysis from the survey documents at the CPR.

NATURE OF THE PROBLEM

Access is viewed by some as a one-dimensional problem, the lack of funds to pay for care (Kovner &
Jonas, 1999, Millman, 1993). By this measure alone, the magnitude of the problem is substantial and continues to be reported in growing numbers. Factors that affect access to medical care, such as insurance status, income level, educational achievement, ethnicity, and family dynamics have been studied to determine if they influence health outcomes and to what degree.

For instance, Kovner (1995) identified ten and one-half million children without insurance and showed that this lack of insurance contributed to diminished access to healthcare services. A profile of uninsured children compiled by NACHRI (1996) shows that the problem has not been resolved. They reported that one in seven, or a total of ten million children, are still uninsured. Secondly, 54% of full-time employees had family insurance paid for by their companies in 1981, whereas; only 21% were paid in 1993, a significant decrease in compensated healthcare coverage. Finally, NACHRI reported Medicaid covers 1 in 4 children; without it 4 in 10 would remain uninsured and at higher risk for poor health (http://www/chsys.uab.edu/vachri/nachri1.html, 1998).

From 1989 to 1991, two hundred twenty-nine thousand, eight hundred four children in Virginia lacked health insurance (Children's Defense Fund, 1992). This
represented 15.27% of all the children in the state. Of those who received Medicaid healthcare coverage in 1992, 55.4% were children but only 24.5% of Medicaid spending was for utilization of children’s health services. As may be determined from the preceding discussion, the problem of being uninsured still exists in significant numbers (Aday, 1993; Kovner & Jonas, 1995; NACHRI, 1996).

Being uninsured has not been the only factor contributing to lack of primary care utilization. For instance, Shirley (1995) identified more than 43 million people in the United States as being medically underserved, i.e. lacking resources to obtain care. Of that total, 14.2 million were children under eighteen years-of-age and 5.7 million under five years-of-age were shown to have limited access to healthcare services. Further, Moon (1993) found that eight million, four hundred thousand American children, eighteen years-of-age and under, lacked access to utilize primary care. Castro (1994) reported that approximately ten million American children did not have a primary care medical home or they did not utilize preventive services to receive regular check-ups, regardless of their insurance status.
Factors Contributing To Utilization Of Healthcare Providers

Level of parental knowledge

Parents may choose an urgent or emergency healthcare provider when they have no primary care provider, if they believe their child’s need is urgent, or when access to the most appropriate healthcare provider is a problem for them. Parents who access the emergency room for services, regardless of need or time of day, have an assurance that qualified staff will see their child. Although some parents possess the knowledge to choose the most appropriate healthcare provider, factors such as availability of transportation, the time of day, and the age of the child may limit their choices.

In describing the factors that influence parents’ decisions in choosing healthcare providers, Glanz, Lewis & Rimer (1990) referenced Bettman’s 1979 model of decision-making. According to Glanz, et.al. (1990), parents, as consumers, process information and select from among the best alternatives when given the constraints of the situation. In some cases, the best alternative might be to choose the healthcare provider who is closest, most familiar, or most accessible. The
resulting choice, therefore, may not be the primary care provider. For this reason, the parents choice may not be the best provider for continuity of care, the most cost-effective delivery system, or the best qualified provider for their child’s preventive, acute or chronic healthcare needs.

Further, not choosing a primary care provider for on-going primary or preventive care may lead to misutilization of the healthcare system whenever it is needed for subsequent visits. Researchers, studying costs and outcomes, have determined that other factors such as education, income and ethnicity of the parents have an effect on the utilization of healthcare providers (Moon, 1993; Shirley, 1995; Gadomski, Perkins, Horton, Cross and Stanton, 1995).

Ethnicity

Children, from minority ethnic groups and the uninsured were least likely to have access to a usual source of primary care (Newacheck, Stoddard & Hughes, 1996). Specifically, 22.5% of children from ethnic minority groups such as African-American, Hispanic American, Asian/Pacific Island American and Native
American, and/or children who were uninsured or poor were not likely to have a regular primary care physician.

The effect of ethnicity as a barrier to health outcomes has been documented to show that of all ethnic groups, Hispanic children receive less preventive healthcare than the total population. A contributing factor may be that language barriers, lack of insurance and/or cost of services for children all reduce the possibility of primary care utilization. A subset of Hispanic children from migrant worker families has even fewer healthcare visits and little, if any, continuity of primary care. As a result, Hispanic infant death rate is 25% greater than the national average while the total life expectancy for any Hispanic is about one-half that of the average American. (Healthy People 2000, 1992).

In the African American (AA) population, fewer visits to physicians were recorded than those of non-African American children. Secondly, African American children receive 20% fewer immunizations on time. Additionally, 23% of African American children are uninsured and 20% have no usual source of medical care. By comparison, 14% of White children are uninsured and 13% have no usual source of care (Healthy People 2000,
1992). As a result, African American babies are twice as likely to die before their first birthday.

In summary, Black and Hispanic children access and/or receive fewer healthcare services than their White peers and they are less likely to have a usual source of primary care or be up-to-date on their immunizations. Their infection and mortality statistics are also higher than all other ethnic groups. When factors such as language/cultural barriers, lack of permanent residences, and/or being poor and without health insurance are documented, then poorer healthcare outcomes may be reported.

Travel Distances and Waiting Times

The most frequently reported barriers to obtain primary care for childhood immunizations found by Morrow, Rosenthal, Lakkis, Bowers, Butterfoss, Crews and Sirotkin (1998) were clinic-waiting times. Respondents reported transportation problems as barriers, although travel distance was not determined. Newacheck, Hughes & Stoddard (1996) assessed the impact of waiting times in offices, medical centers or clinics, and also the distance to a provider. As may be seen in Table 2,
parents of children who were from minority groups, who were poor or uninsured, indicated longer waiting times and greater travel distances for all providers when compared to White, non-poor and insured respondents.

Table 2 Access Barriers Reported for Children with Usual Sources of Care.

<table>
<thead>
<tr>
<th>POPULATION CHARACTERISTIC</th>
<th>n</th>
<th>TRAVEL TIME 30 MINUTES OR MORE</th>
<th>OFFICE WAIT 60 MINUTES OR MORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor families</td>
<td>963</td>
<td>19.2%</td>
<td>23.3%</td>
</tr>
<tr>
<td>Minority children</td>
<td>2,701</td>
<td>18.8%</td>
<td>20.4%</td>
</tr>
<tr>
<td>Uninsured children</td>
<td>1,013</td>
<td>20.4%</td>
<td>19.1%</td>
</tr>
<tr>
<td>White, non-poor, insured children</td>
<td>3,207</td>
<td>11.9%</td>
<td>7.6%</td>
</tr>
<tr>
<td>All children</td>
<td>6,609</td>
<td>14.5%</td>
<td>11.9%</td>
</tr>
</tbody>
</table>

Source: Newacheck, Hughes & Stoddard (1996)
Healthcare Systems Structure

Hospital clinics, community centers and programs such as the Maternal Child Health (MCH) initiatives have been developed to overcome barriers that impede access to primary care providers. However, some characteristics of these systems may contribute to the problems of access rather than enable it. For instance, the lack of coordination of MCH well baby clinics with Women’s, Infants and Children (WIC), Early Intervention (EI), and Children’s Specialty Services (CSS) has led to fragmentation of care, lack of continuity of on-going care, mismanagement or loss of medical records, and lack of electronic patient data across the three systems. In addition to the forgoing factors, Houseman, Butterfoss, Morrow and Rosenthal (1997) reported that lack of transportation, inadequate knowledge about hospital clinic services, parental attitudes about community medical centers or health departments, and hours or procedures have also contributed to the access problem.

Teaching hospitals, particularly pediatric hospitals across the nation have established primary and specialty care clinics as a forum to educate medical students and other staff-in-training. Although any child may be seen
in a hospital affiliated site by students or well-qualified staff, more than one-half of the children who utilize hospitals are either uninsured or covered by Medicaid (Bonar, 1995). Parents who utilize hospital-based clinics become familiar with the facility, the system, and the staff during routine care visits and then often seek care in the emergency room for non-emergency needs when the primary care clinics are closed. While the provision of primary care in a children’s hospital clinic or an on-campus physician’s office may provide cost-effective delivery systems, it may also provide the parent with a perceived “right” to utilize the hospital’s other services such as the emergency room or urgent care center during the evening, night or weekend hours. Having pediatric primary care services available in the same facility as the 24-hour emergency room or urgent care center may then contribute to over utilization of emergency and urgent care providers rather than improving primary care utilization.

The most common reasons reported by parents for utilizing a hospital clinic were because one was accessible by public transportation, the child had been born there and/or they were familiar with the hospital-affiliated providers. (Consortium for the Immunization
When providers are not easily accessible and when other barriers such as time of day or appointment constraints occur, then, parents chose emergency room services for their sick child. When this occurs with well babies, or for children with acute problems, such as otitis media, or chronic conditions such as asthma, then emergency care providers are faced with continuity and quality challenges that primary care providers have been more consistently trained to meet (PEHDS, 1996).

Emergency Services

DeAngelis, Fosarelli and Duggan (1985) reported that one-third of visits to pediatric emergency rooms were for non-urgent problems that might have been treated in primary care settings. Differences have been shown between lay parents and medically trained parents in judging the severity of a child's medical condition and the need for emergency services (Halperin, Meyers, & Alpert, 1979). Ethnic minority parents, under 21 years of age, with lower income levels and less than high school education, or headed by a single parent, have been shown to utilize emergency services for primary care needs (Rosenbaum, 1993). Cristoffel, Gaiside and
Tokich (1985) reported that one in six acute medical care visits were in emergency rooms where the cost of care was higher than the cost in a primary care setting.

Emergency room care, notwithstanding the higher cost, lacks the ability to meet continuity of primary care needs while the primary care medical home is focused on it (NACHRI, 1996).

Summary: Nature of the Problem

Barriers that have been shown to limit access to a PCMH as the usual source of care include being a minority, a single parent, having little or no income, and being uninsured or uneducated. Barriers to access care may also be the waiting times to see a provider, travel distances to a facility, and proximity to an emergency room.

Barriers to access healthcare may limit utilization of primary care providers and increase the potential for emergency room utilization for non-urgent needs. Inappropriate utilization of emergency services further reduces the effectiveness of primary care programs, may
negatively affect health outcomes, and compromises the resources allocated for true emergency utilization.

To understand utilization and access to healthcare issues such as those described in the preceding section, Aday's model, The Framework for the Study of Access (1993), was used. Specifically, characteristics of the delivery system and utilization of healthcare services were studied. Additionally, characteristics of the population-at-risk and the factors associated with customer satisfaction with the system were identified.

PURPOSE OF THE STUDY

Using Aday's Framework for the Study of Access to Medical Care as the basis for the research, four of the five component parts of the model were examined to determine how sociodemographic, need, and health system factors contributed to utilization of primary care providers. Further, it was designed to measure whether the participants met the Guidelines for Preventive Care Visits as established by the American Academy of Pediatrics.
RESEARCH AIMS

The specific aims of this research were:

1. To examine the association between socio-demographic factors and utilization of primary care services in the study cohort for preventive, acute and chronic care needs.

2. To determine the association between health system factors and utilization of primary care services.

3. To determine if the American Academy of Pediatrics Guidelines for Preventive Care Visits were met by the study participants in the first and second years-of-life.

RESEARCH QUESTION

This research was undertaken to determine the factors associated with parent’s choices of healthcare providers for a representative group of children less than two years-of-age. Their preventive and primary care utilization patterns were assessed as part of the process. The research questions relevant to this study were:

1. Are parental socio-demographic characteristics
determinants of primary care utilization for their children (0 to 24 months).
2. Are parent perceived barriers to access associated with diminished utilization of primary care providers?
3. Does the study cohort meet the guidelines established by the American Academy of Pediatrics for preventive care visits for children under two years-of-age?

RESEARCH HYPOTHESIS

Two working hypotheses were developed with sub-hypotheses for each one. They included:

Hypothesis 1: Differences in socio-demographic characteristics of parents predict Primary Care (PC) utilization.

Hypothesis 1A: Non-black parents* will utilize PC providers more frequently than Black parents for their child’s care.

(* The term Non-black represents those parents who reported ethnicities of White, Hispanic, Asian, Native Indian or Other, whereas Black refers to African American parents. All ethnic groups other than White and African American were very small (less than 6%).)
Hypothesis 1B: Single parents* will utilize the PC providers less frequently for their child’s care than parents in families.

(* Single parents were those without visible reported support systems, whereas; parents in families may be married or living with other adults who could provide support systems.)

Hypothesis 1C: The rate of utilization of PC providers for children will be lower among older parents* as compared to younger parents.

(* Older parents were those over 23 years-of-age, past the age-of-majority by, at least, five years.)

Hypothesis 1D: The number of visits to PC providers will increase as the level of parent’s education increases.

Hypothesis 1E: The rate of utilization of PC providers will increase as the parent’s level of income increases.

Hypothesis 1F: There will be a difference in utilization of PC providers between military and non-military families.

Hypothesis 1G: Primary care utilization rates will meet or exceed the guidelines for preventive care visits
in the first two years-of-life as set by the American Academy of Pediatrics.

Hypothesis 2: Health system factors will predict utilization of primary care providers.

Hypothesis 2A: The rate of PC utilization will be higher for military families than for non-military families.

Hypothesis 2B: The rate of utilization of PC providers will vary by insurance categories i.e., no insurance, Medicaid, CHAMPUS, and private insurance.

Hypothesis 2C: Parent reported barriers would indicate which system factors impede utilization.

OVERVIEW OF THEORETICAL FRAMEWORK

The conceptualization of the terminology “access to medical care” can be traced back thirty years to Andersen and Aday (1974). Aday, Andersen and Fleming (1980) studied the factors inherent in the behavior of providers, consumers, systems and policy makers. Further, Aday measured access in the context of equity for all citizens (1981). The Framework for the Study of Access to Medical Care (Figure #1) was published by Aday
in 1993. Inherent within the Aday framework are five important concepts: 1.) Health policy, 2.) Characteristics of the health delivery system, 3.) Characteristics of the population-at-risk, 4.) Utilization of health services, and 5.) Consumer satisfaction.

Access to health delivery systems and utilization of the most appropriate provider, according to Aday, may be directly related to the health policies that have been developed to serve the needs of various populations. For instance, those covered by Medicaid programs may experience fewer barriers to access healthcare providers than those who are uninsured and/or not qualified for Medicaid funding.

Aday determined that those with certain descriptor characteristics, such as being poor, uninsured, non-white, uneducated, and/or a single parent may place additional constraints upon one's ability to access healthcare providers. These descriptors were defined as enabling factors while predisposing conditions, those that cannot be changed, such as one's age, gender, and ethnicity were identified as the characteristics of the population-at-risk (see Figures 1).

The concepts of the characteristics of the delivery system as defined by Aday included the resources needed
to insure availability of services as well as the volume and distribution of providers/services. Secondly, health delivery system characteristics included organization, structure, and ways to enter and use the system. Structure and process barriers, real or perceived, were identified as determinates of utilization patterns. A fourth component, customer satisfaction indicators related to cost, quality and convenience could also be identified as determinates of utilization of healthcare resources (refer to Figure 1).
Figure 1 Framework for the Study of Access to Medical Care (Aday, 1993)

HEALTH POLICY
- Financing, Education
- Manpower
- Organization

Characteristics: Health Delivery System
- Resources; Volume, Distribution
- Organization; Entry, Structure

Characteristics: Population-at-Risk
- Predisposing or Enabling
- Need; Perceived, Evaluated

Utilization of Health Services
- Type, Site
- Purpose, Time Interval

Customer Satisfaction
- Convenience, Coordination
- Courtesy, Information
- Costs, Quality

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Figure 2 Adaptation of Current Study to the Framework for the Study of Access to Medical Care.

HEALTH POLICY
Financing, Education
Manpower, Organization (not measured)

Characteristics: Health Delivery System
Provider: Hospital, Public Clinics, Offices
Purpose: Primary or Emergency Location

Characteristics: Population-at-Risk
Predisposing; Age, Gender, Race
Enabling; Income, Education, Insurance, Family Status
Need; Diagnosis

Utilization of Health Services
Number of Primary Care Visits
Purpose: Primary, Acute, Chronic

Customer Satisfaction:
Number of Return Visits
Use of Same Provider
Use of New Providers
Location, Transportation, Quality, Costs

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
The Framework for the Study of Access to Medical Care (Figure #1) was studied and then an adaptation of the model to the current research was completed (Figure #2). For example, the characteristics of the population-at-risk as found in the Norfolk cohort were the study variables of age, race, gender, income, insurance, education, and family support status. Characteristics of the delivery system, then, examined settings of providers (hospital, clinics, offices), location and number of primary care providers.

Study of the utilization of healthcare providers incorporated analysis of the type of service (well baby, acute or chronic), the number of providers per child, and differentiated between primary and emergency services by diagnosis. Finally, the number of return visits to the same provider, the frequency of utilization of new providers, and parent-reported barriers to access healthcare providers were considered as customer satisfaction indicators.

DEFINITIONS

Access: A concept indicating that people have a healthcare place where they can go for care and the means, including transportation, finances, location and
parents understanding of the need, to obtain healthcare (Aday, 1993).

**Acute Care:** Episodic care for acute conditions that are managed by primary care sources, specialists or emergency care practitioners.

**Appropriateness of Choice:** The elements of decision making by which a parent chooses a primary care provider or an emergency healthcare provider.

**Asthma:** For this study, all children with a diagnosis of asthma and also children presenting with symptoms indicative of asthma such as wheezing, respiratory airway disease, etc. In this study, asthma was considered a chronic condition.

**Barriers to Care:** Those real and perceived factors that interfere with a parent gaining access to a health care provider for their child's healthcare need(s). Factors may include, but are not limited to, age of parent, income, insurance status, ethnicity, language and cultural differences, education, proximity to a healthcare provider, satisfaction with the provider, parents understanding of the child's needs, waiting times, etc. (Aday, 1980)

**Chronic Care:** Care for chronic conditions that were managed over a continuum of time during the child's
participation in the study. Children may have received their care from primary care sources or specialists. 

Enabling Factors: The possession of knowledge, wealth, insurance or other attributes that more readily allows one to access providers or receive healthcare services (Aday, 1993).

Emergency Care: Care delivered in an urgent or emergency setting and administered by trained emergency care practitioners. Conditions usually considered as emergency events include airway distress, severe accidents, trauma, unresolved pain, or persistent symptoms without relief.

Otitis Media: All children who had a diagnosis of otitis media whether unilateral or bilateral. For this study, otitis media was considered an acute condition.

Outcome: Primary care visit (realized access) for any reason.

Potential Access: Having the health system resources available, but not utilized (Aday, 1980).

Predisposing Factors: Those attributes one possesses that they cannot change such as age, gender and race (Aday, 1993).

Primary Care: Care provided to clients by a health care practitioner recognized as the one who gives on-going care over time (Himmelstein & Woolhandler, 1995).
Primary care providers for this study were limited to nurse practitioners, pediatricians, family practitioners, and internists.

**Primary Care Medical Home (PCMH):** A term used to describe the association developed between a child and a primary care practitioner for on-going and preventive care, throughout the childhood years (Haggerty, 1995).

**Realized Access:** The term that refers to one’s having reached and/or received medical care (Aday, 1993).

**Standard of Pediatric Care:** The number of visits considered to be appropriate per year (5 in year 1; 3 in year two; Total of 8) according to the American Academy of Pediatrics Recommendations for Preventive Pediatric Health Care (1995) (Appendix A).

**Utilization:** A history of the use of health care services for a specific group or individual or the observed visits of a study participant to healthcare service providers.

**Well Baby Visit:** A continuum of preventive care provided to a baby or young child who is normally well when presenting for the visit. Measures of growth and developmental maturity and recommended immunizations were completed by primary care sources during these visits. In this study, all well baby visits were considered as preventive care.
LIMITATIONS

There were inherent limitations in this study of factors affecting access to healthcare services. This study has been focused on the characteristics of the health delivery system, the population-at-risk, and utilization of health services. Social programs and political factors such as current regulations may also have an impact on access to healthcare but they were not studied.

This study was limited to an historical cohort of Norfolk's children under two years-of-age. The study was also limited to certain factors that may have contributed to utilization of healthcare services and included: the diagnosis, type of health insurance, family income, age, ethnicity and gender of the child, age and ethnicity of the parent, family support status and educational level of the parent, type and number of healthcare providers and satisfaction indicators. There may be other factors that affect access to healthcare but they have not been included in this study.

The analysis of data was limited to relationships between variables, and comparisons of the differences between variables. Variables could be recoded but not changed since they already existed. Manipulation of the
variables was limited to the existing data and no new data was introduced. No control groups were available to compare to existing groups and no relationship between cause and effect could be examined.

Furthermore, the data for this study was taken from two distinct data bases, one in Paradox and a second in Stata. One set contained numerous measures of the variables per participant while the other database had one measure of each variable per participant. Some variables did not appear in both datasets. All data was transformed from the Paradox and Stata format into two databases in the Statistical Package for the Social Sciences (SPSS) format and therefore, some limitations may have occurred in the translation and loss of the data. Manipulation of interval data to combine the multiple entry data sets into single line data may be a limiting factor.

This study was retrospective in nature and designed to analyze demographic variables in order to make comparisons, determine differences between participants, or establish relationships in provider utilization patterns. As such, it was taken from questionnaires, medical records and interviews with study participants. Initial data, taken from randomly selected samples, and subsequent data from participant records and parent
interviews, may be subject to human error in transcription or interpretation. Some questions were unanswered by participants and all files may not have been available from the providers. All participant files may not contain all records of all medical visits during the observation period and may limit the interpretation of the data.

Finally, this study may not be generalizable to other cities of similar size because the population here contains a proportionately higher number of military families than most cities.

VARIABLES

The variables of interest are found in Figure 3.
**Figure 3 Variables: Access to Primary Care Study**

**Dependent Variable:**
Number of Primary Care Visits

**Independent Variables:**

- **Diagnosis:**
  1. Well Baby
  2. Otitis Media
  3. Asthma

- **Age:**
  1. First year-of-life
  2. Second year-of-life

- **Insurance:**
  1. Private
  2. Military
  3. Medicaid
  4. None

- **Living Arrangements:**
  1. Family support, i.e. married or living together, or living with relatives
  2. Single Parent

- **Ethnicity:**
  1. Non-Black
  2. Black

- **Education:**
  1. Less than high school
  2. High school graduate
  3. College graduate

- **Income:**
  1. <$9,999
  2. $10,000 - $19,000
  3. $20,000 - $29,000
  4. >$30,000

- **Parent-reported Barriers:**
  1. Transportation
  2. Hours
  3. Waiting time
  4. Cost
  5. Location

- **Type of Service:**
  1. Military
  2. Non-military

- **Number of Providers:**
  1. One
  2. Two
  3. Three or more
SIGNIFICANCE OF THE STUDY

Importance of Determining Primary Healthcare Services Utilization Patterns and Identifying Access Barriers

The significance of understanding the issues of access and appropriate utilization of healthcare services, particularly primary care services for children, should not be underestimated. Identification of Primary Care Medical Homes (PCMH) for children with well baby, acute care, and/or chronic care needs is important to assure positive health outcomes. Policy analysts, program evaluators and healthcare administrators play a key role in determining which pediatric needs are met and defining strategies to help those whose needs are not met.

Further, research to determine cost, quality and resource factors in the utilization of appropriate providers is imperative. This study was designed to determine the significance of the barriers that interfere with appropriate utilization of healthcare services for children. Analysis of the barriers may show how they influence the most appropriate utilization of healthcare services. The research findings could further serve as a catalyst to change or increase
pediatric services, develop cost-effective managed care strategies or benefit those studying the issues of access for political or other purposes.

Importance of Reliable and Valid Community Profiles of Pediatric Data

Healthcare planners in urban areas should have a valid and reliable community profile of pediatric healthcare data that demonstrates practice patterns, utilization of appropriate levels of care, cost of care, and any barriers that affect access to or receipt of healthcare. Factors that have been shown to strengthen urban health systems include obtaining local health utilization data on healthcare practices, comparing health indicators between different inner-city areas, and increasing public awareness of healthcare concerns (World Health Assembly WHO, 1993).

This study should provide both inner city and health services utilization data that may be useful for health planners, local, regional or state administrators, medical groups, interested citizens and healthcare system leaders in Norfolk, VA.
Importance of Understanding Under-Utilization of Primary Care Services and Over-Utilization of Emergency Services

A growing concern about children's health issues and the cost of medical care in America further support the need for more information to determine why primary healthcare is not available to or accessed by all children. As more attention has been focused on inappropriate use of emergency rooms by people seeking non-emergency care (Gadomski, Perkins, Horton, Cross & Stanton, 1995), factors that contribute to over-utilization of emergency services and, subsequently, under-utilization of primary care resources have been identified and studied. The current research to identify access barriers in a specific cohort of children and study their utilization patterns may provide important data for future work. Findings may also have an impact upon future development of cost reduction strategies, primary care programs, and other systems that improve access to healthcare.
CONCLUSION

In summary, this research analyzed access barriers and other factors known to affect access to healthcare services and utilization of appropriate healthcare resources. The Framework for the Study of Access to Medical Care was used as the theoretical basis by which to evaluate relevant data that was taken from a cohort of children in Norfolk, Virginia.
Access to Medical Healthcare

In Webster’s New Collegiate Dictionary (1981), access is defined as “permission, ability to enter, approach, a way to get at” and “a means of access”. The US. House of Representatives publication, The Discursive Dictionary of Health Care (1976), lists access as “a term very difficult to define...and...hard to measure”. Rossi and Freeman (1993) indicate that access refers to the structural and organizational arrangements that facilitate participation in the (healthcare) program. Having access to a healthcare service, then, could mean that the service is not only available and affordable, accessible and acceptable, but also accommodating of the patients needs (Shi and Singh, 1999).

While the term, access, is used frequently by healthcare consumers and providers alike, it is clear that access is most often viewed as a concept that relates to a family’s ability or willingness to become part of the healthcare system or enter into an arrangement for healthcare services. Access can be
measured in the context of individual utilization, components of the delivery system and in relation to a health plan. Therefore, the access model cannot be fully explained simply by analyzing the health status of clients or even their general concerns about healthcare (Penchansky & Thomas, 1981). It must also include data about the utilization of the healthcare system and the cost of healthcare services.

The Development of a Model to Understand Access to Medical Care

Initial studies by Anderson and Feldman in 1956, Anderson in 1963, and Anderson & Andersen in 1967 focused on costs of health care rather than issues of access. In 1968, Andersen developed a behavioral model to explain the utilization of health services and identified factors that led to or impeded access. In 1975-76, data from a national household survey taken by the Center for Health Administration Studies (CHAS) and the National Opinion Research Center (NORC) was used to identify various access factors (Aday, Andersen, Fleming, 1980). The 1975-76 data included national indicators of access to hospital-based primary medical
care. As a result of her work over time, Aday developed the Framework for the Study of Access to Medical Care. The model provided descriptions of factors that could be used to understand access for those utilizing primary medical care offices (Aday, Andersen & Fleming, 1980).

Although the five studies conducted from 1963 to 1975 by Andersen, et al. did not seek similar information, the results of certain demographic and other data allowed the researchers to make comparisons across studies, and note trends in some cases. Whereas, Andersen’s early work lacked focus on the important interactions that take place as people attempt to access healthcare providers; under Aday’s direction, they studied them specifically.

Components of the Model

Potential or Actual Access to Medical Care

Aday focused her study of access to medical care by describing the potential for, or actual, entry into/utilization of the healthcare system. Potential access was judged by indicators of the patient’s perceived need to access care, i.e. health status,
nature of the problem, urgency of need for medical care, etc.; whereas, realized access was defined by the actual recorded receipt of care.

Characteristics of the Population-at-risk: Predisposing or Enabling Factors

In Andersen's initial behavioral model of the 1960's, the identification of characteristics such as one's demographics, social structure, health beliefs, and resources of personal/family/community support, and perceived need, formed the basis for the determinants of access. Aday expanded upon this body of knowledge by categorizing levels of income and education, insurance coverage and health status as enabling factors to access medical care. Additionally, ethnicity, gender and age were categorized as predisposing access factors since they were pre-established and could not be manipulated.

Characteristics of the Delivery System

To determine how the delivery system was impacted by access factors, Aday studied resource utilization,
volume and distribution of services, organizational dynamics, and components of the structure and entry processes. Accessibility factors such as the proximity of the healthcare facility to those who need it, the hours of operation, the types of services offered, and the numbers of resources available to meet community needs were factors that improved or impeded access to healthcare resources.

Utilization of Health Services

Availability of services and accommodation of the needs of the consumer were identified as determinants of one’s utilization of health services. Aday’s Model categorized utilization of health services by type, site, purpose, and time intervals. In the adaptation of Aday’s model to this study (Figure 2), time intervals were not measured while the types of services were primary or emergency visits.
Customer Satisfaction

According to the Aday Model, customer satisfaction with the quality of care, cost of services, system conveniences, or resources may be related to repeated access, i.e. return to the healthcare system. Data on health outcomes, taken from sources such as patient surveys or medical records, and utilization of services (realized access) are important aspects of Aday’s Model. Although medical health outcomes were not measured in this study, factors such as how many times children returned to the same provider or utilized a new one were measured. Additionally, parent-reported barriers to utilize healthcare services and their reason for utilization of certain providers were obtained.

In 1993, six focus groups were conducted with 41 parents of young children to determine their views on services they received from primary care immunization providers in Norfolk, VA (Houseman, Butterfoss, Morrow, and Rosenthal, 1997). Parents reported complexities in accessing private, public or military providers for their child’s preventive care. They listed appointments systems, waiting times, office processes, transportation, cost, and information dissemination as
areas where customer satisfaction with the system could be improved.

Access: Enabling or Predisposing Factors

In the following section, studies found in the literature that appear to be similar to the sociodemographic factors of the children in the research cohort are discussed. Enabling factors and predisposing factors that increase or decrease the possibility of obtaining access to healthcare providers are addressed as separate entities.

Enabling Factor: Health Insurance

Newacheck and Halfon (1988) examined the 1982 National Health Interview Survey of physician visits to determine the influence of Medicaid insurance on preventive healthcare utilization. The cost implication of the sample of 16,838 children, aged 5 to 16 years of age, showed that those without insurance were less likely to receive preventive medical care than those with higher income or insurance.
Himmelstein and Woolhandler (1995) showed that the uninsured lacked access more than 50% as often as their insured counterparts. A higher percentage of African-Americans (4.1%; 90%CI=3.4%, 4.8%) and Hispanics (3.4%; 90%CI=2.7%, 4.1%) were unable to access care while the poor or low-income poor were at greatest risk. Further, those living in standard urban statistical areas were more likely to access care than the rural residents.

Stoddard, St. Peter, and Newacheck (1994) studied children from 1 to 17 years-of-age to determine the association between medical care received by the insured and uninsured. They reviewed medical records of those with a diagnosis of earache, ear infections, asthma, and other conditions. Those with insurance were more likely to see a physician for primary or emergency care than those without insurance. The comparable unadjusted odds ratio was 2.04 for children with acute ear problems and rose to 2.84 for two or more ear infections in a year. In children with asthma or problems associated with wheezing, the odds ratio for utilization of a physician was 1.87. After controlling for all variables, the effect of having health insurance coverage remained significant. Those with insurance received more medical care for their conditions than those who were without insurance.
Summary: Insurance as an Enabling Factor

Having insurance has been shown to increase the probability of receiving primary healthcare services, and lack of insurance may contribute to inappropriate utilization of services.

Predisposing Factor: Ethnicity

Newacheck, Hughes, and Stoddard (1996) demonstrated that children from minority groups were more consistently at risk for access to healthcare. While over 83% of all children reported seeing a specific physician as their usual source for primary care, approximately 33% of minority children from poor families (P<0.01) did not see a specific physician for primary care. On further examination of the data, grouped according to perceived health status, children in good to excellent health from White, non-poor, insured families reported visiting specific physicians more than twice as many visits as their nonwhite, poor and uninsured counterparts. A similar variation was
shown in the children who perceived their health status to be poor to fair.

Rosenbaum (1993) reported that under utilization of primary care providers was due to cultural differences. Ethnic groups reported language barriers as one cause of limited access to healthcare. Hispanic families reported a lack of familiarity with complicated healthcare delivery systems and geographic or transportation impediments were included as barriers to the utilization of primary care services.

Kleinman, Gold and Makus (1981) studied 110,000 respondents to determine if equity by ethnicity for ambulatory healthcare utilization existed. Data was grouped into three age categories with children, seventeen years-of-age and younger, in one group. After adjusting for age and health status, data showed that Blacks had significantly fewer primary care visits than Whites. Regardless of race, a consistent trend to over-utilize the ER for non-emergent care by those with lower income levels was observed. In children under the age of six, findings between ethnic groups and income levels were particularly large with Black children utilizing two times more ER services than White children.

McCormick, Kass, Elixhauser, Thompson and Simpson (2000) reported that White children were less likely
than children from other ethnic groups to be at risk for access to providers of healthcare. Hispanic children were most likely to be uninsured (21.2%). When compared to White children, both Black and Hispanic children were more likely to be covered by Medicaid (41.3%) rather than privately insured as White children were (11.5).

Summary: Ethnicity as a Predisposing Factor

The predisposition of being White has been shown to be an enabling factor while being from a minority group is predisposing to limited access for appropriate healthcare services. A greater percentage of Non-white ethnic groups are without insurance or are on public assistance programs than White children as reported by Kass, Weinich and Monheit (1996) and others in the previous discussion. Being from an ethnic minority group may be a factor in determining the at-risk status for access to primary healthcare services.
Enabling Factor: Income

Benzeval et al (1992) sampled a population of 2,703 to determine what income factors influenced the status of perceived health. Income factors were defined as having money to purchase goods and services for housing, transportation and/or healthcare. Those with the least money reported poor health ten times more often than other participants. At the same time, 90% of those with adequate income reported being in good health. Overall, their results strongly suggested that factors of low income are associated with poor health. Perrin (1999) reported that millions of children in the United States are poor enough to become eligible for Medicaid coverage, yet only one-third of them have been enrolled over the past 10 to 15 years.

McCormick, Kass, Elixhauser, Thompson and Simpson (2000) studied demographic characteristics of children from the Medical Expenditure Panel Survey (MEPS) and the Healthcare Cost and Utilization Project (HCUP). There were 10,500 families with 6,286 children less than eighteen years-of-age in the 1996 sample. Their analysis showed that children who were less than one year-of-age were more likely than children of any other age group to be poor and lack insurance coverage. Children whose
families had lower incomes were reported to be in fair to poor health and were more likely to be covered by Medicaid (46.8%) than children in good to excellent health (19.8%).

Summary: Income as an Enabling Factor

When compared to those with higher incomes, those with low incomes have been shown to lack primary care and have poorer health outcomes. Low-income families remain poor, uninsured and at-risk for access to primary healthcare services and show poorer health outcomes.

Enabling Factor: Family Support Status

Cunningham & Hahn (1994) studied differences in healthcare services utilization between two parent and single parent families. They surveyed 14,000 households with 9,200 children grouped by ages 0-5 and 6-17 years-of-age. More than 40% of all the children in single parent-headed families were below the federal poverty line as compared to 13% of two-parent families with children. Further, 57.6% of children in the 0-5 years-
of-age groups in single parent-headed families were below the poverty line as compared to 36.6% of two-parent families. Children from single parent-headed families utilized primary care services 35.3% of the time and illness-related care 53.8% of the time. This was statistically significant at the p<0.05 levels when compared to two-parent families who utilized the same services 41.0% and 60.5% respectively.

Feigelman, Duggan, Bazell, Baumgardner, Mellitis, DeAngelis (1990) revealed that single parents were more likely than two parent families to take their children, particularly infants, to an Emergency Room provider. In a six-month study of pediatric primary care at Johns Hopkins Hospital, 708 children from 2 to 12 months-of-age were followed to determine their primary or emergency room utilization patterns. Factors found to be important correlates of ER use included the parent’s marital status, their perception of the child’s illness, and available support systems. In asthmatic children, the ER utilization increased significantly when there was evidence of a family support system.

McCormick, et al. (2000) showed that children in single parent families where the parent was not employed were least likely to have private healthcare insurance (8.3%). Conversely, children in single parent families
were the most likely to be covered by publicly insured systems (83.7%). McCormick, et.al. (2000) quoted data analyzed by Weinick and Monheit in which they found that children who were in single parent families were more likely to be uninsured. The problems observed in single parent families have continued to increase as the percentage of single parents has risen from 16.9% in 1977 to 24.3% in 1996.

Summary: Family Support Status as an Enabling Factor

The previous section of studies demonstrates that many single parents are without adequate resources of income, insurance, education or family support (Cunningham & Hahn, 1994; Feigelman, Duggan, Bazell, Baumgardner, Mellitis, DeAngelis, 1990; McCormick, et al., 2000). This lack of support has been shown to affect their access to primary healthcare services. Conversely, studies have shown that two-parent families or families with support systems are more likely to utilize primary care for their children and report having higher incomes.
Enabling Factor: Education

Children from households where parents' educational levels were at the high school level or above were more likely to be privately insured (86.8%). According to data taken from national surveys between 1988 and 1996 by McCormick, et al. (2000), children with one parent who was educated at the high school level had private insurance 63.6% of the time while only 25.3% of the children had insurance if the parent had less than a high school education. Children whose parents had less than high school education were most likely to be uninsured (19.7%) or most likely to be covered by public health insurance (55.0%).

In their book, "Understanding Health Policy: A Clinical Approach", Bodeheimer and Grumbach (1995) state that socioeconomic status, i.e. education, income/occupation and family structure, rather than availability of healthcare services may be the dominant determinant of one's health status. Bodeheimer and Grumbach suggest that the health status of children whose parents have higher educational levels is better than those with less education.
Summary: Educational Levels as an Enabling Factor

Having a parent who is better-educated increases the potential of adequate primary care visits for children. Higher levels of education are positively correlated to higher incomes, health insurance coverage, and increased primary care utilization.

Health System Factors: Utilization of Primary Healthcare Services and Related Studies

Himmelstein and Woolhandler (1995) reported that cost of services was the major barrier to the utilization of healthcare providers for both the insured and the uninsured. They analyzed the 1987 National Medical Expenditure Survey (NMES) to determine those who needed but did not receive health care services in 1986. Of the responses analyzed, 65.1% (90%CI=61.7%, 68.6%) reported high costs or lack of insurance as their primary reason for failure to access primary care for a perceived need.

Himmelstein and Woolhandler (1995) assessed that over 30,000 patients were unable to utilize healthcare services during one year due to the high cost of care or their lack of insurance. Certain factors contributed to
lack of access or utilization of preventive, emergency, pediatric and other services. The factors included lack of an appointment, long waiting times, refusal to be seen by a provider, having a non-severe illness, or no mode of transportation.

Morrow, Rosenthal, Lakkis, Bowers, Butterfoss, Crews and Sirotkin (1998) surveyed parents of 749 children under three years-of-age to determine what access barriers to primary care existed. Over 35% of the respondents reported at least one problem in accessing the healthcare system regardless of their affiliation with a private, public or military provider. Cost of healthcare was reported as one of the barriers; however, the most commonly reported barrier was clinic-waiting time (12%) and this was followed closely by difficulty in obtaining a timely appointment (10%).

Health System Factors: Utilization of Provider; Primary vs. Emergency

Aday et al. (1980) analyzed the 1976 Center for Health Administration Studies (CHAS) and National Opinion Research Center (NORC) questionnaires to determine primary and emergency care utilization. Twelve percent (12%) of respondents in the CHAS study (1976)
and 15.6% from the NORC (1974) study did not utilize a regular healthcare source for either primary or emergency needs. Respondents were considered to have a primary care medical home as their regular source of care if they listed a specific physician or if they named a healthcare facility where they received care when sick, regardless of the appropriateness of utilization.

To evaluate the factors that affect utilization of healthcare providers for children, Wood, Hayward, Corey, Freeman and Shapiro (1990) conducted a national telephone survey of randomly selected households in which there were 2,182 children under 17 years-of-age. They found 10% with no medical insurance, 10% with no regular source of care and 18% who identified community clinics, outpatient departments, and emergency rooms as their usual source of healthcare.

DeAngelis, Fosarelli and Duggan (1985) enrolled 2,942 participants from a pediatric primary care clinic and assessed their emergency room utilization over one year. The 714 enrollees visited the ER 2,044 times. Criteria were used to determine the appropriateness of ER utilization during the study period where 664 visits (32.4%) were judged to be inappropriate. Visits for infant care were more likely to be considered
inappropriate than those for children over twelve months of age (p<0.01). Children with asthma were found to appropriately utilize the ER (p<0.05), but 48.4% (126) of children with asthma made at least one inappropriate ER visit. Those with Medicaid coverage recorded three or more inappropriate visits when compared to the non-Medicaid group.

Orr, Charney, Straus and Bloom (1991) reported an association between ER utilization and hospital-based primary care clinics. From 1976 to 1981, 1,375 families from urban environments were studied. Two-thirds of the children were four years-of-age or younger and all extensively utilized their primary care provider. Children who had a regular source of primary care utilized the emergency room 9.17% of the time, regardless of the type of insurance coverage. When study participants had no source of primary care provider, the use rate for emergency services rose to 17%. Children with no Medicaid and no source of regular care utilized the ER 28.6% of the time.

Feigelman et al (1990), observed the variables that accounted for emergency room utilization for children in the first year-of-life. From November 1986 to April 1987, two groups of children under one year-of-age were followed to determine their utilization of emergency
room services. Structured interviews with parents were administered to identify the relative and combined importance of demographics, access factors, satisfaction levels, health status and social support variables as correlates of ER utilization. Seventy-eight ER users were compared to 117 non-ER users, and no difference in age, sex, race or birth data existed. Maternal age, education levels and employment status were similar between groups. Variables that made significant positive contributions to the multivariate analysis included worry by parent about child’s illness (p<0.001), marital status (p<0.005), and presence of acute recurrent illness (p<0.05).

Hilker (1978) examined pediatric care delivered to 652 children in a large urban children’s hospital emergency room to determine appropriateness of utilization of services. Three categories were identified:

1) Children who had a primary care physician but whose parents could not obtain a timely appointment. 2) Those who chose the emergency room for primary care needs, and 3) Children referred to the emergency room by members of the healthcare professions when they had non-emergency care needs. Results showed that 47% of non-emergency visits occurred while physician offices were
still open and 80% of those visits were by patients who had a private physician. Parents indicated that they preferred to take their children to the emergency room rather than to a primary care provider 46% of the time.

Summary: Health System Factors

Children who are uninsured, poor or nonwhite have been less likely to utilize primary care providers during early childhood. Those with the same factors have subsequently been found to utilize the emergency services more frequently as their source of healthcare for any reason.

Conclusion

The literature review of research in the field supports that enabling and predisposing factors have an impact upon access to healthcare providers. The literature review has identified that income, insurance, age of the child, ethnicity, family support status, education, proximity to healthcare providers and other factors do affect access to care and utilization of the
most appropriate healthcare provider. The significance of these reports from the literature support that socio-demographic, economic and health system factors can and do have independent effects upon primary healthcare outcomes and access to healthcare services.

Barriers to access healthcare still exist in significant numbers. Few researchers have specifically looked at access issues for children in the two years-of-age and younger groups. Yet, they may be the most vulnerable. The reason for the current study was to identify factors that were more unique to the population of children under two years-of-age. Barriers to access healthcare and the utilization of primary care services were studied using enabling and predisposing variables, health system factors and parent-reported barriers. The current study did not assess the health status of children, but monitored utilization patterns by diagnosis and by demographic characteristics to determine if a difference in utilization exists, and if so, where? Further, this research identified health system factors that affect access to health delivery systems or providers and assessed trends or patterns in parent-reported barriers. In the following chapter, the methodology employed to complete the research will be discussed.
CHAPTER III

METHODS

This chapter describes the research design and sources of data, data collection, sample size, and data analyses. Data from the Center for Pediatric Research (CPR) was used for the current study.

BACKGROUND

In October 1992, the CPR was funded by the Centers for Disease Control to study the immunization status of children in Norfolk, Virginia. The funding further allowed for the development of a Consortium for the Immunization of Norfolk’s Children (CINCH). The goal of CINCH was to improve the immunization status of children from 46% to 90%.

Norfolk is an urban city with a population of 261,229 (89,478 households). The ethnic mix consists of 57% white, 39% black and 4% other races. An estimated 2.6% of children were between 12 and 30 months of age and comprised the initial target population for research studies by CPR researchers.

A household survey was designed and a multistage cluster sampling technique was utilized to generate a
probability proportional to size (PPS) sample of Norfolk’s population (Morrow, Rosenthal, Lakkis, Bowers, Butterfoss, Crews, Sirotkin, 1998). Households were defined as houses, individual apartments and mobile homes (Atta, 1994). The clusters were systematically chosen to obtain the cumulative sum of households, per group block. Random sampling techniques were then employed to obtain the sample size. City maps of Norfolk were used for sampling purposes to draft preliminary maps for the clusters. These were further verified and/or corrected by field survey teams.

Each cluster was expected to generate an average of eight eligible children between the ages of 12 to 30 months; therefore, fifty-five clusters were chosen to yield a large enough sample and to account for clusters with low numbers. Of an expected 440 children, 389 (88.4%) were identified and registered as eligible for the study. Sixty-eight of these registered children were unable to be located between the first and second survey. Parental permission was sought for the remaining 321 children to follow their medical care over a three-year period. Forty-five parents refused permission and their children were dropped from the study. An additional five children were not included because either they were hospitalized and did not have
outpatient records or were older than 24 months-of-age. Medical record data was available only for children between the ages of birth to 24 months-of-age. The remaining sample size consisted of 271 (61.6%) eligible children between 12 and 24 months-of-age.

As part of the project baseline survey and immunization history (Survey B) quantitative and qualitative data were collected about the immunization status of infants and children, newborn through thirty months-of-age. The data from providers and parents identified barriers to access care for timely immunization of children from birth to twenty-four months-of-age.

CURRENT STUDY

This study is a secondary analysis of data taken from two sources:

1) Project Baseline Survey B2

2) Missed Opportunities/Survey D

All of the 271 children from the two data sources were examined for the current study. Children were eligible to participate in the study if they met the
following inclusionary criteria specified at the beginning of the study:

1. Documented out-patient visits and
2. Well baby/preventive care, or
3. Otitis media/acute care, or
4. Asthma/chronic care

Children who met the inclusionary criteria will be described later.

RESEARCH DESIGN

The present study is an ex-post-facto design. A retrospective review of data from surveys and medical records was completed from 1993 to 1995. Because all of the data were previously collected, there were no opportunities for time studies, pre or post testing techniques, and/or treatment of the subjects.

SOURCE OF DATA

The two sources of survey data (Project BaselineB/B2 and Missed Opportunities/D) were obtained from the Center for Pediatric Research (Appendices B & C). These datasets were initially available in Paradox and Stata.
files. The two datasets were transformed from Paradox and Stata files into Statistical Package for the Social Sciences (SPSS) to be used for analysis in the current study.

SAMPLE

The initial sample, obtained through random sampling multistage clustering techniques, consisted of a cohort of 276 children birth to 30 months-of-age. Children from 24 to 30 months were omitted from this study in order to focus on the two years-of-age and under population. Additionally, only those children with out-patient visits who had a diagnosis of well-baby (preventive care need), otitis media (acute care need), or asthma (chronic care need) were selected for further data analyses because of frequency and prevalence of the three conditions. Twenty-three of the 276 participants did not meet one or more of the diagnostic categories and were excluded from the primary analysis. Final sorting for those twelve month and younger and by outpatient visits only included 271 and the sample by diagnosis (well baby, otitis media & asthma) consisted of 253 children with 2,035 visits.
DATA COLLECTION, VERIFICATION, AND SORTING

Data, quantitative and qualitative in nature, was retrieved from files at the Center for Pediatric Research in Norfolk, Virginia. Several techniques were employed to check and verify accuracy of the coded data. First, the researcher, CPR staff, and an asthma specialty physician reviewed the medical records to compare physical and laboratory assessments to the diagnosis and to verify charted recordings with the diagnosis in the computerized database. Interrater reliability for the coded diagnosis was 100%.

Secondly, an analysis of 25% participant charts with an asthma diagnosis was conducted on May 21, 1996 to determine completeness of the record and consistency of findings with the diagnosis. Records were found to be consistent for diagnosis in all cases and complete 80% of the time. Then, on August 14, 1996, a random sample of ten charts from the military participants and ten from non-military participants (20 charts, 7.4%) was obtained. A chart review was carried out to determine if records were complete and thereby validate the reliability of medical record data. The medical records were considered complete if a study participant was identified, provider entries were found, a diagnosis
could be determined, and the date of service was listed. In the non-military population, 79% of the records were complete and 80% were complete in the military segment. The convenience and random sampling techniques described above were completed on 11% of the total population under study.

Qualitative data was collected from Survey B, questions 21 and 22. Questions were asked of 276 respondent parents about primary care practices, specifically immunization of children. Question 21 was “Did you have any problem getting to the doctor or clinic?”. Question 22 asked, “Did you have any problem with the office or clinic hours?”. Nineteen parents reported problems in response to question 21 and twenty parents reported problems in response to question 22. Probing questions to clarify the extent or nature of the problem were asked of those of the 19 and 20 parents, respectively and their responses were written by the Center for Pediatric Research (CPR) interviewers as the parents reported them. CPR staff then coded all responses into categories, i.e. transportation, cost, waiting time, etc. and the responses listed most often were recorded.
Data was sorted by several stages:

1. Data from all 276 participants with 4,951-recorded visits to a PC or ER were analyzed. Of the 4,951 visits, those where the medical record was incomplete were deleted. The original 276 participants remained in the first data set.

2. The data were further sorted to delete any participant who was admitted to the hospital, i.e. did not access an ambulatory care provider. This sorting resulted in 3,880 visits for 271 participants.

3. An analysis of participant visits that were for well baby, otitis media or asthma care was conducted. Once sorted by diagnoses, 253 children with 2,035 visits (PC & ER) remained.

4. Qualitative data was gathered from responses in the survey where probing questions were asked of parents.

HUMAN SUBJECTS REVIEW

This study was reviewed by the Institutional Review Board (IRB) of Eastern Virginia Medical School and by the Human Subjects Review Board (HSRB) of Old Dominion
University, Office of Research and Graduate Studies. Since the study was retrospective in nature and did not involve any contact by the researcher with the subjects or the healthcare providers, both Boards ruled the study was exempt from human subjects review. The letter granting this exemption by HSRB is in Appendix D. Anonymity of each subject has been preserved through the use of coding and numerical assignment.

SURVEY INSTRUMENTS

Schedule A, CINCH Project Baseline Survey, a household screening survey containing 16 questions, established eligibility for inclusion into the study on immunization. Schedule A identified the interview date, recorded permission to review medical records and identified the usual provider of healthcare for the participants. It was subsequently incorporated into updated Schedules B, B1 and B2.

Schedule B2, also known as the CINCH Project Baseline Survey and an adaptation of Survey B, contained 41 immunization history questions. Identification numbers (IDNO) were assigned to all eligible children, 12 to 30 months-of-age, at the time of the survey. Only
respondents from the city of Norfolk were included. The following data from Schedule B2 was used for this study:

1. Identification number of child
2. Birth date of child
3. Age of respondent
4. Gender of respondent and child
5. Education level of respondent
6. Ethnicity of the parent/child
7. Household income
8. Relationship of respondent to child
9. Marital status/living arrangements
10. Type of Provider
11. Type of health insurance
12. Military or non-military status
13. Reason why parent used the hospital for child's care
14. Reason why parent did not access healthcare provider

Schedule D or Missed Opportunities Survey contained 16 questions and updated some information from Schedule B2. The following data was utilized from the Missed Opportunities Survey for the current study:
1. Type of provider updated
2. Utilization of new or same providers
3. Dates of visits; each visit a separate record
4. Type of visit; well-baby, acute or chronic care
5. Diagnosis at time of visit

Combining Data from the Instruments

Survey datasets were transformed from Stata and Paradox files into Statistical Package for Social Sciences (SPSS) files for the current analysis. The SPSS software, Versions 7.0 and 10.0 were utilized. The two original datasets contained different methods of entry, e.g. survey B2, a paradox file, contained a one-line entry of numerous variables for the participants while the Missed Opportunities survey contained multiple entries per participant in Stata files. These two files were merged and converted into SPSS files. Some variables were transposed from the multiple visit files into a single entry working file. These included the total number of visits per participant, number of PC and ER visits, and number of visits by the diagnostic categories (well-baby, asthma, and otitis). Hence, the
final working file contained one line entry per participant.

VISITS TO PRIMARY CARE AS A MEASURE OF ACCESS

THE DEPENDENT VARIABLE

The dependent variable is a visit to a primary care provider (Table 3).

Table 3 Dependent Variable

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>DEFINITION</th>
<th>CHARACTERISTIC</th>
<th>SOURCE</th>
<th>LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilization: Number of Primary Care Visits</td>
<td>Any visit to a primary care provider by the study participant</td>
<td>Primary Care Visits</td>
<td>Medical Records</td>
<td>Nominal</td>
</tr>
</tbody>
</table>

Primary Care visits: n=1,886; Emergency Care Visits: n=149
Total visits: n=2,035; Participants: n=253
INDEPENDENT VARIABLES

The independent variables were categorized into three sections, i.e. socio-demographic characteristics of the participants, need factors by diagnosis, and utilization of healthcare services. A descriptive narrative for each variable follows.

1. Need Factors of the Participants:

   • Diagnostic categories: well-baby, otitis media, asthma. These three categories were chosen because of the diagnosis that “fit” with the three types of care, i.e. preventive, acute and chronic needs.

2. Socio-demographic Factors

   • Gender of the child
   • Age of Child: at the time of initial interview by CINCH staff, all children who were 12 months-of-age, but less than three years old were included in the study. Medical record data was obtained for each participant from his or her date of birth until the end of the study in 1993. For this project, all records for children who were in
their third-year-of life were eliminated so that comparisons between year one and year two-of-life could be made with the guidelines established by the American Academy of Pediatrics.

Therefore, the oldest child for inclusion in the study was born October 2, 1990 and the youngest, June 7, 1992.

Entries to determine the age of the participant were calculated in two different multiple entry data sets by age in months at certain visits, age in days at visit, and age in years. For the purpose of this study, the date of birth (DOB) was selected to identify the age of the participant. That way, a uniform calculation of all participant ages could be made. Children born before 5/31/91 were considered the two-year-old participants while those born 6/1/91 and later were considered the one-year-old participants.

- Age of the Parent: categorized as younger (less than 23) or older (23 or over). The rationale for this choice was that parents
over 23 years-of-age could have greater maturity (5 years past majority) than those in the younger category.

- Education of parent: The levels were chosen to differentiate between more education or less and identified as less than high school, high school graduate, and college. A near equal distribution of the categories was noted.

- Ethnicity of parent/child: The ethnicity of the child’s mother was listed as the ethnicity of the child.

The initial groups identified White, Black, or Other (Hispanic, Asian, etc.). The "other:" category (5.9%) was incorporated with those identified as White and relabeled as Non-Black. The Non-Black and Black categories were equally distributed across the sample.

- Income of Parent: Income was initially grouped into seven categories, i.e. $6,000 & under, 6,000 to 9,999, 10,000 to 19,999, 20,000 to 29,999, 30,000 to 39,999, 40,000 to 49,999, 50,000 to 59,999 and over 60,000. Small numbers of responses were
recorded in the initial category and the latter three categories; therefore, the first two groups and the last four groups were incorporated into the low and high-income attributes of the variable. Hence, there was also an even frequency distribution of income.

- **Family Support Status of Parent**: Two categories identified the potential for family support (married/living together or with others) or lack of support (single).

- **Insurance**: Categories were determined from direct feedback of the respondents and grouped as private, military/CHAMPUS, public/Medicaid, or none.

### 3. Utilization of Health Services

- **Type of health services**

  Categorized as private or military

  Classified as PC (Primary Care) or ER (Emergency Room).

- **Number of providers**

  Reason for visit (preventive, acute, or
chronic care)

• Parent-reported Barriers to Access Providers

In Survey B, (question 21 & 22) parents were asked why they did not use primary care providers for immunization services. Then, the qualitative data obtained from their responses to problems about getting children to a provider was used for this study in determining why parents did not utilize primary care providers for their children’s other needs.

• Parent-reported Reasons to Utilize Hospital Provider

Center for Pediatric Research staff gathered qualitative data (Survey B, question 15) by asking 276 respondents “Why did you choose this location (hospital) as the usual place for your child’s (primary care) immunizations?” The data from forty parent-responses about their utilization of the hospital clinics for their child’s immunizations was identified as a measure in determining why parents used hospital clinics for primary care needs.
RESEARCH HYPOTHESIS TESTING

With the literature review and Aday's model as the basis for testing theoretical statements, hypotheses were developed and tested. Initial analysis of the data was descriptive in nature and frequency distributions were conducted to determine any variations in the study variables. Some of the independent variables were recoded (education, income, ethnicity, etc.) and the rationale for recoding will be described later. Variables were nominal or ordinal level data; therefore, most of the testing was Bi-variate in nature.

To test the components of Hypothesis 1, frequency distributions, ranges, percentages, mean and standard deviation calculations were completed on the socio-demographic variables. Then, t-tests of independent variables in which there were two categories were carried out to determine if significant differences between groups existed. Additionally, One-Way ANOVA was calculated to identify if significant differences between more than two groups were found. Post-hoc tests using Fisher's Least Significant Difference (LSD) were also run to determine significance among groups.
To test for positive or negative correlations among demographic variables with the dependent variable (PC visits), a Pearson’s Product Moment Correlation was completed. Significance of the positive or negative relationship was noted by this test, as well.

To test Hypothesis 2, frequency and percentages of health system factors were determined. To test the effect of utilization by diagnosis based upon insurance categories, Chi Square tests to determine p-values and levels of significance were completed. Further, One-Way ANOVA was used to test the significance among insurance status, number of all visits and those to primary or emergency providers.

To test customer satisfaction levels using qualitative data, parents-reported findings were incorporated into the study. According to Creswell (1994), when repeated descriptive words or notes are reported from surveys, then, a structure exists by which to qualify responses. Two sources of qualitative data taken from surveys of parents about why they chose a certain hospital for their child’s care and their perceived barriers to access healthcare providers were available for inclusion in the study.
CHAPTER IV
ANALYSIS OF THE DATA

This chapter describes the results obtained through the data analysis methods identified in Chapter III. Table 4 shows the frequency distribution of the socio-demographic characteristics of the participants (children) and their parents and provides the reference for analysis of data related to Hypothesis 1.

HYPOTHESIS 1

Differences in socio-demographic characteristics of parents predict Primary Care utilization of their children.

The mean age of the parent was 27.05 years (SD=5.8) with a range of 15 to 44 years. Ninety-two percent of the parents were mothers while the remaining 8% were fathers. Younger parents, less than 23 years-of-age (n=62) represented 24.5% of the sample, and older parents, those over 23 years-of-age, comprised 73.5% of the sample (n=186). Five parents (2%) did not provide their date of birth (Table 4).

Children less than one year of age (N=142) comprised 56.1% of the sample and children between one and two
years of age (n=111) comprised 43.9% of the sample. The sample was almost equally distributed by gender with 129 (51%) males and 124 (49%) females (Table 4).

Table 4 Socio-Demographic Characteristics of Children (N = 253), and Parents

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>129</td>
<td>51%</td>
</tr>
<tr>
<td>Female</td>
<td>124</td>
<td>49%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1 year</td>
<td>142</td>
<td>56.1%</td>
</tr>
<tr>
<td>1-2 year</td>
<td>111</td>
<td>43.9%</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>115</td>
<td>45.5%</td>
</tr>
<tr>
<td>Black</td>
<td>123</td>
<td>48.6%</td>
</tr>
<tr>
<td>Other</td>
<td>15</td>
<td>5.9%</td>
</tr>
<tr>
<td>Military</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>92</td>
<td>36.4%</td>
</tr>
<tr>
<td>No</td>
<td>161</td>
<td>63.6%</td>
</tr>
<tr>
<td>Parents Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 - 22 years</td>
<td>62</td>
<td>24.5%</td>
</tr>
<tr>
<td>23 &amp; over</td>
<td>186</td>
<td>73.5%</td>
</tr>
<tr>
<td>Missing</td>
<td>5</td>
<td>2.0%</td>
</tr>
<tr>
<td>Parents Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; High School</td>
<td>61</td>
<td>24.2%</td>
</tr>
<tr>
<td>High School Grad</td>
<td>97</td>
<td>38.3%</td>
</tr>
<tr>
<td>College or Graduate</td>
<td>94</td>
<td>37.2%</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>0.4%</td>
</tr>
<tr>
<td>Parents Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; $9,999</td>
<td>64</td>
<td>25.3%</td>
</tr>
<tr>
<td>$10,000 to $19,999</td>
<td>51</td>
<td>20.2%</td>
</tr>
<tr>
<td>$20,000 to $29,999</td>
<td>57</td>
<td>22.5%</td>
</tr>
<tr>
<td>&gt; $ 30,000</td>
<td>53</td>
<td>20.9%</td>
</tr>
<tr>
<td>Missing</td>
<td>28</td>
<td>11.1%</td>
</tr>
<tr>
<td>Family Support Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married, Living W/Support/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>199</td>
<td>78.7%</td>
</tr>
<tr>
<td>Single</td>
<td>54</td>
<td>21.3%</td>
</tr>
<tr>
<td>Family Insurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>51</td>
<td>20.1%</td>
</tr>
<tr>
<td>Medicaid</td>
<td>98</td>
<td>38.7%</td>
</tr>
<tr>
<td>CHAMPUS</td>
<td>94</td>
<td>37.2%</td>
</tr>
<tr>
<td>None</td>
<td>10</td>
<td>4.0%</td>
</tr>
</tbody>
</table>
The sample included 123 Black (48.6%), 115 White (45.5%) and 15 who were Hispanic, Asian, Philippine or Native American (5.9%). The categories were recoded for analysis to include 130 Non-Blacks (51.4%) and 123 Blacks (48.6%). Ninety-two (36.4%) of the participants were in military families while the remaining 161 (63.7%) were in non-military families (Table 4).

The majority of the respondents (63.5%) were married or living together. An additional 15.8% lived with others (parents, grandparents, siblings, or unrelated females). For the purpose of this study, all responses of those living together (n=199) were considered as being family (78.7%) because of the potential for a family support system. Single parents (n=54) comprised 21.3% of the sample (Table 4).

Approximately three-fourths (n=191) of the parents were high school graduates. Those with less than high school education (n=61) comprised 24.2% of the sample. More than one-third (n=94; 37.2%) of the parents had higher levels of education i.e., some college level education or college graduates. Information was missing for one participant.

Annual family income ranged from less than $6,000 to greater than $60,000. The first category, i.e. < $6,000, and the three latter categories contained small
number of responses and so they were recoded into income as seen in Table 4, i.e. $0 - $9,999 (n=64; 25.3%), $10,000 - $19,993 (n=51; 20.2%), $20,000 - $29,999 (n=57; 22.5%), and $30,000 or more (n=53; 20.9%). Twenty-eight respondents (11.1%) did not report their income. The median income level was approximately $20,000. Due to lack of information on the number of household members, no determination could be made whether the annual income met the requirements of the family needs.

Insurance coverage of participants included 98 covered by Medicaid (38.7%), 94 (37.2%) by CHAMPUS, 51 (20.1%) by private companies and 10 (4.0%) who reported no coverage. Ninety-six percent of all the participants (n=243) were covered by some insurance (Table 4).

Table 5, on the following page, shows the utilization of primary care by socio-demographic characteristics. A total of 1,886 primary care visits were recorded for the children under two years-of-age in the study cohort. This represented 92.7% of all visits for any reason. Of the total visits for preventive care, 99.7% of them were to primary care sources and 0.3% was to the emergency room. Visits by gender were similar with males registering 50.5% (n=953) of the visits while females accounted for 49.5% (n=933) of the visits.
Parents over 23 years-of-age were the majority of consumers of primary care services for their children with 1,407 (74.6%) visits. Similarly, Non-Black parents’ utilized PC providers 63.7% (n=1,201) for their children’s care while Black parents utilized PC providers 36.3% (n=685) during the two-year study period (Table 5).

Eighty-four percent (n=1,580) of all visits to PC providers were by children whose parents were married, living together, or with others. Single parents utilized PC providers 15.8% (n=297 visits) for their children’s care (Table 5). The family support status of the parent was not identified in twenty-eight visits (1.3%). Respondents who were non-military registered 51.9% (n=978) of the visits to PC providers and those with higher incomes over $20,000 utilized the PC providers more often than those with incomes under $20,000 (Table 5). Parents educated at the high school graduate and college levels showed utilization patterns in excess of 40% more PC visits than parents who did not complete high school.
Table #5 - Outcomes of Primary Care Utilization in the Study Cohort

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total well-baby visits</th>
<th>Total Otitis media visits</th>
<th>Total Asthma visits</th>
<th>Total number of PC visits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq</td>
<td>%</td>
<td>Freq</td>
<td>%</td>
</tr>
<tr>
<td>Child 0-2 years</td>
<td>1089</td>
<td>53.5%</td>
<td>862</td>
<td>42.4%</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-black</td>
<td>645</td>
<td>59.2%</td>
<td>564</td>
<td>65.4%</td>
</tr>
<tr>
<td>Black</td>
<td>444</td>
<td>40.8%</td>
<td>298</td>
<td>34.6%</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>95</td>
<td>8.7%</td>
<td>67</td>
<td>7.8%</td>
</tr>
<tr>
<td>Female</td>
<td>994</td>
<td>91.3%</td>
<td>795</td>
<td>92.2%</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>895</td>
<td>82.7%</td>
<td>712</td>
<td>82.8%</td>
</tr>
<tr>
<td>Single</td>
<td>187</td>
<td>17.3%</td>
<td>148</td>
<td>17.2%</td>
</tr>
<tr>
<td>Age of Mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Young (22 &amp; under)</td>
<td>274</td>
<td>25.2%</td>
<td>200</td>
<td>23.2%</td>
</tr>
<tr>
<td>Old (23 &amp; over)</td>
<td>815</td>
<td>74.8%</td>
<td>662</td>
<td>76.8%</td>
</tr>
<tr>
<td>Military Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Military</td>
<td>783</td>
<td>71.9%</td>
<td>512</td>
<td>59.4%</td>
</tr>
<tr>
<td>Non-Military</td>
<td>306</td>
<td>28.1%</td>
<td>350</td>
<td>40.6%</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$0-$9,999</td>
<td>208</td>
<td>21.6%</td>
<td>165</td>
<td>21.2%</td>
</tr>
<tr>
<td>$10,000-$19,999</td>
<td>220</td>
<td>22.8%</td>
<td>163</td>
<td>20.9%</td>
</tr>
<tr>
<td>$20,000-$29,999</td>
<td>245</td>
<td>25.4%</td>
<td>231</td>
<td>29.7%</td>
</tr>
<tr>
<td>$30,000 &amp; over</td>
<td>290</td>
<td>30.1%</td>
<td>220</td>
<td>28.2%</td>
</tr>
<tr>
<td>Education of Mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than HS</td>
<td>215</td>
<td>19.7%</td>
<td>135</td>
<td>15.7%</td>
</tr>
<tr>
<td>High School</td>
<td>408</td>
<td>37.3%</td>
<td>407</td>
<td>47.2%</td>
</tr>
<tr>
<td>College</td>
<td>460</td>
<td>42.2%</td>
<td>302</td>
<td>35.0%</td>
</tr>
</tbody>
</table>

N = 2035, Single Visit by Diagnosis
The mean number of visits to primary care providers in the first two-years-of-life was 7.5 (SD 5.2) with visits for well-baby care occurring most often (mean=4.3, SD 2.6) (Table 6). Otitis media mean visits were 4.2 (SD 3.8) with asthma visits a mean of 1.9 (SD 1.6) in the first two-years-of-life.

There was a significant difference (t=5.66, p<0.0001) in the utilization patterns for children's services between groups by ethnic background. Of the 123 Black children, 5.5 mean (SD 3.4) visits per child over two years were calculated while 130 Non-Black children had 9.3 mean visits (SD 5.9).

Utilization of primary care providers showed significantly higher visits (t=3.17, p=0.002) for children from families with support (mean=8.0, SD 5.2) as compared to single-parent households (mean=5.5, SD 5.0). The analysis of utilization of PC providers by military and non-military personnel clearly demonstrated that the 92 children of military families were more likely to utilize/access PC providers (mean 10.3, SD 7.1) than the 161 children of non-military families (mean 6.9, SD 4.5).
Table 6 - Outcomes of Primary Care Utilization in the Study Cohort

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total well-baby visits</th>
<th>Total Otitis media visits</th>
<th>Total Asthma visits</th>
<th>Total number of PC visits</th>
<th>Tests of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>N = 2035, Single Visit by Diagnosis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child 0-2 years</td>
<td>4.3</td>
<td>2.6</td>
<td>4.2</td>
<td>3.8</td>
<td>1.9</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-black</td>
<td>4.9</td>
<td>2.8</td>
<td>4.4</td>
<td>4.5</td>
<td>0.3</td>
</tr>
<tr>
<td>Black</td>
<td>3.6</td>
<td>1.2</td>
<td>2.4</td>
<td>2.5</td>
<td>0.4</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>4.3</td>
<td>2.4</td>
<td>4.6</td>
<td>4.8</td>
<td>0.4</td>
</tr>
<tr>
<td>Female</td>
<td>4.3</td>
<td>2.7</td>
<td>3.3</td>
<td>3.7</td>
<td>0.3</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>4.5</td>
<td>2.5</td>
<td>3.6</td>
<td>3.9</td>
<td>0.3</td>
</tr>
<tr>
<td>Single</td>
<td>3.4</td>
<td>2.9</td>
<td>2.7</td>
<td>3.6</td>
<td>0.3</td>
</tr>
<tr>
<td>Age of Mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Young (22 &amp; under)</td>
<td>4.0</td>
<td>2.5</td>
<td>3.0</td>
<td>3.4</td>
<td>0.5</td>
</tr>
<tr>
<td>Old (23 &amp; over)</td>
<td>4.4</td>
<td>2.7</td>
<td>3.6</td>
<td>3.9</td>
<td>0.3</td>
</tr>
<tr>
<td>Military Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Military</td>
<td>4.5</td>
<td>3.5</td>
<td>5.6</td>
<td>5.0</td>
<td>0.3</td>
</tr>
<tr>
<td>Non-Military</td>
<td>4.3</td>
<td>2.4</td>
<td>3.0</td>
<td>3.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$0-$9,999</td>
<td>3.3</td>
<td>2.2</td>
<td>2.6</td>
<td>2.7</td>
<td>0.4</td>
</tr>
<tr>
<td>$10,000-$19,999</td>
<td>4.4</td>
<td>2.3</td>
<td>3.4</td>
<td>4.3</td>
<td>0.2</td>
</tr>
<tr>
<td>$20,000-$29,999</td>
<td>4.3</td>
<td>3.3</td>
<td>4.1</td>
<td>4.4</td>
<td>0.5</td>
</tr>
<tr>
<td>$30,000 &amp; over</td>
<td>5.5</td>
<td>2.4</td>
<td>4.2</td>
<td>4.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Education of Mother</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than HS</td>
<td>3.4</td>
<td>2.4</td>
<td>2.1</td>
<td>2.0</td>
<td>0.4</td>
</tr>
<tr>
<td>High School</td>
<td>4.3</td>
<td>2.6</td>
<td>4.4</td>
<td>4.6</td>
<td>0.3</td>
</tr>
<tr>
<td>College</td>
<td>4.9</td>
<td>2.7</td>
<td>3.2</td>
<td>3.6</td>
<td>0.3</td>
</tr>
</tbody>
</table>
Utilization of PC providers was statistically significant \( t = 4.07, p < 0.0001 \) for military participants (Table 6).

One-way ANOVA (Table 6) showed significant differences in utilization of PC providers \( F = 8.30, p < 0.0001 \) among the parents by levels of their education. Post-hoc test using Fisher’s Least Significant Difference (LSD) indicated parents with less than high school education utilized PC providers for their children significantly less \( F = 8.3, p < 0.0001 \) than parents in either of the other groups.

The analysis by income revealed the lowest utilization of PC providers (mean = 5.1, SD 3.4) was in the poorest income category ($9,999 and under) while the greatest PC utilization (mean = 9.6, SD 5.1) was in the highest income group ($30,000 and over). A significant difference in utilization was demonstrated through one-way ANOVA \( F = 8.53, p < 0.0001 \) among the income groups (Table 6). Further, there was no significant difference demonstrated between CHAMPUS and private insurance or between Medicaid and no insurance groups.

To further define associations among age, education and income of parents and their children’s visits to PC providers, a Pearson’s Product Moment Correlation test was completed (Table 7).
### Table 7 Pearson’s Product Moment Correlations Among Demographic Factors for Primary Care Visits. (n=1886)

<table>
<thead>
<tr>
<th>Variables</th>
<th># PC Visits</th>
<th># All Visits</th>
<th>Age of Parent</th>
<th>Education of Parent</th>
<th>Family Income</th>
</tr>
</thead>
<tbody>
<tr>
<td># PC Visits</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># All Visits</td>
<td>0.891**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age of Parent</td>
<td>0.104</td>
<td>-0.014</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education of Parent</td>
<td>0.199**</td>
<td>0.087</td>
<td>0.371**</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Family Income</td>
<td>-0.054</td>
<td>-0.016</td>
<td>0.035</td>
<td>0.171**</td>
<td>1.000</td>
</tr>
</tbody>
</table>

**Correlation significant at the 0.01 level (2 Tailed)**

As may be seen in Table 7, parental age and income did not influence utilization of PC providers (p > 0.05). The number of PC visits, however, was positively
correlated with educational level of the parent
($r=0.199, p<0.001$). This indicates that educated parents
utilize primary care services more often than their
less-educated peers.

To further assess utilization of PC providers over
the two-year period, visits by year-of-age were compared
to the American Academy of Pediatrics (AAP) Guidelines
for Preventive Care Visits (Table 8). All visits for any
reason and to any provider were calculated first.
Secondly, all primary care visits were reviewed and
finally, primary care visits for well-baby/preventive
care only were assessed. Visits by children in the first
and second year-of-life were compared to the guideline
of five preventive visits in year one and three visits
in year two.

Analysis of visits to primary care providers for any
reason showed that children in both age categories met
the standards as set by the AAP with 77.5% of the
participants meeting them in year one and 82.9% meeting
them in year two. However, when visits to primary care
for only well-baby/preventive care were assessed, the
compliance with AAP guidelines changed (Table 8).
Table #8 - Utilization Outcomes: Comparison of Study Cohort (N=253) to The American Academy of Pediatrics (AAP) Guidelines for Preventive Care Visits

<table>
<thead>
<tr>
<th>Variable</th>
<th>Outcome: All visits; PC or ER N=2035 Freq / % Mean/SD</th>
<th>Outcome: PC visits for any reason N=1886 Freq / % Mean/SD</th>
<th>AAP recommended number of PC visits</th>
<th>Compliance w/ guideline.</th>
<th>Outcome: PC visits for well-baby only N=1086 Freq / % Mean/SD</th>
<th>AAP recommended number of PC visits</th>
<th>Compliance w/ guideline.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child 0-1 year-of-age</td>
<td>(N=142) 1197 58.8% 8.43 (5.02)</td>
<td>(N=142) 1108 58.7% 7.8 (4.89)</td>
<td>5</td>
<td>Yes 110</td>
<td>(N=141) 654 60.2% 4.64 (2.72)</td>
<td>5</td>
<td>Yes 70</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>32</td>
<td>No 32</td>
<td></td>
<td>5</td>
<td>No 71</td>
</tr>
<tr>
<td>Child 1-2 years-of-age</td>
<td>(N=111) 838 41.2% 7.55 (5.50)</td>
<td>(N=111) 778 41.3% 7.01 (5.55)</td>
<td>3</td>
<td>Yes 92</td>
<td>(N=107) 432 39.8% 4.04 (2.47)</td>
<td>3</td>
<td>Yes 82</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>19</td>
<td>No 19</td>
<td></td>
<td>3</td>
<td>No 25</td>
</tr>
</tbody>
</table>


As a group, half of the children in the first year-of-life failed to meet the AAP standard of 5 well-baby visits (mean=4.64, SD 2.72) while most of those in the second year-of-life slightly exceeded the 3 well-baby visit standard (mean=4.04, SD 2.47). Compliance in the latter group was 76.6% of the cohort (n=82) and those that did not meet the AAP specification were 23.4% (n=25). The mean age of the child at first visit was 8.1 months.

HYPOTHESIS 2

Health system factors will predict utilization of primary care providers.

Tables 9, 10, 11 and 12 will be used to demonstrate how the characteristics of the health delivery system, utilization of health services, and customer satisfaction influenced utilization of the primary care providers.
Table 9 Characteristics of the Healthcare Delivery System for the Norfolk, VA Cohort

<table>
<thead>
<tr>
<th>Characteristics of the Delivery System</th>
<th>Type of Practice</th>
<th>Frequency of Providers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Distribution of Providers</strong></td>
<td><strong>Accessed:</strong> **</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Hospital</td>
<td>n = 4</td>
</tr>
<tr>
<td></td>
<td>b. Public Clinic</td>
<td>n = 5</td>
</tr>
<tr>
<td></td>
<td>c. Private Office</td>
<td>n = 24</td>
</tr>
<tr>
<td><strong>B. Utilization of Services Provided</strong></td>
<td>a. All Providers ***</td>
<td>n = 33</td>
</tr>
<tr>
<td></td>
<td>by Participant</td>
<td>n = 253</td>
</tr>
<tr>
<td></td>
<td>by visit</td>
<td>n = 2,035</td>
</tr>
<tr>
<td></td>
<td>b. Primary Care Providers by Participant</td>
<td>n = 33</td>
</tr>
<tr>
<td></td>
<td>by Visit</td>
<td>n = 246</td>
</tr>
<tr>
<td></td>
<td></td>
<td>n = 1,886</td>
</tr>
<tr>
<td><strong>C. Location of Facilities</strong></td>
<td>Norfolk, VA</td>
<td>n = 33</td>
</tr>
</tbody>
</table>

** Data taken from participant medical records; The Center for Pediatric Research

*** From database of 2,035 visits by participants for well-baby, otitis media and asthma.

All participants lived in Norfolk, Virginia and utilized both military and non-military providers in the
Greater Norfolk area. A total of thirty-three providers were identified that included four civilian and military hospitals, five public and military clinics, and twenty-four private offices. All facilities provided primary care services. Thirty-three providers were visited by 253 children for care 2,035 times during the study period; 248 participants made 1,886 primary care visits. Five children in this cohort had no primary care visit (Table 9). The reason why the five participants did not visit a primary care provider is not known.

As may be seen in Table 10, seventy-five percent of the visits \( (n= 1,526) \) were to hospitals. One hundred ninety of the two hundred fifty-three participants chose hospital clinics or emergency services for their visits. Sixteen participants utilized the public clinic systems for 128 visits while private providers managed 379 visits for 47 participants.
Table 10 Utilization of Health Services

<table>
<thead>
<tr>
<th>Providers</th>
<th>Participants</th>
<th>Visits PC &amp; ER</th>
<th>Percentage of visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Hospital*</td>
<td>190</td>
<td>1,528</td>
<td>75.1%</td>
</tr>
<tr>
<td>b. Public**</td>
<td>16</td>
<td>128</td>
<td>6.3%</td>
</tr>
<tr>
<td>c. Private***</td>
<td>47</td>
<td>379</td>
<td>18.6%</td>
</tr>
</tbody>
</table>

* Included community, pediatric and military facilities
** Public includes health department and WIC facilities
*** Includes providers in private, non-military practices

Hospital clinics, military clinic systems or emergency services were the source of hospital care. The public system included health department services and WIC (Women, Infant and Children) providers. Private providers represented the other sources of care. The majority of visits were to the hospital primary care clinics (n=1,380) or emergency rooms (n=149).

Parent-reported qualitative data was assessed to identify any trends in this utilization pattern (Table 11). Data about parent choices of hospital clinics
reflect that they were utilized because they were more easily accessible, met a perceived need for ongoing care, or were perceived as better sources of care than other providers.

**Table 11** Parent Reported Reasons to Utilize Hospital Clinics for Primary Care in the Greater Norfolk, VA Region.

<table>
<thead>
<tr>
<th>REASONS FOR UTILIZATION OF HOSPITAL CLINICS FOR PEDIATRIC PRIMARY CARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. My Child was Born There</td>
</tr>
<tr>
<td>2. It is Accessible via Public Transportation</td>
</tr>
<tr>
<td>3. The Hospital Specializes in Children</td>
</tr>
<tr>
<td>4. My Child has a Preexisting Condition</td>
</tr>
<tr>
<td>5. No Choice, A Naval Facility, Navy Dependent</td>
</tr>
<tr>
<td>6. We (I) Don’t Like Other Hospitals</td>
</tr>
<tr>
<td>7. The Hospital Staff Gives A Full Examination</td>
</tr>
</tbody>
</table>

Source: Consortium for the Immunization of Norfolk’s Children, (CINCH, 1993)
As may be noted in Table 11, parents chose hospitals for their child’s care based upon many perceptions.

Comparative quantitative data from other parent-reported responses (Figure 4) showed that parents had problems with transportation as well as the services and providers. First, the limited hours of providers (n=15, 5.9%) and the lack of office or clinic flexibility in meeting the needs of those who worked (n=24, 9.7%) were reported most often. Getting to the clinic/provider (n=16, 6.3%) and transportation (n=12, 4.7%) caused problems in keeping appointments. Financial barriers, such as the cost of care (n=14, 5.5%), were also among the reported concerns of parents.
Figure 4 Barriers to Utilization as Reported by Parents in Norfolk, VA.

To further delineate utilization patterns, Chi Square test was used to determine provider utilization by insurance status (Table 12). Participants were covered by Medicaid (38.7%, n=98), CHAMPUS (37.2%, n=94) or private insurance (20.1%, n=51). Four percent (n=10) did not report any insurance.
Table 12 Utilization of Primary Care Providers by Need/Diagnosis by Type of Insurance (n=253)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of Visits</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq</td>
<td>%</td>
</tr>
<tr>
<td>Insurance</td>
<td>By Child in study</td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>51</td>
<td>20.1%</td>
</tr>
<tr>
<td>Medicaid</td>
<td>98</td>
<td>38.7%</td>
</tr>
<tr>
<td>CHAMPUS</td>
<td>94</td>
<td>37.2%</td>
</tr>
<tr>
<td>None</td>
<td>10</td>
<td>4.0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>253</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

A higher number of CHAMPUS visits for well-baby and otitis media visits (46.1%, n=899) were recorded while Medicaid participants had more chronic care visits for asthma (47.6%, n=40) than other insured groups. Visits to providers showed significant differences as measured by Chi-square (p<.0001) among the four insurance plans.

Analysis by One-way ANOVA (Table 13) showed a significant difference in PC utilization by insurance category (F=14.11, p<0.001).
Table 13 Utilization of Primary Providers by Insurance Status

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD)</th>
<th>One way ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F-value</td>
<td>p-value</td>
</tr>
<tr>
<td>Number of PC Visits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>5.80 (2.86)</td>
<td>14.11</td>
</tr>
<tr>
<td>Medicaid</td>
<td>4.99 (3.17)</td>
<td></td>
</tr>
<tr>
<td>CHAMPUS</td>
<td>9.43 (6.35)</td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>8.51 (4.39)</td>
<td></td>
</tr>
<tr>
<td>Total Number of Visits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>6.70 (3.56)</td>
<td>8.23</td>
</tr>
<tr>
<td>Medicaid</td>
<td>6.06 (3.54)</td>
<td></td>
</tr>
<tr>
<td>CHAMPUS</td>
<td>9.63 (6.48)</td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>8.81 (4.48)</td>
<td></td>
</tr>
</tbody>
</table>

Using Fisher's Least Significant Difference (LSD) as the multiple comparison procedure, no significant difference was seen in mean number of PC visits between respondents with Medicaid (mean=4.99; SD 3.17) and those with no insurance (mean=5.8; SD 3.17) or between participants with CHAMPUS (mean=9.4; SD 6.38) and private insurance (mean=8.5; SD 4.39).
However, a significant difference (p<0.0001) was observed in utilization of PC providers between those with no insurance and private insurance (mean 5.8 and 8.5, respectively), no insurance and CHAMPUS (mean 5.8 and 9.4, respectively), between those with Medicaid and private insurance (mean 4.99 and 8.5, respectively) and between Medicaid and CHAMPUS (mean 4.99 and 9.4, respectively).

When all visits (PC and ER) were analyzed together, significant differences for all visits showed among groups by type of insurance (F=8.23; p<0.001).

Other factors such as parent perception of satisfaction with the providers/systems may also have influenced utilization patterns. Specifically, parents who kept appointments for their children 47.4% (n=120) reported waiting times of at least 30 minutes before being seen by healthcare providers (Table 14). Seventeen percent (n=43) reported waiting greater than one hour. Although waiting times for 64% of the respondents was 30 minutes or more, seventy-two percent (n=182) of participants returned to the same provider for subsequent healthcare visits.
### Table 14 Customer Satisfaction Factors in the Norfolk, VA Cohort. (N=253)

<table>
<thead>
<tr>
<th>Problems with Providers *</th>
<th>Reason Stated by Parent:</th>
<th>Frequency/Percent Reason was Given</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lack of flexibility</td>
<td>n = 24 9.7%</td>
</tr>
<tr>
<td></td>
<td>Limited hours</td>
<td>n = 15 5.9%</td>
</tr>
<tr>
<td></td>
<td>Cost of care</td>
<td>n = 14 5.5%</td>
</tr>
<tr>
<td></td>
<td>Waiting Time</td>
<td>n = 163 64.4%</td>
</tr>
<tr>
<td></td>
<td>&gt;60 minutes</td>
<td>n = 43 17.0%</td>
</tr>
<tr>
<td></td>
<td>Thirty minutes</td>
<td>n = 120 47.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Provider Utilization **</th>
<th>Frequency By Participant</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same provider</td>
<td>182</td>
<td>71.9%</td>
</tr>
<tr>
<td>Two providers</td>
<td>62</td>
<td>24.5%</td>
</tr>
<tr>
<td>&gt;Three providers</td>
<td>9</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

* Data from Survey B2; ** Data from Survey D

The Center for Pediatric Research, Norfolk, VA (1993)

Sixty-two participants (24.5%) utilized two providers. Another nine participants (3.6%) utilized three or more providers. The reason for accessing more than one provider was not determined.
Bi-variate analysis of the independent variables with the dependent variable can be summarized as follows.

1. The most favorable socio-demographic variables to correlate with primary care visits included:
   - Having insurance
   - Being from a Non-black ethnic group
   - Parents educated past the high school level
   - Parents over twenty-three years-of-age
   - Family with incomes over $20,000
   - A child in the second year-of-life
   - Families with a support system

2. Health system variables found to facilitate increased PC visits were:
   - Military insurance, provider or system
   - Hospital facility, as provider
   - Extensive hours of availability

3. Customer satisfaction variables that were more positive indicators of satisfaction with healthcare providers or services were:
   - Utilization of the same provider for subsequent visits
• Parent-reported shorter waiting times for visits
• Having transportation to access the provider
• Extended hours of the provider/facility

Further, qualitative data of the factors reported to influence utilization included:

1. Proximity of the participant to a provider
2. Transportation
3. Flexibility of hours the Provider

Findings from the analysis of variables will be discussed in more detail next.
CHAPTER V

DISCUSSION

The primary purpose of this research was to determine if socio-demographic and health system factors predict primary care utilization patterns. Children under two years-of-age with preventive, acute and chronic conditions were studied in the context of Aday’s model. Using the model as a basis for comparison, nine factors were identified as independent variables for children in this study. They included variables known to influence the at-risk status of children, i.e. age, gender, diagnosis, parent’s age, family income, insurance status, parent’s educational level, ethnicity and marital or family support status.

Additionally, variables identified by Aday as the characteristics of the healthcare delivery system and customer satisfaction indicators were analyzed. Healthcare delivery variables included type of provider and number of providers, while customer satisfaction variables were the number of providers utilized and parents-reported data about utilization of healthcare providers.
The results of the quantitative data analyses supported all but hypothesis 1C (The rate of utilization of PC providers for children will be lower among older parents as compared to younger parents) and 1G (Primary care utilization rates in the first two years-of-life will meet or exceed the guidelines as set by the American Academy of Pediatrics for preventive care visits). Qualitative data showed trends in parent-reported barriers. Lack of transportation, flexibility of by the providers, hours of operation and the cost of obtaining care were reported as barriers to access primary care providers.

Support, or lack of it, for Hypotheses 1 (Differences in socio-demographic characteristics of parents can predict PC utilization) and 2 (Health system factors will predict the utilization of PC providers) is summarized in Tables 15 and 16.
Table 15 Summary of Hypothesis Testing Results for Hypothesis 1

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Differences in socio-demographic characteristics of parents can predict PC utilization.</td>
<td>Supported</td>
</tr>
<tr>
<td>IA: Non-Black parents will utilize healthcare providers more frequently than Black parents for their child’s care.</td>
<td>Supported</td>
</tr>
<tr>
<td>IB: Single parents will utilize PC providers (total number of visits) less frequently than other parents for their child’s care.</td>
<td>Supported</td>
</tr>
<tr>
<td>IC: The rate of utilization of PC providers for children will be lower among older parents as compared to younger parents.</td>
<td>Not Supported</td>
</tr>
<tr>
<td>ID: The number of visits to PC providers will increase as the educational level of the parent increases.</td>
<td>Supported</td>
</tr>
<tr>
<td>IE: The rate of utilization of PC providers will increase as the parent’s level of income increases.</td>
<td>Supported</td>
</tr>
</tbody>
</table>
IF: There will be a difference in utilization of PC providers between military and non-military families.

IG: Primary care utilization rates in the first two years-of-life will meet or exceed the guidelines set by the American Academy of Pediatrics for preventive care visits.

The American Academy of Pediatrics Guidelines for Preventive Care Visits in the first and second year of life were compared to the study participants' visits. The number of preventive primary care visits, i.e., 5 in year one, 3 in year two, was not met by all of the participants. In year one, 50.4% of the children did not have the appropriate number of visits (mean 4.64) and in year two, 23.4% of the children did not meet the guidelines (mean=4.04 visits). Studies by the Consortium for the Immunization of Norfolk's Children (1993) further support this finding. Thus, Hypothesis 1G was not supported (Table 15).

The results of testing for health system factors, (Hypothesis 2, Table 16) showed that the rate of primary care utilization was higher for children from military
families than non-military families (2A) and the rate of utilization varied by type of insurance category (2B). Thus, both hypotheses were supported. Hypothesis 2C, however, was analyzed using both qualitative and quantitative data. The quantitative responses showed that 71.9% returned to the same provider for additional care and another 24.5% (total of 96.4%) utilized two providers for all of their care. The strength (96.4%) in the utilization of the same providers would indicate that Hypothesis 2C is supported based upon quantitative evidence.

Parent-reported barriers to obtain healthcare indicated negative trends with utilization based upon transportation, cost of care, flexibility of hours of providers, etc. The predictors of primary care visits from this study included transportation and problems with clinic hours. Both of these predictor variables may be found in the customer satisfaction section of Aday’s model. Therefore, based upon the strength of the quantitative findings and the recurring patterns from parent reported qualitative data, further support existed for accepting Hypothesis 2C.
Table 16 Summary of Hypothesis Testing Results for Hypothesis 2

<table>
<thead>
<tr>
<th>2. Health system factors will predict the utilization of PC providers.</th>
<th>Supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A: The rate of PC utilization will be higher for children from military families than for those children in non-military families.</td>
<td>Supported</td>
</tr>
<tr>
<td>2B: The rate of utilization of PC providers will vary by insurance categories i.e., none, Medicaid, CHAMPUS, and private.</td>
<td>Supported</td>
</tr>
<tr>
<td>2C: Parent-reported barriers to access healthcare providers will indicate that health system factors impede utilization rates.</td>
<td>Supported</td>
</tr>
</tbody>
</table>

**CONCLUSIONS**

Utilization of primary care providers differed by socio-demographic characteristics of the participants and their parents. This study supports Aday's model and research by Monheit & Cunningham (1992), that children from at-risk families i.e., those who are Non-white,
poor, uneducated, uninsured, and headed by a single parent, do not access primary care on a regular basis. In fact, regardless of the risk factors, 50.4% of all study children in their first-year-of-life did not meet the guidelines for number of preventive care visits as defined by the American Academy of Pediatrics.

Concurrent with prior research (Kleinman, Gold and Makas, 1981; Moon, Ginsburg and Young, 1993), the results of this study showed that parents who were older, Non-Black, married or with family support, educated, and with higher incomes utilized primary care providers more often than those who did not have these attributes. Utilization of primary care providers also varied by military/non-military status of the participants and by insurance categories.

Although only 92 (36.4%) of the 253 participants were military, their rate of utilization of primary care providers was higher (mean 10.3) when compared to non-military families (mean 6.9). One reason for this difference may be the nature of military training, i.e. military personnel are more disciplined, have better methods to educate families about preventive care, and more readily disseminate information about primary care. Secondly, the military families may have had better access to military providers because of the proximity of
numerous military medical sites with no restriction of site choice. Because they have good insurance coverage, an incentive to use it for primary care needs may exist. Further, because the military is interested in healthy families, they may provide time off to use care providers insurance coverage for well-baby care more so than other employers. Yet, there may be other explanations for the increased utilization by the CHAMPUS insured military dependents.

According to the American Academy of Pediatrics (1994) and Burns (1993), the greatest barrier to access primary healthcare services is the lack of financial resources to obtain them. Conversely, studies by Shirley (1995) support that there is increased primary care utilization by higher income families. The results of this research further support Aday's Framework for the Study of Access to Medical Care (1993). Participants from families with higher levels of income and education and those covered by insurance showed higher utilization of primary care than those who lacked the same resources. Participants in this study who had a family income over $20,000, and some form of insurance coverage utilized more preventive care than those who had lower incomes or no insurance.
Growing Kids, a new national program dedicated to expanding healthcare coverage for children reports that ten million children in the United States lack insurance coverage even though they are eligible for low-cost or free coverage (Wolf, 2000). The lack of insurance correlates positively with under utilization of primary care providers in the current study and concurs with results reported by Himmelstein and Woolhandler (1995).

The number of participants who utilized three or more providers for primary care visits was 28.1%. The reason for utilization of more than one provider is not known; however, it may be indicative of a need for specialty care, could be related to barriers within the delivery system, or indicate parental concerns about quality with the providers. The American Academy of Pediatrics (1994) and the Children's Defense Fund (1992) recommend an increase in primary care visits, particularly in the first year-of-life, to improve health outcomes and curb costs. The guidelines developed by the American Academy of Pediatrics include five visits during the first year of life and three visits during the second year of life (Appendix A). Participants, as a group, under one year-of-age in the current study did not meet the AAP Guidelines for Preventive Care Visits. This is a cause for concern and
further study in the Norfolk Virginia region may be required.

Development of programs to serve children from at-risk populations such as those identified through this research, i.e. poor, uninsured, single parent families, etc., will be increasingly important to address access issues, quality concerns and community needs. In Virginia, more than 25% of all the residents are under 18 years-of-age and the distribution of primary care physicians is 1:1,344 across the state. Further, 17,544 children (6.7%) live in Norfolk and are less than five years of age. This research identified thirty-three providers in the greater Norfolk area. For children under five years of age in Norfolk, then, the ratio of provider to child (1:532) is greater than the statewide ratio for the children under 18. Even though the number of providers appears to be adequate for the population of children in Norfolk, other factors such as limited office hours of the healthcare facility and transportation to the providers have been shown to be limiting factors in the current study.

This research showed that Medicaid enrolled children utilized primary care providers less than privately insured children. During the current study, no child was enrolled in a Medicaid HMO. The influence of mandatory
HMO Medicaid programs on preventive care visits may be mixed. It may create positive outcomes or the limited choice may be a problem in meeting children's healthcare needs. New studies will be necessary to investigate this.

Finally, incorporation of managed care plans, developed to curb costs, and with a focus on outpatient utilization, is expected to increase. Healthcare executives will be expected to develop primary care and other program plans that respond to reimbursement cuts. Building physician relationships to support the healthcare systems and share the financial risk must be a key function for healthcare leaders (Reynolds & Pinckney, 1995). Successfully integrating systems within systems to produce cost-effective and labor-restrictive healthcare delivery will be important in determining the successful institutions of the 2000 millennium. In all of the new reorganization of healthcare systems, the needs of children must not be overlooked.

IDEAS FOR FUTURE STUDIES:

The managed care marketplace provides new opportunities and challenges for utilization of
healthcare resources and as more providers enter into managed care agreements, the dynamics of who is served and who is not will probably change. Ultimately, the type of insurance plan one has may be the determinate of who provides or receives services, and/or who is denied certain benefits. The newly designed healthcare plans may include limited choices of providers and an increased cost of care with co-payments and other out-of-pocket expenses.

Since 1993, HMO plans have increased and Medicaid enrollees may be directly influenced by the Mandatory Medicaid HMO enrollment that began January 1, 1996 (Bonar, 1995). Managed care contractors are demanding that providers develop, implement and successfully manage more cost-efficient, yet integrated healthcare delivery systems. The goal of these systems is to manage the delivery of services along a continuum of care, optimizing quality and cost effectiveness at each service delivery point and transferring information so as to create a system that is "seamless" to patients/enrollees (Curran & Fox, 1995). These newly developed systems will need to be evaluated.

Determining who is at-risk or "falling thru the cracks", i.e. not covered, may be an important research project. For instance, studies of long waiting times to
be seen by a provider (one of the responses gathered in this study) may show system problems that could be improved with little cost or effort.

Research is needed to determine how the healthcare needs of children will be met under the new managed care plans and the effects of limited choices. No studies to correlate the number of providers utilized with the levels of customer satisfaction were found in the literature search; therefore, this may be an area for further study to determine if parental perception of quality or limits of choice of provider by insurers is an indicator of utilization of more than one provider.

More study is needed on plans for cost-effective treatment of acute pediatric conditions, such as otitis media and asthma, in an office rather than an emergency room. Additionally, research to determine pro-active maintenance of chronic conditions of childhood such as asthma is necessary to improve healthcare services utilization.

Additionally, as providers evaluate the effects of the changing payment mechanism upon structural and organizational systems, more research is necessary to examine outcomes of healthcare delivery. Research to determine the outcomes of pediatric care delivered via different healthcare systems may be important.
Further, study may be indicated to determine well developed alternatives to emergency care. Determining alternatives to ER care may be dependent upon the management of information and the clinical needs of the sick children who access such care. Researchers should concentrate on identifying the most appropriate service in the least costly environment.

SUMMARY

Utilization and access issues have been studied and defined, and barriers to primary care visits as identified by Aday and other researchers have been defined and analyzed. The potential for access to primary care services has been shown to be a product of predisposing and enabling attributes as well as health system factors and satisfaction indicators. Challenges still exist for parents and providers to increase primary care visits during the first year-of-life. An improvement in access to primary care for all children is still needed.
BIBLIOGRAPHY


Healthy People 2000 (1992). Healthy People Objectives for Infants and Children


IntelHealth-Home to Johns Hopkins Health Information - Choosing a Doctor (1998).


APPENDIX A

AMERICAN ACADEMY
of
PEDIATRICS

RECOMMENDATIONS FOR PREVENTIVE
PEDIATRIC HEALTHCARE

COMMITTEE ON PRACTICE
and
AMBULATORY MEDICINE

1995
Standards established by the American Academy of Pediatrics (AAP, 1995) for the appropriate number of preventive healthcare visits include five (5) visits during the first year-of-life and three (3) visits during the second year.
APPENDIX B

CENTER FOR PEDIATRIC RESEARCH

NORFOLK, VIRGINIA 23501

DATA FOR SURVEY B
IMMUNIZATION HISTORY

TO BE COMPLETED IN HOUSEHOLDS WITH CHILDREN IN THE TARGET AGE RANGE, 12-30 MONTHS OF AGE.

1. CITY: Norfolk _______ Newport News _______

2. CLUSTER CODE No.: __________  3. HOUSEHOLD CODE No.: __________

4. INTERVIEWER NAME: ________________ INTERVIEWER CODE: ________________

5. DATE OF INTERVIEW: ___/___/93 (mm/dd/yy)  6. TIME OF INTERVIEW: __:__ (24 hour clock)

HOUSEHOLD COMPOSITION

First, I would like to begin by asking a few questions concerning this household.

7. What is the total number of people, including children and adults who live in this household? _____ (total)

8. Could you tell me the first name of all the individuals living in this household, their ages, and how they are related to you. Let's start by listing you, children next and other adults in the household after that.


<table>
<thead>
<tr>
<th>Roster No. (CIRCLE ELIG.)</th>
<th>First Name</th>
<th>Relationship to respondent</th>
<th>Age (yr)</th>
<th>Date of birth if &lt;5 yrs</th>
<th>M/F</th>
<th>Active Military Branch</th>
<th>Occupation of adult</th>
<th>Head of NH</th>
<th>&quot;X&quot;*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Respondent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* ASK: Which person or persons do you consider to be the head of this household?

INTERVIEWER: BE SURE TO COMPLETE ALL ITEMS ABOVE BEFORE PROCEEDING.
HEALTH CARE PROVIDERS

Now I have some questions to ask about where you usually take _______ for well baby care and/or immunizations.

13. (SHOW RESPONDENT CARD A TO PROMPT RESPONSES.) Please list the names and locations of all the clinics or doctors' offices where _________ has received well baby care and/or immunizations.

Provider No.
1. NAME
   STREET  CITY STATE
2. NAME
   STREET  CITY STATE
3. NAME
   STREET  CITY STATE
4. NAME
   STREET  CITY STATE
5. NAME
   STREET  CITY STATE

Now we would like to ask your permission for these clinics or doctors to send us a copy of your child’s immunization records. This information will be used to make sure the immunization history is complete. OBTAIN A SIGNED AUTHORIZATION FORM FOR EACH PROVIDER LISTED.

14. In general, is there one person or place where you go most of the time to get immunizations or baby shots?

   Yes □    No □ → GO TO Q16

   Please tell me which clinic or doctor's office is where you usually go for ________'s immunizations or shots.

   PROVIDER NO. _______
15. Why did you choose this location as the usual place for your child’s immunizations or baby shots? (RECORD VERBATIM, ALL ANSWERS. ASK: Is there any other reason?) → GO TO Q17

16. Many people do not go to the same place to have their child’s immunizations. Why has your child not been to the same doctor or place for his/her immunizations? (RECORD VERBATIM, ALL ANSWERS. ASK: Is there any other reason?)

17. Do you think it is important for children to get immunizations?

Yes [ ] No [ ]

Why? ________________________________________________________________

______________________________________________________________

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
18. Look at the health plans listed in CARD B. Is your child covered by any of these plans?

Yes ☐  No ☐ → GO TO Q20  Don’t know ☐ → GO TO Q20

18a. Which ones (CHECK ALL THAT APPLY)?

<table>
<thead>
<tr>
<th>Plan</th>
<th>☐</th>
<th>☐</th>
<th>☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicaid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHAMPUS or Veteran’s</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue Cross/Blue Shield</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aetna</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Private Insurance (Specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workmen’s Compensation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (Specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don’t know for sure</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

19. Is ________ covered for immunizations on any of these plans?

Yes ☐  No ☐  Don’t know ☐

20. Have you ever personally taken _____ or gone with _____ to get his/her immunizations?

Yes ☐  No ☐ → GO TO Q32
BARRIERS TO IMMUNIZATION

(IF THE CHILD HAS NOT RECEIVED ANY IMMUNIZATIONS, GO TO Q32.) The next few questions are concerning the last time you took your child for his/her immunizations.

21. Did you have any problems getting to the doctor or clinic?
   No ❑  Yes ❑ → What kind of problems? ________________________________

22. Did you have any problems with the office or clinic hours there?
   No ❑  Yes ❑ → What kind of problems? ________________________________

23. Did you or someone else have to take time off from work to go to the office or clinic for shots?
   No ❑  Yes ❑ → Was it a problem? Yes ❑ No ❑

24. Did you need an appointment to take _____ to the office or clinic to receive his/her baby shots?
   Yes ❑ → Was this a problem? Yes ❑ No ❑
   No ❑
   Don’t know ❑ → What kind of problem? ________________________________

25. Did you have any problems getting your child his/her shots once you were there?
   No ❑  Yes ❑ → What kind of problems? ________________________________

26. How long did you wait before your child was seen by a doctor or nurse? _____________
   (If less than 1 hour, record number of minutes, if 1 or more hours, record the nearest half hour.)

27. Did the amount of time you waited cause any problems for you?
   No ❑  Yes ❑ → What kind of problems? ________________________________
28. Which of the following statements best describes how much you paid for your child's last immunizations alone, not including other well baby visit charges? (ANY INSURANCE REIMBURSEMENT MEANS THE RESPONDENT DID NOT PAY THAT PART.)

I paid all of it  □ How much was that? $________
I paid part of it  □ How much was that? $________
I paid none of it □

Why?
Dept of Public Health/Clinic □
Insurance □
Other □
Specify: ________________________________________
29. When you last took your child to get his/her immunizations, did you

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Yes</th>
<th>About how much was that?</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Have to pay for a babysitter?</td>
<td>□</td>
<td>□</td>
<td>$__________</td>
</tr>
<tr>
<td>b) Have to pay for transportation?</td>
<td>□</td>
<td>□</td>
<td>$__________</td>
</tr>
<tr>
<td>c) Did you or someone else lose income because you had to miss work?</td>
<td>□</td>
<td>□</td>
<td>$__________</td>
</tr>
<tr>
<td>d) Did you pay other doctor/clinic charges?</td>
<td>□</td>
<td>□</td>
<td>$__________</td>
</tr>
<tr>
<td>e) Did you have any other costs that have not been mentioned?</td>
<td>□</td>
<td>□</td>
<td>$__________</td>
</tr>
</tbody>
</table>

Please specify: ______________________________________________

30. Was the amount you spent for your child to receive his/her last immunization a financial problem for you?

Yes □  No □

31. Did you have any problems in getting your child’s last immunizations that we have not already asked about?

No □  Yes □ → What kind of problems? ________________________________

32. Do you know when it is time for _______ to go for his/her shots?

Yes □  No □

How do you know? ________________________________________________

33. Are you aware of any place(s) where your child can receive his/her immunizations free of charge?

No □  Yes □ → Where? ______________________________________________
### SOCIODEMOGRAPHICS

Finally, I would like to ask a few more questions about you and your family. Your responses are confidential and are only used for group reporting purposes.

34. How long have you lived in this city? ______________________________ (RECORD IN YEARS OR IF LESS THAN 1 YEAR, RECORD IN MONTHS.)

35. Would you describe yourself as

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>☐</td>
</tr>
<tr>
<td>African-American</td>
<td>☐</td>
</tr>
<tr>
<td>Asian-American</td>
<td>☐</td>
</tr>
<tr>
<td>Hispanic</td>
<td>☐</td>
</tr>
<tr>
<td>or Other</td>
<td>☐ Please specify:</td>
</tr>
</tbody>
</table>

36. What is the highest grade you completed in school or the highest degree you have obtained?

__________

37. Are there any children in this household currently enrolled in the WIC program?

- Yes [ ] No [ ]

38. Are there any children in this household currently enrolled in the AFDC or ADC program?

- Yes [ ] No [ ]

39. Are any of the eligible children in this household (12-30 months of age) currently enrolled in day care?

- Yes [ ] No [ ]

   - which children (first name) | Where does he/she go? (NAME CARE PROVIDER, INDICATE AS CENTER OR HOME)

   ____________________________________________

   ____________________________________________
40. Could you tell me what your family's total combined income from all family members was during the past 12 months. This includes income from all sources, such as wages, salaries, social security or retirement benefits, interest or dividends, rent, food stamps, and so forth. (PLEASE TRY TO DETERMINE DOLLAR AMOUNT FIRST. IF RESPONDENT IS UNABLE TO ANSWER, PLEASE READ THE LIST IN 40a.)

$ ____________ Don't know □ Refused □

OR

40a. (SHOW RESPONDENT CARD C.) Can you show me if it was (CHECK ONE).

Under $6,000 01
or $6,000 to $9,999 02
or $10,000 to $19,999 03
or $20,000 to $29,999 04
or $30,000 to $39,999 05
or $40,000 to $49,999 06
or $50,000 to $59,999 07
or over $60,000 08

don't know □ refused □

41. Is there anything you can think of that would make it easier for you and others to get their baby's shots in any of the places you have visited or seen (do you have any suggestions or ideas)?

No □ Yes □ Comments: ________________________________

______________________________

INTERVIEWER: IF THERE IS MORE THAN 1 ELIGIBLE CHILD, INTRODUCE SUPPLEMENT B. IF THERE IS ONLY ONE ELIGIBLE CHILD, SAY:

The questionnaire is now complete. Thank you very much for your time and help with this survey.

42. INTERVIEW IS: COMPLETE □ INCOMPLETE □
APPENDIX C

CENTER FOR PEDIATRIC RESEARCH

NORFOLK, VIRGINIA 23501

CINCH PROJECT BASELINE SURVEY

MISSED OPPORTUNITIES
CINCH Project Baseline Survey

TO BE COMPLETED IN HOUSEHOLDS PREVIOUSLY INCLUDED IN THE NORFOLK BASELINE SURVEY

1. CITY: Norfolk

2. CLUSTER CODE NO.: □□□□

3. HOUSEHOLD CODE NO.: □□□□□□

4. INTERVIEWER NAME: ___________________ INTERVIEWER CODE: _________

5. DATE OF INTERVIEW: □□□□□ (mm/dd/yy)

6. TIME OF INTERVIEW: __:__ (24 hour clock)

7. HOUSEHOLD DATA (TRANSCRIBED FROM SCHEDULES B AND C)

   DATE(S) OF INTERVIEW:

   __________________________________________

   NOTES REGARDING LAST INTERVIEWS:

   __________________________________________

<table>
<thead>
<tr>
<th>FAMILY INFORMATION</th>
<th>8. &quot;X&quot; Respondent</th>
<th>NAME</th>
<th>D.O.B.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible Child</td>
<td>1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Specify:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. REFUSAL FOR INTERVIEW:

   □ Refusal to participate. Document reason(s):

   __________________________________________

   __________________________________________

   □ Interviewer may come back. Note appointment: ____________________

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
10. During our last interview, you told us that [CHILD'S NAME] had gone to the following places for well-baby care and immunizations:

1) 

2) 

3) 

11. Is this information correct?

Correct ☐ Not Correct ☐ CROSS THROUGH ANY INCORRECT PLACES. ADD ANY OTHER PLACES BELOW.

12. Besides the places I listed, are there any other places that you have ever taken your child for well-baby care and/or immunizations?

Yes ☐ No ☐ → Go to Q13

[SHOW RESPONDENT CARD A TO PROMPT RESPONSE] Please list the names and location of all other clinics or doctor’s offices where [CHILD'S NAME] has received well baby care and/or immunizations.

Provider No.

1. NAME ____________________________
   STREET ______________________ CITY ______ STATE ______

2. NAME ____________________________
   STREET ______________________ CITY ______ STATE ______

3. NAME ____________________________
   STREET ______________________ CITY ______ STATE ______

13. Have you ever taken your child to a doctor’s office, clinic, acute care center, urgent care center, or emergency room because your child was sick or injured?

Yes ☐ No ☐ → Go to Q 15
14. (SHOW RESPONDENT CARD H TO PROMPT RESPONSE) Please list the names and locations of the places where ______ has received care when he/she was sick or injured.

Provider No.  
1. NAME: __________________________________________
   STREET: ________________  CITY: ________________  STATE: ________________

2. NAME: __________________________________________
   STREET: ________________  CITY: ________________  STATE: ________________

3. NAME: __________________________________________
   STREET: ________________  CITY: ________________  STATE: ________________

15. Can you think of any other places that you have taken your child for health care, either when he/she was well or ill?  
   Yes [ ]  No [ ]  GO TO Q16

Provider No.  
1. NAME: __________________________________________
   STREET: ________________  CITY: ________________  STATE: ________________

2. NAME: __________________________________________
   STREET: ________________  CITY: ________________  STATE: ________________

16. Has a doctor or health facility ever referred you to another doctor or health facility for your child’s immunizations?  
   Yes [ ]  No [ ]

   a. What doctor or health facility referred you:
   __________________________________________

   b. To what doctor or health facility were you referred:
   __________________________________________

   c. What was the reason for the referral:
   __________________________________________

Now we would like to ask your permission for these clinics or doctors to send us a copy of your child’s medical records. We are requesting your child’s medical record in order to study whether mild illnesses keep some children from receiving their shots on time and whether doctors and nurses are missing some opportunities to immunize children. OBTAIN A SIGNED AUTHORIZATION FORM FOR EACH PROVIDER LISTED.

INTERVIEWER: IF THERE IS MORE THAN 1 ELIGIBLE CHILD, INTRODUCE SUPPLEMENT D. IF THERE IS ONLY ONE ELIGIBLE CHILD, SAY:
   The questionnaire is now complete. Thank you very much for your time and help with this survey.

17. INTERVIEW IS:  COMPLETE [ ]  INCOMPLETE [ ]
CINCH PROJECT SURVEY: HISTORY OF IMMUNIZATION HEALTH CARE PROVIDERS

1. During our last interview, you told us that _______ had gone to the following places for well-baby care and immunizations or baby shots:
   1) ........................................................................................................
   2) ........................................................................................................
   3) ........................................................................................................

2. Besides the places listed above, are there any other places (including WIC) that you have ever taken your child for well-baby care or immunizations, even if it was just one visit?

   Yes ☐   No ☐ → Go to Question 3.

   Please list the names and locations of all other clinics or doctor’s offices where _______ has received well baby care or immunizations.

<table>
<thead>
<tr>
<th>NAME OF CLINIC OR DOCTOR’S OFFICE</th>
<th>ADDRESS: STREET</th>
<th>CITY</th>
<th>STATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Have you ever taken _______ to a doctor’s office, clinic, acute care center, urgent care center, or emergency room because your child was sick or injured?

   Yes ☐   No ☐ → Go to Question 5.
4. Please list the names and locations of the places where ______ has received care when he/she was sick or injured, even if you have already written the name above.

<table>
<thead>
<tr>
<th>NAME OF CLINIC OR DOCTOR'S OFFICE</th>
<th>ADDRESS: STREET</th>
<th>CITY</th>
<th>STATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Has a doctor or health care facility ever referred you to another doctor or health care facility for your child’s immunizations?

Yes □  No □  → Go to Question 6.

   a. Name of doctor or health care facility who referred you:

   ________________________________________________________________

   b. Name of doctor or health care facility where you were referred:

   ________________________________________________________________

   c. What was the reason for the referral:

   ________________________________________________________________

6. The next page is a permission form. Please sign and return that form along with this questionnaire in the stamped, addressed envelope provided.

Thank you for your help!
1. IDNO  A six digit number which refers to the child on whom the survey information is collected. (Found on the top of D2)

2. CITY  
   1 = Norfolk

3. CLUSTER  
   3 digit code number (Found on D1)

4. HSEHOLD  
   5 digit code number (Found on D1)

5. INTVCODE  
   A two digit code number (Found on D1)

6. DATINT  
   Date of interview (Found on D1)

7. INTTYPE  
   1 = in person interview (Use v. 10/15/93, codes)
   2 = mail interview (Use v. 01/14/94, codes)
   3 = telephone interview

8. RESDOB  
   Respondents date of birth (Found on D1, item 8)

9. RESSEX  
   Sex of the respondent
   M = Male
   F = Female

10. RELATION  
    Relationship of respondent to the eligible child
    01 = Mother of child
    02 = Father of child
    03 = Grandmother of child
    04 = Grandfather of child
    05 = Aunt of child
    06 = Sister of child
    07 = Foster parent
    08 = Legal guardian
    09 = Other

11. IDNODOB  
    Date of birth of the eligible child

12. Q9  
    Respondent refused to participate in the interview.
    1 = refused.

13.-16. Q10PR1, Q10PR2, Q10PR3, Q10PR4  
    Well-baby care and immunization providers
    01 = Private MD
    02 = Health Department Clinic
    03 = Community Health Clinic
    04 = Military
    05 = Walk in Clinic/hospital Clinic
    06 = CHKID Clinic
    07 = Norfolk Community Hospital Clinic
    08 = DePaul Clinic

17.-20. Q11PR1, Q11PR2, Q11PR3, Q11PR4  
    Correct provider information
    1 = yes
    0 = no

21. Q12  
    Other well-baby/immunization places
    1 = yes
    0 = no
Survey D Codes
v. 10/15/93
Page 2

22. - 25. Q12PR1, Q12PR2, Q12PR3, Q12PR4 Other well-baby and immunization providers
01 = Private MD
02 = Health Department Clinic
03 = Community Health Clinic
04 = Military
05 = Walk in Clinic
06 = Hospital Clinic
09 = WIC
10 = Emergency Room
11 = Emergency Room - Military
12 = Hospital - Inpatient

1 = yes
0 = no.

27. - 30. Q14PR1, Q14PR2, Q14PR3, Q14PR4 Sick and injury care providers
01 = Private MD
02 = Health Department Clinic
03 = Community Health Clinic
04 = Military
05 = Walk in Clinic
06 = Hospital Clinic
09 = WIC
10 = Emergency Room
11 = Emergency Room - Military
12 = Hospital Inpatient

31. Q15. Well/ill care
1 = yes
0 = no.

32. - 33. Q15PR1, Q15PR2 Well/ill care Providers
01 = Private MD
02 = Health Department Clinic
03 = Community Health Clinic
04 = Military
05 = Walk in Clinic
06 = Hospital Clinic
09 = WIC
10 = Emergency Room
11 = Emergency Room - Military
12 = Hospital Inpatient

34. Q16. Immunization referral
1 = yes
0 = no.
35. Q16A. Referred from
   01 = Private MD
   02 = Health Department Clinic
   03 = Community Health Clinic
   04 = Military
   05 = Walk in Clinic
   06 = Hospital Clinic
   09 = WIC
   10 = Emergency Room
   11 = Emergency Room - Military
   12 = Hospital Inpatient

36. Q16B. Referred to
   01 = Private MD
   02 = Health Department Clinic
   03 = Community Health Clinic
   04 = Military
   05 = Walk in Clinic
   06 = Hospital Clinic
   09 = WIC
   10 = Emergency Room
   11 = Emergency Room - Military
   12 = Hospital Inpatient

37. Q16C. Reason for referral
   01 = General Information
   02 = Immunizations
   03 = Financial/Cost/Free
   04 = Tri-care booked, no appts available
   05 = Provider didn’t have immunizations needed
   06 = Due for shots

38. MED_AUTH  Indicate if an authorization for the release of medical records was obtained
               1 = yes
               2 = no
APPENDIX D

OLD DOMINION UNIVERSITY

NORFOLK, VIRGINIA 23539

OFFICE OF RESEARCH, ECONOMIC DEVELOPMENT AND GRADUATE STUDIES

Human Subjects Institutional Review Board (IRB) Waiver
March 14, 1996

Ruth A. Waibel
437 Chespekean Trail
Virginia Beach, VA 23452

Dear Ms. Waibel:

Based on the information received by this office on 4 March 1996, it was determined that your dissertation titled "Factors Associated With...in the City of Norfolk, VA" qualifies for review under Expedited Review criteria: it involves the study of existing data. The protocol adequately addresses the issues of confidentiality, minimal risk, and informed consent. Consequently, your project received approval after a review conducted jointly by this office and the college representative of the University’s Human Subjects Institutional Review Board (IRB).

Please note that this approval remains in effect until 3 March 1997 or when there is a change to the research methodology—whichever occurs first. If you have any questions or comments please do not hesitate to contact me.

Sincerely,

Steve Hoagland

c: Val Derlega, IRB Chair
Deanne Shuman, IRB representative
College of Health Sciences
APPENDIX E

HEALTHY PEOPLE 2000

NATIONAL HEALTH PROMOTION

AND

DISEASE PREVENTION OBJECTIVES
Appendix E. Healthy People Objectives for Infants and Children (Healthy People 2000, 1992)

OVERALL GOAL: By the year 2000; All infants and their families should be able to participate in primary healthcare for well-baby and treatment of special acute care or chronic conditions.

1. Increase to at least 90\% the proportion of infants up to 24 months who receive, as a minimum, all recommended preventive and primary care services at the appropriate intervals. (21.2a & 14.16)

2. Increase to at least 75\% the population of providers of primary care for children who include assessment of cognitive, emotional, and parent-child functioning, with appropriate referral, counseling and follow-up, in their clinical practices. (6.14)

3. Increase to at least 80\% the proportion of providers of primary care for children who routinely refer or screen infants and children for impairments of vision, hearing, speech and language, and assess other developmental milestones as part of well-child care. (17.15)
4. Reduce acute middle ear infections among children aged 4 and younger, as measured by days of restricted activity or school absenteeism, to no more than 105 days per 100 children. (20.9)

5. Reduce asthma morbidity among children aged 14 and younger, as measured by a reduction in asthma hospitalizations to no more than 225 per 100,000. (11.1b)

6. Improve financing and delivery of clinical preventive services so that virtually no American has a financial barrier to receiving, at a minimum, the screening, counseling, and immunization services recommended. (21.4)

7. Develop a set of health status indicators appropriate for federal, state and local health agencies and establish use of the set in at least 40 states. (22.1)

8. Identify, and create where necessary, national data sources to measure progress toward each of the year 2000 national health objectives. (22.2)

9. Achieve timely release of national surveillance and survey data needed by health professionals and agencies to measure progress toward the national health objectives. (22.7)
VITA

Ruth A. Waibel, RN, PhD, FACHE
22700 Waibel Farm Road, Coolville, OH 45723

Academic Preparation:

Old Dominion University Norfolk, VA
Urban Health Services, Cognate: Child Study & Education Ph.D. 2001

American College of Healthcare Executives Chicago, IL
Board Certified in Healthcare Management Fellow 1998

University of Phoenix Phoenix, AZ
Management/Human Resources and Organizational Behavior Master of Arts 1985

University of Phoenix Phoenix, AZ
Health Services Administration Bachelor of Science 1980

Allegheny General Hospital, School of Nursing Pittsburgh, PA
Nursing Diploma 1962
Licensure/Certification:

Licensed to Practice Nursing (RN) in Ohio 1996-2001
Cardio-Pulmonary Resuscitation Certification
Certified Healthcare Executive 1985-1998
Ordained Elder, Presbyterian Church, USA 1994-2001
Advanced Nursing Administration Certification 1986-1990
Perioperative Nursing Practice Certification 1979-1989

Professional Work Experience:

Ohio University Athens OH 45701
Coordinator of Health Policy Certificate Program & Assistant Professor 1996-2001

Eastern Virginia Medical School, Center for Pediatric Research Norfolk, VA 23507
Graduate Research Assistant 1993-1996

Children’s Health Systems Norfolk, VA 23507
Corporate Director, Ambulatory Services 1991-1993
Children’s Hospital of The King’s Daughters, Inc. Norfolk, VA 23507
Assistant Administrator 1984-1991
Phoenix Memorial Hospital Phoenix, AZ
Clinical Director 1979-1983
Arizona Children’s Hospital Tempe, AZ
Supervisor, Surgical Services 1966-1979

Scholarly and Creative Accomplishments

Publications:


Waibel, R.A., Sandifer, D., (1990), Manual of Universal Precautions and HIV Practice Standards,. Children’s Hospital of The King’s Daughters, Norfolk, VA.


Waibel, R.A. (1976), “I’m Going to the Hospital; a Booklet for Surgical Patient Orientation” Arizona Children’s Hospital, Tempe, AZ.

Professional Exhibits and Shows


Waibel, R.A. (2001) Barriers to Utilization of Appropriate Healthcare Resources in Children Two Years-of-age and Under. Old Dominion University Research Symposium, Norfolk, VA

Professional Papers and Refereed Case Studies

2001: Barriers to Utilization of Primary Healthcare Resources for children under the age of two
(Dissertation, successfully defended March 2001)

1998 April: American College of Healthcare Executives Case Report: Improving healthcare outcomes; a coalition of the children’s hospital, pediatric research center, medical school, other healthcare organizations and the community to improve the health status of children.

1998 February: American College of Healthcare Executives Case Report: Organizational evaluation of a pediatric surgical services program and development of a plan to implement change.

1997 August: American College of Healthcare Executives Case Report: Development and mentoring health care leaders; the story of three young managers rise to leadership effectiveness through a mentoring process.


1995 June: Construction project report, Child Study Center, building and program expansion.

1994 November: Evaluation of early intervention and Part H, Medicaid funding program. (With S. Johnson) Department of Public Health Services, Norfolk, VA.

1994 November: An analysis of the relationship between church attendance and the willingness to let an incurably ill person die.

1994 October: The effect of developmental growth delays or short stature on learning and socialization.

1994 August: Sensitive parenting.

1994 July: An inclusion model of schoolroom teaching and learning at Children's Hospital of The King's Daughters.
1994 June: Discovering the child within.

1994 June: How parents and teachers can work together to improve children’s learning.

1994 May: Children of divorce.


1994 April: Evaluation in practice; quasi-experimental design; pre-test, post-test comparison group.

1994 April: Research and education in healthcare management, where does it fit?

1994 March: The importance of immunizations for African American children, will education make a difference?

1994 March: Design and recommendations for implementation of a pediatric surgical services program at a California Children’s Hospital.
1994 February: Evaluation: Pediatric Surgical Services Program.


1993 October: The policy and politics of health.

1993 June: Management of urban healthcare settings; an issue analysis on quality in urban healthcare.

1992 August: Reduction of rubeola outbreaks in the Portsmouth, VA school district.

1992 June: Home health care services, how have they changed?


1992 April: The relationship of relaxation techniques to stress levels.
1991 December: Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) in the children of Norfolk, VA.

Features


1998 August. "Member profile". Southeastern Ohio Regent’s Newsletter. Pg.2

Professional Appointments/Memberships

American College of Health Care Executives
   Member 1989-2001
   Regent’s Council for Southeast Ohio 1996-2001
   Faculty Advisor, FHCA, Ohio University 1997-2001

AARP, Modern Maturity Magazine
   Panelist 1997-2001

Ambulatory Pediatric Association 1997-2001

Central Ohio Healthcare Administrators Association:
   Member 1997-2001
   Planning Committee 1998-2001
Community Service

Visiting Nurse Association, Athens, OH
  Development Campaign Committee 2000
Kids on Campus, Advisory Board 2000-2001
Lottridge Community Center, Lottridge, OH
  Member 1996-2001
  Marketing/Public Relations Chair 1998-2000
  Nominating Committee Chair 2000

University Service

Certificate in Health Policy, Ohio University:
  Coordinator 1997-2001
  Advisory Board Chair 1997-2001
Colloquium on Teaching, Ohio University 1996-1997
Curriculum Committee, College of Health & Human Services, OU 1997-2001
  Chair, School of Health Sciences 1998-2001
Graduate Education Committee, School of Health Sciences, OU 1996-2001
  Health Administration Graduate Advisory Board, Ohio University 1998-2001
Human Resources Committee, School of Health Sciences, OU: Chair 1996-1998
Institute for the College of Health
& Human Services, OU, Advisory Committee 1996-2001

Courses Offered 1996-2001

Ohio University, Athens, OH

HLTH 217: Introduction to Healthcare Organizations
HLTH 335: Acute Care Administration
HLTH 340: Contemporary Problems in Healthcare
HLTH 427/527: Health of Women
HLTH 480/481: Practica & Internship
HLTH 490/690: Independent Study
HLTH 608: Health Policy
HLTH 692: Comprehensive Health Care Planning
HLTH 610/698: Health Care Program Evaluation & Assessment

Awards

Outstanding Teacher of the Year, School of Health Sciences, Ohio University 1998, 1999, 2000, 2001

Best Teaching Practice for 1998 (Honorable Mention)
The Center for Teaching Excellence Ohio University
American College of Surgeons Outstanding
Operating Room Nurse: Arizona 1976

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
Mrs. Waibel is an Assistant Professor of Health Sciences, Coordinator of the Health Policy Certificate Program, Chair of the Health Policy Advisory Board and Chair of the Health Sciences Curriculum Committee at Ohio University. She teaches courses at the graduate and undergraduate level in Health Planning and Evaluation, Health Policy, Contemporary Problems in Healthcare and Health Administration.

Mrs. Waibel is Board Certified in Healthcare Administration and a Fellow in the American College of Healthcare Executives. She has a diploma from Allegheny General Hospital, School of Nursing (Pittsburgh, PA), undergraduate and graduate degrees from University of Phoenix (Phoenix, AZ) and a Ph.D. from Old Dominion University (Norfolk, VA). Her research interests include the factors affecting access/utilization to primary healthcare resources for children under the age of two.

Mrs. Waibel is faculty advisor for the Future Healthcare Administrators (OU campus), represents healthcare leaders from Southeastern Ohio on the Regent’s Council of the American College of Healthcare
Executives, and is a member of the Planning Committee for Central Ohio Healthcare Administrators Association. She is a Board Member of Kids on Campus, and a committee member of the College of Health and Human Services Institute and Curriculum Committees. In addition, she holds a license to practice professional nursing and has been Nationally Certified in Operating Room Nursing and Advanced Nursing Administration.

From 1986 to 1991, Ruth served as adjunct faculty at Old Dominion University, School of Nursing and as an Assistant Administrator with Children's Hospital of The King's Daughters, Inc. From 1990 to 1993, she was Corporate Director of Ambulatory Outreach for Children's Health Systems, Norfolk, VA, and from 1993 to 1996 served as a graduate research assistant at the Center for Pediatric Research of Eastern Virginia Medical School. She began her work with OU in 1996. In 1997, 1998, 1999 and 2000, the students selected her as the Teacher of the Year.

Dr. Waibel has been married to her husband, George, since 1962. Their immediate family consists of five adult children, their spouses, and ten grandchildren.

Dr. Waibel has two younger siblings, a sister and a brother.