

BASELINE ANALYSIS OF THE DELAWARE HEALTHY CHILDREN'S PROGRAM



BASELINE ANALYSIS OF THE DELAWARE HEALTHY CHILDREN'S PROGRAM

By

Paul L. Solano

Associate Director, Health Services Policy Research Group
Associate Professor, School of Urban Affairs and Public Policy
College of Human Resources, Education and Public Policy
University of Delaware

Mary Joan McDuffie

Research Associate, Health Services Policy Research Group
College of Human Resources, Education and Public Policy
University of Delaware

David Pizzi, Doreen Xing Wang, Jia Xing

Research Assistants, Health Services Policy Research Group
College of Human Resources, Education and Public Policy
University of Delaware

May, 2000

Table of Contents

PREFACE.....	5
EXECUTIVE SUMMARY.....	6
I. PURPOSE OF REPORT.....	14
<i>A. Objective of Baseline Analysis.....</i>	<i>14</i>
<i>B. Overview of Report.....</i>	<i>14</i>
II. DELAWARE'S HEALTHY CHILDREN'S PROGRAM (DHCP).....	15
<i>A. Federal CHIP Program.....</i>	<i>15</i>
<i>B. DHCP and its Operation.....</i>	<i>17</i>
III. DHCP PARTICIPATION.....	19
<i>A. DHCP Eligibles and Potential Participants.....</i>	<i>19</i>
<i>B. DHCP Eligibles.....</i>	<i>23</i>
<i>C. Medicaid and DHCP Comparison.....</i>	<i>31</i>
<i>A. Issues.....</i>	<i>37</i>
<i>B. Format.....</i>	<i>37</i>
<i>C. The Survey.....</i>	<i>38</i>
V. INDIVIDUAL RESEARCH ISSUES/QUESTIONS: ANALYSIS	45
<i>A. HEALTH CARE OF ELIGIBLES PRIOR TO DHCP ENROLLMENT.....</i>	<i>45</i>
<i>A1. Barriers and Access to Health Care</i>	<i>49</i>
<i>A1.1 Child's Medical Care</i>	<i>50</i>
<i>A1.2 Child's Prescription Medicine.....</i>	<i>53</i>
<i>A2. Health Status of Eligible Children Prior to DHCP Enrollment.....</i>	<i>56</i>
<i>A2.1 Chronic Illness of Children.....</i>	<i>56</i>
<i>A2.2. Parent/Guardian View of Child's Health Status.....</i>	<i>58</i>
<i>A3. Health Care Service Utilization.....</i>	<i>61</i>
<i>A3.1. Health Care Received.....</i>	<i>61</i>
<i>A3.2 Incidences of Health Care Utilization</i>	<i>62</i>
<i>A3.3 Immunization Status of DHCP Eligibles.....</i>	<i>66</i>
<i>A4. Health Care Costs</i>	<i>68</i>
<i>B. VARIOUS FINANCIAL DIMENSIONS OF THE DHCP</i>	<i>71</i>
<i>B1. Health Insurance Coverage.....</i>	<i>71</i>
<i>B1.1 Health Insurance Status.....</i>	<i>72</i>
<i>B1.3 Crowding Out Issue</i>	<i>78</i>
<i>B1.4. Financial Benefit of Applicant Households.....</i>	<i>81</i>
<i>B2. Financial Valuation of DHCP by Parent/Guardian Applicants.</i>	<i>83</i>
<i>C. ACCESS TO DHCP</i>	<i>89</i>
<i>C1. Applicants' Information Source About DHCP.....</i>	<i>89</i>
<i>C2. Rating/appraisal of the DHCP Application Processes.....</i>	<i>93</i>
RECOMMENDATIONS	95
<i>APPENDIX A: DHCP ELIGIBLES.....</i>	<i>107</i>
<i>APPENDIX B: DHCP AND MEDICAID COMPARISON.....</i>	<i>112</i>
<i>APPENDIX C: DELAWARE HEALTHY CHILDREN PROGRAM</i>	<i>119</i>
<i>MAIL SURVEY.....</i>	<i>119</i>
<i>APPENDIX D: HEALTH SERVICES UTILIZATION</i>	<i>124</i>
APPENDIX E. EQUATIONS	129

LIST OF TABLES

Table 1 FPL Income Limits and Premiums	16
Table 2 Potential Participants and Eligibles in the DHCP--1999	18
Table 3 Monthly Managed Care Enrollment by DHCP Eligibles 1999	19
Table 4 DHCP Eligibles Statewide by Gender and Age	21
Table 5 DHCP Eligibles by Race and County	22
Table 6 Profile of DHCP-Medicaid Linkage	23
Table 7 Time Frame of DHCP-Medicaid Linkage	25
Table 8 FPL Premium Classes of DHCP Eligibles	27
Table 9 FPL Premium Classes of DHCP Eligibles by County	27
Table 10 DHCP Eligibles by FPL Premium Classes and Medicaid Linkage	28
Table 11 DHCP and Medicaid Children Eligibles, 1998-99 by County	31
Table 12 Medicaid Children and DHCP Eligibles Statewide by Gender and Age	32
Table 13 Medicaid Children and DHCP Eligibles Statewide by Race	33
Table 14 Medicaid Children and DHCP Eligibles Statewide by Race and County	34
Table 15 Sample Size and Sampling Error for DHCP Survey	39
Table 16 Common Set of Independent Variables Used in the Various Equations	41
Table 17 Various Regression Models Employed in the Analyses	42
Table 18 Health Care Dimensions	44
Table 19 Models To Be Tested	48
Table 20 Difficulties in Obtaining Medical Care for Children	50
Table 21 Difficulties in Obtaining Prescription Medicine Care for Children	53
Table 22 Ongoing (CHRONIC) Illnesses	56
Table 23 Parent View of Child Health Status	58
Table 24 Health Care Received by DHCP Child in Last Year by Prior Participation in DHCP	60
Table 25 Health Care Incidences in Last Year by DHCP Child	62
Table 26 Immunization Status of DHCP Children	66
Table 27 Health Care Costs of Eligibles	67
Table 28 Medical Costs by Income and the Number of Eligible Children	68
Table 29 Health Insurance Status of Surveyed Eligibles	72
Table 30 Medicaid Linkage of Eligibles	74
Table 31 Length of Time Since Private Insurance Coverage	74
Table 32 Reasons for Stoppage of Health Insurance	76
Table 33 Reasons for Insurance Stoppage 6 Months before DHCP Application	79
Table 34 Estimates by Medical Cost Savings Uninsured Eligibles	80
Table 35 Private Insurance Premiums Paid by Applicants	81
Table 36 Savings from Medical Costs and Private Insurance	82
Table 37 Applicants' Valuation of DHCP Program	83
Table 38 Premiums Applicants are Willing to Pay for the DHCP	84
Table 39 Applicants' Information Sources of the DHCP	89
Table 40 Applicants' Assessment of DHCP Application Process	92
Table 41 Most Difficult Step in the Application Process	92

Preface

This report is a baseline analysis of the Delaware Health Children's Program (DHCP) implemented under U.S. Title XXI of the Social Security Act. It has been conducted by members of the Health Services Policy Research Group (HSPRG) of the University of Delaware under a contract with the Medicaid program of the Division of Social Services. The contract was initiated on December 10, 1998 and encompassed a time frame to a completion date of October 31, 1999. The contract required establishing a baseline of DHCP enrollees' health status and access to healthcare prior to enrollment for an eventual comparative study of the effects of the program.

We extend our gratitude to the following people. The personnel of the Medicaid program of the Division of Social Services were most helpful. They are Paula Hibbert, Candice Sperry, Alfred Tambe, Beth Laucius, and Phil Soule³. Special thanks go to Paula Hibbert who oversaw the contract and Candice Sperry, who expertly managed the collection, checking, and entry of survey data. Also, a thanks to Fran Daly, and her coworkers of EDS, who as Health Benefit Manager (HBM) personnel, helped shape the enrollment survey and conducted the survey in a highly professional manner. Also from EDS, we thank Shruti Gadhok for assistance with data compilation. Finally, we thank Pat Powell for her contribution for manuscript preparation, format design, and table and chart design and their compilation.

EXECUTIVE SUMMARY

This executive summary is a report on the major findings of a baseline study of the first year of the Delaware Healthy Children's Program (DHCP). The baseline study is to establish a social, economic and health profile of eligible (enrolled) children and their parents/guardians so that comparison of the selected dimensions can be made over time. The baseline encompasses a brief analysis of the participation of all eligibles, and most importantly, an examination of a survey of eligibles and their applicant parents conducted from January to October 1999.

DHCP PARTICIPATION

1. The extent to which DHCP has reached its targeted population is difficult to determine because of the weakness in the methodology that generates the estimates of uninsured children within the 200% Federal Poverty Level (FPL) limits.
2. In 1999, the eligible population in the DHCP exceeded 5,600 children. The average number of children per family was 1.5 with very few families above 3 children. Managed care enrollment was low and volatile in the early months of the DHCP and then leveled off to an average of 2,300 children after September 1999.
3. Approximately one-half (50.8%) of DHCP eligibles reside in New Castle County, while 22.3% and 26.9% respectively have residence in Kent County and Sussex County.
4. Statewide, the predominant participants are "Whites not Hispanic", (48.0%) followed by "Black not Hispanic" children (38.3%). The racial composition is not consistent across counties. In New Castle County (NCC), "Black not Hispanic" children are the largest group with 45.8% of county eligibles. The dominant group in the southern counties is the "White not Hispanic" population.
5. Together Medicaid rollovers and new entrants with prior Medicaid history represent 73.4% of all DHCP eligibles.
6. A very large proportion of the DHCP eligibles live in families that pay the lowest premium. Moreover, these families have had a more frequent past connection with Medicaid than families of eligibles in the two highest premium categories.
7. One major implication of the DHCP-Medicaid linkage is that DHCP participation entails a structural element. A high portion of DHCP enrollment is comprised of children in families that are economically vulnerable on a continuous basis over a period of time. These families may be a "permanent" clientele who move in and out of public assistance programs, perhaps due to deficiencies in their social, educational, and job skills.
8. Medicaid is ten times the size of the DHCP, but the county distribution of eligibles is proportionally very similar for both programs.

9. Statewide, the proportion of eligibles within the 0-4 age group is substantially lower for the DHCP (17.3%) than the Medicaid program (31.0%). Enrollment in the 10-14 and 15-19 age brackets is slightly greater for the DHCP than Medicaid.

10. On a statewide basis, DHCP has a greater “White not Hispanic” enrollment (48.0%) than the Medicaid program (36.5%). The “Black not Hispanic” population is the dominant group in Medicaid with 50.5% of all eligibles.

11. County racial composition of eligibles differs substantially for DHCP and Medicaid.

DHCP SURVEY

The central survey findings are reviewed in terms of response frequencies and the statistical analyses of responses produced by the estimations of various equations, the results of which are given on the accompanying table. (See Chart 1: Statistical Results of Survey Analyses.)

A. Obstacles to Medical Care and Prescription Medicine

1. There are considerable similarities in the barriers encountered by families for medical care and prescription medicine.

2. For approximately 36% of all eligible children, there were no barriers to obtaining medical care and prescription medicine prior to enrolling in the DHCP. Conversely, for 64% of all eligibles, their parents/guardians did encounter difficulties in obtaining these health services.

3. Financial considerations were the primary obstacles of parents/guardians to providing their children with medical care services and prescription medicine. Both cost and insurance obstacles account for over 90% of all obstacles cited.

4. Children with chronic illness encounter greater difficulty in obtaining medical care, but not prescription medicine.

5. Families whose eligible children have a past Medicaid linkage were less likely to have had difficulties in obtaining medical services and prescription medicine compared to families with children who have not had Medicaid affiliation.

6. Having health insurance affected the extent to which barriers to medical care and prescription medicine were encountered. Families in which eligibles were insured in the prior year, either by Medicaid or privately, were less likely to have had problems in obtaining medical care and prescription medicine for their children.

7. Families in the two lower premium levels (101%-133% of FPL, and 134%-166% FPL) were more likely to have confronted barriers to obtaining medical care and prescription medicine for their children than families in the highest FPL premium level (167%-200%).

B. Chronic Illness

1. A large majority, 67.3%, of DHCP eligible children did not have any chronic illness. One-third of all eligibles, 33.7%, suffer from one or more chronic illnesses.
2. Survey findings on the prevalence of multiple chronic illnesses among eligibles correspond to previous research. Less than 5% of eligibles are afflicted with two chronic illnesses; less than 1% of all eligibles have three chronic illnesses; and no children were found to have more than three illnesses.
3. Females and older children are less likely to be chronically ill, and families with more children are less likely to have a child with a chronic illness.

C. Parent View of Child Health Status

1. Eighty percent of all eligibles were considered by their parents/guardians to be in very good or excellent health. A very small portion of all eligible children, 4.7%, was deemed by their parents to be in poor or very poor health.
2. Eligible children of Hispanic origin, older children, and children in smaller families are more likely to have lower health status.
3. Eligible children covered by Medicaid in the prior year were more likely to have higher quality of health than children without Medicaid insurance as well as children who were insured through private policies.

D. Received Medical Care In Year Prior to DHCP Enrollment

1. A substantial proportion of eligible children, 85.9%, received health care in the past year prior to enrolling in DHCP.
2. Older children and children in larger families were less likely to have received medical care in the past year.
3. Insurance status of children was not related to whether a child received medical care.

E. Health Services Utilization

1. The survey results on health service utilization were as follows:
 - 76% of all eligibles had visits to a physician in the past year.
 - A large majority of eligibles (62.5%) did not have a dental visit in the past year.
 - 42% of all DHCP children did not obtain any prescription services in the past year.
 - 75% of all eligible children did not visit an emergency room.
 - 93.7% of all children did not have any hospital stays.

2. Eligibles covered under Medicaid in the prior year were more likely to have a higher number of doctor visits than children without Medicaid insurance as well as children who were insured through private policies.
3. Eligible children with one and with two or more chronic illnesses had greater probability of using more physician services and prescriptions than children without any chronic illnesses.
4. Families with more children had fewer physician visits and fewer prescriptions.
5. Older children were more likely to receive more prescriptions than younger ones.
6. Eligibles insured through either Medicaid or private policies in the prior year were more likely to have higher number of prescriptions than children without any insurance.
7. The insurance status of an eligible did not have any impact on whether they received treatment in an emergency room.
8. Eligible children living in households of both the lowest and middle FPL premium categories had more emergency room service than the children in the highest FPL premium category.
9. Eligible children with one and with two or more chronic illnesses had greater probability of emergency room visits than children without any chronic illnesses.
10. Older eligible children were more likely to have more stays in a hospital than younger ones.
11. Families with more (eligible) children had fewer hospital stays.
12. Eligible children living in households of both the lowest and middle FPL premium categories had fewer hospital stays than the children in the highest FPL premium category.
13. Children with past Medicaid linkage were less likely to have hospital stays.

F. Immunization Up-To-Date

1. An extremely high proportion of eligibles, 90%, had their immunization up-to-date.
2. Eligible children whose immunizations are up-to-date were more likely to have been insured by Medicaid in the last year than children who had no insurance at all or private insurance in the year prior to their DHCP enrollment.
3. Past Medicaid Linkage up to the past ten years does not explain differences in immunization among eligibles.

4. Eligible children living in larger families and children in families of the lowest premium level were less likely to have their immunization up-to-date.

G. Medical Care Costs

1. Parents of 25% of all eligibles did not incur any medical costs for their children.
2. For 15.4% of all eligibles, medical expenses were greater than \$500 per year.
3. Spending on medical care declined per child in larger families.
4. Children in Medicaid in the year prior to enrollment were more likely to incur smaller medical care costs than children without any insurance and children with private insurance.
5. Children who had been Medicaid eligible within the past 10 years were more likely to have incurred lower medical costs than children without such a connection.
6. More medical care costs were incurred for children with chronic illnesses. However, private insurance affects the amount of medical costs if a child has chronic illnesses. Families of children with private health insurance and two or more chronic illnesses have a substantially greater likelihood of spending less on medical care than all other eligibles.

H. Financial Dimensions of Health Insurance

1. In its initial year, DHCP enrollment has been consistent with its objective of providing coverage to low-income uninsured children. A substantial proportion of all eligible children, 72.2%, --did not have health insurance in the year before their participation.
2. Accounting for 28% of all eligibles, the private and public sectors were equally important as insurance providers for DHCP eligibles in the year prior to the DHCP.
3. Over the past ten years most eligibles have been dependent on the Medicaid program as a provider of health insurance. A sizeable proportion of eligibles, approximately 28% of DHCP children, who had private insurance also had insurance coverage through Medicaid in the past ten years. This suggests a pattern of recurrent participation by a population that "regularly" moves in and out of Medicaid.
4. Many eligibles who did have private coverage as their last insurance have been without health coverage for a considerable amount of time in the past ten years.
5. Crowding out, in the form of eligibles dropping private insurance, does not appear to be a problem. Only 15% of surveyed respondents did have private insurance. Responses of most eligibles with private insurance within six months of enrolling in the DHCP indicate that the "loss" of insurance is strictly consistent with the stipulated program exceptions.

6. For those households without private insurance, cost savings could be obtained for families in all premium levels through DHCP participation. The savings are much larger in dollar value for families in the two lower poverty levels due to the smaller DHCP premiums.

7. Private insurance payments did pose a substantial economic burden upon DHCP households given their low income and the sizeable monthly and annual premiums. Estimates indicate that, on average, DHCP households that had private insurance could save over \$2,000 a year. Savings differ slightly among the three DHCP premium categories.

8. On a scale of 0 to 10, an overwhelming 86% of households assigned the DHCP a value of 10 and 97.9% valued the program at 8 or higher, irrespective of their premium level.

9. More than 50% of the applicants (parents/guardians) in each premium category are willing to pay more than a \$25.00 monthly premium for DHCP enrollment of their children.

10. Parents/guardians with more (eligible) children, younger children and higher income (measured by premium category) were willing to pay a higher DHCP premium.

I. Access To The DHCP

1. No one source was a predominant basis for obtaining knowledge of the DHCP.

2. A large single source of information for eligibles (at 17.6% of all responses) was social workers. Applicants who found out about the DHCP through social workers had current and previous involvement in the Medicaid program.

3. It appears that school outreach is an effective approach with 24.3% of all eligibles citing schools as conveying information about the DHCP. Applicants with older children were more likely to hear about the DHCP through their children's school than other sources.

4. Media outlets individually were limited in their impact, but as a group informed 16.9% of all applicants about the DHCP. Eligibles were more likely to have been informed about the DHCP through an individual media outlet than all other sources if their children were not Medicaid insured in the year prior to their DHCP enrollment.

5. Friend/relatives were responsible for informing 12.2% of all eligibles. Eligibles who were informed about the DHCP by friends were more likely to have children who did not have any past connection with the Medicaid program over the past ten years. It appears that friends were a communication bridge to applicants who have little knowledge of government benefit programs.

6. Eligibles rated all steps in the application process as very similar in difficulty. Very few applicants considered any of the processing steps as "hard" or "very hard". All steps received a determination of "easy" and "very easy" by at least 84% of all applicants.

7. Surprisingly, only 11% of the DHCP eligibles assigned "affording the premium" a "hard" or "very hard" designation.

Chart 1
STATISTICAL RESULTS OF SURVEY ANALYSES

	Difficulty in Obtaining Medical Care	Difficulty in Obtaining Prescription	Chronic Illness	Child Health Status	Received Health Care	No. of Doctor Visits	No. of Dentist Visits	No. of Prescriptions	No. of Emergency Room visits	No. of Hospital Stays	Immunization Up to Date	Costs of Eligibles Medical	Premium Parents Willing to Pay	Information Sources: Social Worker	Schools	Media	Medical Provider
Male			+				-		+								
White							-				-	+					
Black non Hispanic							-				-						
Hispanic				-			-					+					
Age			+	-	-			+		+			-				
No. of Children			-	+	-	-		-		-	-	-	+				
Kent Rural						-	+				+	+					
Sussex Rural						-					+						
Newark					-	-						+					
Elsmere					+	-	+										
Wilmington																	
Dover						-											
Smyrna					-												
Georgetown											+	+					
New Castle County							+										
Premium Level 1	+	+							+	-	-		-				
Premium Level 2	+								+	-			-				
Medicaid Insured	-	-		+		+		+			+	-					
Private Insured	-	-						+									
Medical Linkage	-	-								-		-					
One Chronic Illness	+			-		+		+	+			+					
Two or more Chronic Illness	+			-		+		+	+			+					
Privately Insured with Two or More Chronic Illnesses												+					

+ Indicates a positive relationship or association between selected independent variable and dependent variable. - Indicates negative relationship.

I. Purpose of Report

A. Objective of Baseline Analysis

The Delaware Healthy Children's Program (DHCP) is a joint federal government and State of Delaware program and it was put into operation on January 1, 1999. DHCP is financed by federal and state funds, and represents a program separate from the Medicaid program. The objective of DHCP is to provide health care coverage for children without comprehensive health insurance in households with income between 101% to 200% of the Federal Poverty Level (FPL).

This report is to present a baseline analysis of the DHCP. A baseline analysis encompasses a determination of a baseline or benchmarks of the first year of program operation. Its purpose is to establish an empirical profile of clients and parent/guardian applicants, and their medical activities so that a "before and after" evaluation of the DHCP can be conducted. It is consistent with federal requirements and provides the foundation for subsequent and continuous assessment of DHCP performance.¹ The evaluation encompasses:

1. the determination of the scope of participation in the program,
2. analysis of eligibles (children enrolled in DHCP) with respect to access to medical care, health status, health service utilization, health care costs and private health insurance coverage prior to DHCP, and
3. whether these dimensions affect eligibles' decision to participate in DHCP

Various statistical methodologies have been employed to evaluate these dimensions of program activities. To conduct the analysis, data has been compiled from DHCP applications (Delaware Client Information System II, DCIS II), the Medicaid program, and a survey of applicants.

B. Overview of Report

The second section of this report describes the scope and requirements of the DHCP, together with its federal authorization under CHIP (Children's Health Insurance Program). The third section focuses on program participation. In the fourth section, research issues investigated through a survey of parents/guardians of eligibles are discussed along with the methodology employed to evaluate the survey responses. Finally in the fifth section, an empirical analysis of individual research issues is presented.

II. DELAWARE'S HEALTHY CHILDREN'S PROGRAM (DHCP)

The DHCP has been authorized and implemented through federal legislation known more commonly as CHIP, the name given for the Children's Health Insurance Program. CHIP not only provides partial federal funding for the program but also establishes the policy framework and regulations for the state-operated programs of health care coverage for previously uninsured and inadequately-insured or "underinsured" children of low-income families. The basic objectives, requirements and options entailed by CHIP are given immediately below, followed by a description of the State of Delaware's CHIP program known as the Delaware Healthy Children's Program or DHCP.

A. Federal CHIP Program

The CHIP program was established in August 1997 through the Balanced Budget Act of 1997. Formally, CHIP is authorized under Title XXI of Social Security Act (The Medicaid program is implemented under Title XIX of that Act). The impetus for passage of CHIP was a determination that in 1995 between 8.5 to 11.3 million children under 18 (or 13.8% of all children) in the United States did not have health insurance. In 1996, it was estimated that nationwide (a) 2.6 million uninsured children were eligible for CHIP, and (b) an additional 4.7 million children without health insurance were eligible but not enrolled in Medicaid.

With its initiation on October 1, 1997, CHIP became the largest expansion of health insurance for low-income children on the federal level since the enactment of Medicaid in 1965. CHIP entailed \$20 billion in federal matching funds over five years.² The program's objective is to expand health care coverage to children under 19 years of age without health insurance or with inadequate health insurance, who are not currently eligible for Medicaid and live in families with incomes at or below 200% of the Federal Poverty Level (FPL)³. (An additional \$4 billion was allocated for other specific Medicaid initiatives). Federal funds are allocated to each state based on its share of uninsured children with family incomes below 200% of FPL, with adjustments made for differences in health care cost across states.

States have broad flexibility regarding implementation of CHIP while ensuring comprehensive coverage to those children it serves. They can (a) expand the Medicaid program to include the targeted children, (b) develop, or expand an existing, separate child health insurance program for the designated population, or (c) utilize coverage for participants in "benchmark" health plans that operate within the state. Most states have expanded health insurance coverage beyond federal FPL income requirements. Where children's health insurance is not provided under the state Medicaid option, Title XXI and XIX funds cannot be integrated.

To receive federal CHIP funds, States must match federal funds with their own expenditures. The required federal matching of state funds for a State CHIP exceeds that of matching funds for State Medicaid programs. For Delaware, the matching rate for

CHIP is an enhanced rate that is higher than the Medicaid limit—a 50-50 rate for Medicaid and a 65-35 rate for CHIP. A state receives \$1.00 from the federal government for every \$2.00 spent on its Medicaid program; for CHIP, the state obtains \$1.30 for every \$2.00 spent on the program. While their financial commitment could be substantial-- states may have to raise taxes or reduce spending on other programs--, states do have the choice of spending less than their federal allotment, and restricting the scope of their CHIP programs.

The health care coverage under the CHIP program is intended to be comprehensive to include inpatient and outpatient services, physician and medical services, x-ray and laboratory services, and well-child care including recommendations for further treatment. These services must be provided whether or not a state implements its own separate program or chooses “benchmark” plans. If the existing Medicaid program is employed, the comprehensive package of Medicaid must be available to all CHIP child participants.⁴

A state can establish the FPL limits for eligibility in its CHIP program. Upon receipt of CHIP funding, however, federal dollars cannot be substituted for state funds already allocated to existing children's healthcare programs, --either their own or Medicaid--that are within the stipulated FPL maximum. If it is already providing insurance through Medicaid to children of families with incomes above 150% of the FPL, a state can increase its eligibility to children in families that have incomes that exceed the current Medicaid FPL limit by 50%. The enhanced matching rate can only be used to finance healthcare of children in families above the 150% FPL.

The federal CHIP program has become part of the current political dialogue among presidential candidates. Vice President Gore has outlined a plan that would extend coverage under the program to 250% of the FPL. Even if the proposed expansion were implemented, several issues prevail about the initial CHIP efforts of states.

- What factors influence the access to CHIP programs?
- What factors determine eligibility/enrollment?
- What is the access to health care of children prior to their enrollment?
- What is the access to health care of non-enrolled children whose family's income falls within the DHCP limits?
- What is the extent and kind of health services utilization of eligibles before and after enrollment?
- What is the insurance status of the eligible population prior to CHIP and participation in it?
- What are the reasons for the absence, dropping or loss of commercial private health insurance?
- To what extent, and on what basis, has CHIP produced the “crowding out” (dropping) of private health insurance to obtain eligibility?
- What are the effective instruments that would discourage/prevent crowding out?
- How does the health status and health care access vary by regions, by urban and rural areas, and by racial and ethnic characteristics?

Some of these issues will be addressed with respect to the Delaware implementation of CHIP, the Delaware Healthy Children Program (DHCP) after the first year of its operation.

B. DHCP and its Operation

The Delaware Healthy Children Program (DHCP) was initiated on January 1, 1999 by the Department of Health and Social Services, which also administers Delaware's Medicaid program. The objective of DHCP is the provision of health insurance coverage for children under 19 years of age in low-income families who cannot afford an adequate level of health care, and are ineligible for Medicaid. Specifically, DHCP is directed at children in families with incomes at or below 200% of the Federal Poverty Level (FPL). DHCP is a managed care program which provides services through the same managed care organizations (MCOs) that participate in the Medicaid program. Enrollees choose a physician and join one of the following health plans: Delaware Care, First State Health Plan, AmeriHealth. The health services in the managed care package include:

- Physician services including routine checkups and immunizations,
- Inpatient and outpatient care in both hospital and community care settings,
- X-ray diagnostics and laboratory services,
- Routine eye-care.
- Other services (such as home health, durable medical equipment, various types of therapy and other additional services).

In addition, DHCP eligibles receive pharmacy and some behavioral health services from the fee-for-service sector.

To receive health services covered by DHCP a child must be deemed eligible for the program. Formal eligibility occurs with the first month of coverage in a Managed Care plan. Put differently, eligibility takes effect in the first month that the child appears on the MCO enrollment list or roster. Eligibility entails meeting the following qualifications:

- A child must be living in Delaware.
- The family income must be less than or equal to 200% of the FPL.
- Families must meet certain conditions regarding private insurance coverage.
- The family must choose an MCO that will provide healthcare services for the child and pay a monthly premium.

Each family must pay a monthly premium (per family per month, PFPM) up to \$25 depending on income level. Table 1 displays the FPL income categories and the required premium. The premium has two functions: (a) in part it could inhibit crowding out, and (b) it allows parents/guardians to participate as a purchaser of health care coverage like a consumer of private insurance would.

TABLE 1
FPL INCOME LIMITS AND PREMIUMS

Family Size*	1999 highest annual income limit for 101%-133% FPL	1999 highest annual income limit for 134%-166% FPL	1999 highest annual income limit for 167%-200% FPL
2	\$14,712	\$18,360	\$22,120
3	\$18,468	\$23,052	\$27,760
4	\$22,212	\$27,732	\$33,400
5	\$25,968	\$32,412	\$39,040
6	\$29,724	\$37,092	\$44,680
Premiums	\$10.00	\$15.00	\$25.00

*Assume two adult parents/guardians, except for Family Size of 2 with one adult.
Source: U.S. Census Bureau, Poverty Thresholds, 1999.

All children seeking enrollment in DHCP must comply with one of three conditions pertaining to coverage provided by private health insurers.

- The child was uninsured in the six months prior to the date of the DHCP application.
- The child had private insurance in the six months prior to the date of the DHCP application, but the insurance was not comprehensive. Comprehensive insurance is defined as coverage that includes all of the following: hospital care, physician services, laboratory services, and X-ray services.
- The child had comprehensive private insurance in the six months prior to the time of DHCP application but lost the insurance for good cause, such as death of a parent.

This “six-month” restriction is an effort to limit the crowding out of private insurance, i.e., prevent families from dropping more costly private health insurance simply to participate in a less expensive DHCP.

The DHCP provides continuous eligibility: twelve months of managed care enrollment for a child even if family income increases above 200% of the FPL, provided the premiums are paid. Families must continue to meet all other requirements that are not income-related in order to take advantage of this policy.

Initial access to the DHCP has been provided through advertisements and information dissemination in various media outlets--e.g. TV, radio—along with community organizations and governmental agencies. A person who wishes to apply to DHCP can call a designated “800” telephone number or visit various sites. By doing so, the applicant can obtain an information packet that includes: (a) a benefit comparison sheet, showing the covered health insurance services and (b) an enrollment form/application. Once it is determined that the family meets the income, insurance, and residency requirements, the children are added to the eligibility files dating back to the month of application. The family then receives information on managed care plans, including lists of their doctors, and a bill for the first month premium.

Applicants are advised to review the provided information to assist them in the choice of a health insurance plan and a primary care physician in that plan. Upon making a decision, applicants can call a Health Benefits Manager (HBM) representative through an “800” telephone number, or visit a representative at any State Services Center to advise them of which insurance plan they are choosing.

III. DHCP Participation

In this section, several perspectives of DHCP eligibles are given. DHCP eligibles are defined as children who applied in January to October 1999 and met the program requirements pertaining to income, residency, and insurance. These eligibles were enrolled in managed care plans if their families selected a managed care plan, paid the premium, and continued to meet all other requirements except for the income limit.

First, DHCP eligibles are compared with potential participants of the program. Second, various social, economic and demographic characteristics of DHCP eligibles are described. Third, a comparison of DHCP eligibles and Medicaid eligible children (excluding the disabled and other non-comparable groups) is presented according to demographic and geographical dimensions. Because the latter two analyses produced a large number of tables that would unnecessarily encumber the reading of the main body of this report, we have placed many tables in an appendix, and have provided a brief discussion of the findings that these tables reveal about the DHCP.

A. DHCP Eligibles and Potential Participants

Table 2 displays (a) potential DHCP participants estimated at the end of 1998 just prior to the initiation of the DHCP, and (b) the number of DHCP eligibles between January 1999 and October 1999. The figure on potential participants is an estimate, --based on U.S. Census Bureau data (discussed below)-- of the total number of children who were without health insurance for a year and living in families with incomes at or below 200% of FPL. Using these estimates (and thus adopting the underlying definition of the data), it can be concluded that the DHCP reached 41.6% of its targeted population as of October 1999.

Firm conclusions about outreach efforts require consideration of the number of DHCP eligibles as well as the derivation of the estimates of potential participants and the objectives of the DHCP.

**TABLE 2
POTENTIAL PARTICIPANTS AND ELIGIBLES IN THE DHCP--1999**

Geographic Area	Estimates of Potential Participants		Eligibles (Children who applied and qualified for DHCP)***	
	No.	%	No.	%
New Castle County	*		2,849	50.8
Kent County	*		1,251	22.3
Sussex County	*		1,506	26.9
Unknown	--	--	15	--
Delaware (Statewide)	13,513**	100.0	5,621	100.0
Families (Statewide)	6,600*	--	3,672	--
Average No. Children in Family	1.6*	--	1.5	--
Estimated of Potential Participants**	13,513	100.0		

Sources:

*State of Delaware, Department of Health and Social Services, Division of Social Services, 1998.

**Center for Applied Demography and Survey Research, (CADSR), College of Human Resources, Education and Public Policy, University of Delaware, 1999.

***Delaware Client Information System II, (DCIS II), State of Delaware, 1999.

The eligibility figures are generated by DCIS II, and render accurate estimates at the time of their generation (November 1999). The 5,621 estimate measures the total number of eligible (income-qualified) children between January 1, 1999 and October 31, 1999. The number of these who eventually became members of DHCP managed care plans is slightly lower than this for various reasons. Some families did not pay the required premium, and other families experienced income loss while awaiting managed care enrollment and therefore transferred to the Medicaid program. Other children may have been disqualified due to changes in insurance coverage or non-financial circumstances shortly after their certification by social workers.

The monthly enrollment in Managed Care of the DHCP is presented in Table 3.

- Enrollment was low and volatile in the early months of the DHCP's initial operation, perhaps indicating the time required to enhance public knowledge of the program and the initial impact of new administrative procedures that had to be implemented.
- Enrollment has stabilized after May with the number of eligibles remaining fairly steady; this stability is also indicated by the small percentage change in the total eligibles that has occurred each month.

Enrollment levels are continually changing for the following reasons:

- some DHCP children leave for Medicaid due to a reduction in family income level,
- some children move out of Medicaid into DHCP due to a rise in family income brought about by employment changes, new sources of unearned income, or changing family status, e.g., marriage,
- some children leave DHCP because family income increases above the 200% FPL limit due to employment changes, new sources of unearned income, or family status changes, although, as previously described, children have continuous eligibility for twelve months,
- some new children enter DHCP because family income declines due to changes in employment, unearned income, or family status,
- some children leave DHCP owing to factors unrelated to income, including loss of residency, age disqualification, death, or receipt of comprehensive private insurance.

TABLE 3
MONTHLY MANAGED CARE ENROLLMENT FOR DHCP IN 1999

Month	Number	% Change	Month	Number	% Change
1. January	--	--	7. July	1,818	00.7
2. February	124	--	8. August	1,968	08.3
3. March	825	565.3	9. September	2,163	09.9
4. April	1,599	93.8	10. October	2,324	07.4
5. May	2,031	27.0	11. November	2,417	04.0
6. June	1,805	-11.1	12. December	2,324	03.8

Source: Delaware Client Information System II (DCIS II).

The estimates of potential participants are drawn from the Current Population Survey (CPS) of the U.S. Census Bureau. CPS respondents are asked whether their child/children under 18 years of age lacked insurance for the entire previous calendar year. However, the CPS has been criticized for overestimating the number of uninsured children (and adults). Although the CPS counts insurance coverage for a period of time (the entire previous calendar year without insurance), respondents may answer the question of entire year coverage based on the point in time of their recent or current coverage status. The extent to which such misinterpretation occurs is uncertain.

Even without misinterpretation, the CPS is a national survey whereby the number of respondents in a sample for a state of Delaware's size is very small. Consequently, fairly accurate estimation of total uninsured, and especially a breakdown of uninsured by social characteristics, within a state are problematic. One approach is to calculate an average of the annual CPS figures estimated for the state, as has been done for Delaware to determine the state's 1998 and 1999 figures. This methodology raises the question of how well an average figure reflects the actual number of uninsured children in any particular period, given that the average could be either larger or smaller than the particular number of uninsured in the given year, especially if there is substantial variation in the annual sample estimates. Moreover, there is an additional concern even if the average figure estimated at the beginning of the year was a fairly accurate measure of the actual number of uninsured (consistent with the CPS question). The actual number of uninsured could vary within a year and could be different than the average estimate because of changes in employment, economic structure and conditions, the health care market, and health care costs, each of which could affect rates of family and child coverage.⁵ While the average does give a "ballpark" number of the vulnerable population, it may not necessarily provide a specific firm annual target for DHCP enrollment.

Assuming the reliability of responses, the CPS health insurance question could produce a target for the neediest segment of DHCP. The CPS definition of not having health insurance for a one-year period prior to DHCP could identify those families who have encountered continuous financial difficulty and/or other obstacles in obtaining health insurance coverage for their children. A central purpose of DHCP is to provide coverage to those children whose families within the appropriate FPL limits cannot obtain health insurance because of the affordability of either employer or individual-based insurance. DHCP enrollees whose families, within the FPL limits, meet the DHCP requirement of having no health insurance on a child for at least six months could fall into the group encompassed by the CPS question. DHCP eligibility, however, is also confirmed on a child whose health insurance coverage, carried by his/her family, is considered to be inadequate, i.e., the "underinsured". Specifically, DHCP eligibility is extended where health insurance coverage is not inclusive of physician, hospital care, lab tests, and x-ray services, all of which are provided through DHCP. This group is considered within the purview of the DHCP since the defined comprehensive coverage may not be affordable within income constraints of the family that are at the specified poverty levels. Estimation of the size of this (target) group is difficult because reliable data on family

and children health insurance coverage by family income level at the state level is lacking.

B. DHCP Eligibles

A demographic perspective of DHCP eligibles is provided in Table 4 and 5. Eligibles are described according to county, race, age structure and gender. Tables that portray eligibles by race, age structure and county combined are not discussed but can be found in the appendix.

County Perspective:

- As presented in Table 2, there are 5,621 DHCP eligibles as of the end of October 1999.
- These children reside in 3,672 families resulting in an average of 1.5 children per family.
- 50.8% (2,849) of DHCP eligibles reside in New Castle County while 22.3% (1,251) have residence in Kent County and 26.9% (1,506) live in Sussex County households.

**TABLE 4
DHCP ELIGIBLES STATEWIDE BY GENDER AND AGE**

Age	Male		Female		Total	
	No.	%	No.	%	No.	%
0-4	507	18.1	464	16.5	971	17.3
5-9	946	33.8	975	32.8	1,871	33.3
10-14	795	28.4	824	29.3	1,619	28.8
15-19	554	19.8	604	21.4	1,158	20.6
TOTAL	2,802	100.0	2,867	100.0	5,619	100.0
Missing Data = 2						

Source: Delaware Client Information System II (DCIS II).

Gender and age:

- The statewide age structure and gender of DHCP eligibles, shown in Table 4, mirrors that of the three counties. (See the Appendix for the individual county breakdown).
- Female and male participation of children is virtually equal.
- The DHCP has an equal enrollment of younger and older children.
- The 10-14 and 15-19 age brackets represent respectively 28.8% and 20.6% of all eligibles, resulting in 49.4% of the total DHCP.
- However, the 5-9 age bracket, which comprises 33.3% of all eligible children, is almost twice as large as the youngest age group, the 0-4 bracket, that accounts for 17.3% of all eligibles.

**TABLE 5
DHCP ELIGIBLES BY RACE AND COUNTY**

Race	Statewide		New Castle County		Kent County		Sussex County	
	No.	%	No.	%	No.	%	No.	%
White not Hispanic	2,698	48.0	1,066	37.4	763	61.0	858	57.0
Black not Hispanic	2,151	38.3	1,305	45.8	384	30.7	460	30.4
Hispanic	530	9.4	343	12.0	49	3.9	136	9.0
Asian or Pacific Islander	25	0.4	20	0.7	5	0.4	0	0.0
American Indian	9	0.2	1	0.0	6	0.5	2	0.1
Other	89	1.6	41	1.4	21	1.7	27	1.8
Unknown	119	2.1	73	2.6	23	1.8	23	1.5
TOTAL	5,621	100.0	2,849	100.0	1,251	100.0	1,506	100.0

Source: Delaware Client Information System II (DCIS II).

Race:

- The statewide racial composition of DHCP is shown in Table 5. “White not Hispanic”, “Black not Hispanic”, and Hispanic children comprise a little over 95% of all DHCP eligibles.
- Statewide, the predominant participants of the program are “Whites not Hispanic” (48.0%), followed by “Black not Hispanic” children (38.3%).
- Hispanic eligibles, who account for 9.4% of all DHCP participants, are outnumbered by 5 times as many “White not Hispanic” eligibles and 4 times as many “Black not Hispanic” eligibles.

Race By County:

- The racial composition of eligibles is not consistent across all three Delaware counties, as presented in Table 5.
- In New Castle County (NCC), “Black not Hispanic” children are the largest group with 45.8% of county eligibles.
- “White not Hispanic” children encompass only 37.4% of New Castle County eligibles.
- In contrast, the dominant group in the two southern counties is the “White not Hispanic” population.
- While the “Black not Hispanic” clientele are 30% of Kent County eligibles, is approximately one half of the number of “White not Hispanic” participants.
- Across all counties, Hispanic participants vary widely between 3.0% and 12.0% with New Castle County having largest proportion.

A profile of the linkage between DHCP and Medicaid is presented in Table 6. Eligibles are classified into two groups. Medicaid rollovers are children who were in the Medicaid program in the prior year, 1998, and because their parent/guardian family income increased to the DHCP FPL limit, could be merely “transferred” into DHCP as eligible children. New entrants are eligible children who did not have Medicaid coverage immediately prior to enrolling in DHCP. New entrants can be grouped into two subcategories: prior Medicaid participation history and no prior Medicaid history. The former are children who had health insurance through Medicaid at least once in the past ten years. The latter group is comprised of children in families who did not have any Medicaid coverage within the past ten years.

- Medicaid rollovers account for 21% of all (or 1,182 of 5,621) eligibles. (The extent to which employment, job change, or change of family status is responsible for this movement is unknown).
- New entrants make up 79% (or 4,439 of 5,621) of all eligibles.
- Of the new entrants, 1,493 (or 26.6% of DHCP eligibles) have not had a linkage (through their families) with Medicaid while 2,946 new entrants (or 52.4% of DHCP eligibles) have been provided Medicaid coverage in the past.
- New entrants with prior Medicaid connection represent two-thirds of all new entrants of the DHCP.
- New entrants with past Medicaid coverage are three times as large as the Medicaid rollovers group.
- Past Medicaid experience provides a considerable basis for DHCP participation. Together, both Medicaid rollovers and new entrants with prior Medicaid history represent 73.4% of all DHCP eligibles.
- 4.9% of all (275 of 5,621) DHCP eligibles or 23.3% of all (275 of 1,182) Medicaid rollovers have returned to Medicaid after being enrolled in DHCP.

**TABLE 6
PROFILE OF DHCP-MEDICAID LINKAGE**

Eligibility Categories	Number	% of Eligibles	% of New Entrants	% of Eligibles	% of Medicaid Linked
I. Eligibles	5,621	100.0	--	100.0	--
A. Medicaid Rollovers	1,182	21.0	--	21.0	28.6
B. New Entrants	4,439	79.0	100.0	--	--
1. Prior Medicaid Participation	2,946	52.4	66.4	52.4	71.4
2. No Prior Medicaid History	1,493	26.6	33.6	--	--
II. All Medicaid Linked Enrollees (A + B1)	4,128	--	--	73.4	100.0
III. Eligibles Returned to Medicaid	275	--	--	--	--
IV. Medicaid Returnees as % of A	23.3%	--	--	--	--

Source: Delaware Client Information System II (DCIS II).

Table 7 shows Medicaid rollovers and new entrants with Medicaid history, i.e., children who were enrolled at least once in Medicaid in the last ten years.

- As indicated above, Medicaid rollovers and new entrants with prior Medicaid eligibility comprise 73.4% of DHCP eligibles.
- 55.4% of all DHCP eligibles inclusive of Medicaid rollovers, were enrolled in the Medicaid program in 1999, the initial year of the DHCP.
- An additional 12.3% of DHCP eligibles were Medicaid participants in 1998, the year prior to the initiation year of DHCP.
- Thus 67.8% of all DHCP eligibles have had a very recent Medicaid linkage.
- Although small, an additional 5.6% of all DHCP eligibles offer a steady and continuous stream (approximately an equal annual number) of former Medicaid enrollees, who participated in Medicaid within the past 10 years.

**TABLE 7
TIME FRAME OF DHCP-MEDICAID LINKAGE**

Last Year in Medicaid	No.	Percent of DHCP Eligibles	Percent with Medicaid Linkage
1990	44	0.8	1.1
1991	32	0.6	0.8
1992	38	0.7	0.9
1993	47	0.8	1.1
1994	44	0.8	1.1
1995	27	0.5	0.7
1996	42	0.7	1.0
1997	38	0.7	0.9
1998	694	12.3	16.8
1999	1,940	34.5	47.0
Medicaid rollover	1,182	21.0	28.6
Total Medicaid Linked	4,128		100.0
Eligibles with no Medicaid	1,493	26.6	
Total DHCP	5,621	100.0	

One major implication of the DHCP-Medicaid linkage is that DHCP participation entails a structural element. That is, considering together the number of Medicaid rollovers and new entrants with prior Medicaid history, a high portion of the DHCP population is comprised of children in families that are economically vulnerable on a continuous basis over a period time. These families may be a clientele of governmental assistance programs, perhaps due to deficiencies in their social, educational, and job skills. Support of this perspective is bolstered by the fact that 23.3% of Medicaid rollovers have been shifted from DHCP and placed back in the Medicaid program. This hypothesis of client volatility and mobility should be evaluated by analysis of the DHCP and Medicaid linkage over time, i.e., the next several years of DHCP implementation. If verified, there would be justification for considering a federal-state policy change to a continuous health care system for this economically vulnerable population. Such mainstreaming does not obviate the need to incorporate a premium payment scale according to FPL income. In contrast, new entrants without a Medicaid history may be more ephemeral in their DHCP participation. Whether this group of DHCP families experience temporary need and enrollment in DHCP, and why they do so, could be affirmed by tracking them over several years, and the determination of the social and economic forces and characteristics that influence their eligibility.

A second implication of DHCP eligibles with a Medicaid linkage is this group has a connection with the governmental health care system and perhaps other governmental assistance programs (such as food stamps and Section 8 housing). Because of their experience with Medicaid, parents/guardians may have knowledge and understanding of existing programs and their operation. They are more likely to be attuned to the network of government organizations and their actions through which social benefits can be obtained. Put simply, these families are in the loop. As Medicaid participants, they are

in a social setting that facilitates their acquiring information about governmental programs through their contact with Medicaid personnel and social workers. This perspective may be verified by an examination of whether DHCP eligibles with and without past Medicaid linkage differ with respect to the source of information that has been utilized for access to the DHCP.

**TABLE 8
FPL PREMIUM CLASSES OF DHCP ELIGIBLES**

Premium Category	Eligibles	
	No.	%
101%-133% FPL: \$10.00 Premium	2,545	45.3
134%-166% FPL: \$15.00 Premium	2,020	35.9
167%-200% FPL: \$25.00 Premium	1,056	18.8
Total Eligibles	5,621	100.0

Source: Delaware Client Information System II (DCIS II).

A breakdown of DHCP eligibles according to the monthly premium category of their households is shown in Table 8. The distribution among the premium classes indicates that a very large proportion of the DHCP eligibles live in families at the lower end of the income requirements of the program.

**TABLE 9
FPL PREMIUM CLASSES OF DHCP ELIGIBLES BY COUNTY**

Monthly Premium Category	Statewide		New Castle County		Kent County		Sussex County		Out of State	
	No.	%	No.	%	No.	%	No.	%	No.	%
\$10.00: 101%-133% FPL	2,545	45.3	1,283	45.0	573	45.8	681	45.2	8	53.3
\$15.00: 134%-166% FPL	2,020	35.9	1,015	35.6	458	35.6	542	36.0	5	33.3
\$25.00: 167%-200% FPL	1,506	18.8	551	19.3	220	18.0	283	18.8	2	13.3
Total	5,621	100.0	2,849	100.0	1,251	100.0	1,506	100.0	15	100.0

Source: Delaware Client Information System II (DCIS II).

Table 9 presents the monthly premium classes of families of DHCP eligibles according to the county residence of the children.

- The statewide breakdown of monthly premium categories, also shown in Table 8, holds consistently across all counties of the state.
- The proportions of DHCP eligibles enrolled in the three monthly premium categories are virtually identical in each county, indicating that county residence is not influential in determining participation by the FPL income levels of eligibles' families.
- This lack of relationship between county residence of eligibles and the monthly premium paid by families of eligible children is confirmed by a chi-square statistic, employed to evaluate the interdependency of premium class and county that proved statistically insignificant.

**TABLE 10
DHCP ELIGIBLES BY FPL PREMIUM CLASSES
AND MEDICAID LINKAGE**

Monthly Premium Category	Statewide		Medicaid Rollover		Prior Medicaid History		No Prior Medicaid	
	No.	%	No.	%	No.	%	No.	%
\$10.00: 101%-133% FPL	2,545	45.3	553 (535)	46.8	1,403 (1,334)	47.6	589 (676)	39.5
\$15.00: 134%-166% FPL	2,020	35.9	444 (425)	39.6	1,020 (1,058)	34.6	556 (536)	37.2
\$25.00: 167%-200% FPL	1,506	18.8	185 (222)	15.7	523 (553)	17.8	348 (281)	23.3
Total	5,621	100.0	1,182	100.0	2,946	100.0	1,493	100.0

The cross-classification of DHCP eligibles by their monthly premium categories and their linkage to the Medicaid program is given in Table 10.

- A very highly statistically significant, -- at the 0.001 level, -- chi-square statistic verifies that the monthly premium categories are not independent of the separate Medicaid connections. That is, there is a strong relationship (or interdependence) between premium paid (and thus FPL income) by families of eligibles and their past Medicaid association.⁶
- This relationship is indicated by the fact that the statewide proportional distribution (percentages) of eligibles among the three monthly premium categories does not apply to each Medicaid linkage category. The percentage of eligibles allocated among the three premium categories found on a (aggregate) statewide basis differs for each type of Medicaid history of DHCP eligibles.
- The association between premium paid and Medicaid linkage of eligibles is also indicated by the comparison presented in Table 8. The actual number of eligibles in each premium-Medicaid linkage category, shown without parentheses, is compared with the number of eligibles expected to be in the premium-Medicaid categories, shown in parentheses, that are based on the statewide distribution among the three premium categories.

1. In the lowest two premium categories (\$10.00 and \$15.00), there are more actual eligibles than expected -- (553 vs. 535, and 444 vs. 425)-- that are Medicaid rollovers, but substantially fewer actual eligibles than expected—(185 vs. 222)-- in the \$25.00 category.
 2. For eligibles with prior Medicaid history, there is a larger actual number than expected --(1,403 vs. 1,334)—paying a \$10.00 premium, and lower actual number than expected—(1,020 vs. 1,058, and 523 vs. 553)—incurring the two highest monthly premiums.
 3. Eligibles with no prior Medicaid history are fewer than expected -- (589 vs. 676) -- at lowest premium of \$10.00, but greater than expected -- (556 vs. 536, and 348 vs. 281) -- at two highest categories of \$15.00 and \$25.00.
 4. A tentative conclusion is families of DHCP eligibles that pay lower premiums, and thus have lower income as measured by FPL income brackets, have been more connected with Medicaid in the past while those families of eligibles with higher income, and the highest premiums, have less past connection with Medicaid.
- The findings lend support to the argument made above that DHCP participation entails a strong structural element characterized by an economically vulnerable population.

C. Medicaid and DHCP Comparison

A comparison of the DHCP eligibles and eligible children in the Medicaid program is presented in Tables 11 through 14. This demographic profile encompasses the same time period of January 1, 1999 to October 31, 1999 for both programs. The two programs are compared according to county, race, age structure and gender. The Medicaid percentages/proportion are based on the children enrolled in that program. The Medicaid children are the counterparts to the DHCP children. This Medicaid group excludes disabled children, pregnant teenagers, children in foster care and adoption programs, and any aliens.

Tables that describe DHCP and Medicaid eligibles by race, age structure and county combined are not considered here, but are included in the appendix.

TABLE 11
DHCP AND MEDICAID CHILDREN ELIGIBLES, 1998-99 BY COUNTY

Counties	DHCP Jan.-Oct., 1999		Medicaid Jan.-Dec., 1998		Medicaid Jan.-Oct., 1999*	
	No.	%	No.	%	No.	%
New Castle	2,849	50.8	27,415	54.2	27,449	54.5
Kent	1,251	22.3	11,467	22.7	10,696	21.2
Sussex	1,506	26.9	11,664	23.1	12,255	24.3
Unknown	15	-	480	-	202	-
TOTAL	5,621	100.0	51,026	100.0	50,602	100.0
No of Families	3,672	-	na	-	na	-
Average No. of Children/Family	1.5		na	-	na	-

*January 1, 1999 to October, 1999. Na is not available

Source: Delaware Client Information System II (DCIS II); Medicaid Management Information System.

County Perspective:

- On a statewide basis, the children's portion of the Medicaid program is ten times larger than the DHCP eligibles.
- This ten-fold relationship holds among each of Delaware counties, indicated by the fact that the county distribution of child participants is proportionally very similar for both programs.

**TABLE 12
MEDICAID CHILDREN AND DHCP ELIGIBLES STATEWIDE
BY GENDER AND AGE**

MEDICAID JANUARY-OCTOBER, 1999						
Age	Male		Female		Total	
	No.	%	No.	%	No.	%
0-4	8,031	31.8	7,670	30.3	15,701	31.0
5-9	7,583	30.0	7,516	29.7	15,099	29.8
10-14	5,800	23.0	5,726	22.6	11,526	22.8
15-19	3,841	15.2	4,435	17.5	8,276	16.4
TOTAL	25,255	100.0	25,347	100.0	50,602	100.0
DHCP JANUARY-OCTOBER, 1999						
Age	Male		Female		Total	
	No.	%	No.	%	No.	%
0-4	507	18.1	464	16.5	971	17.3
5-9	946	33.8	925	32.8	1,871	33.3
10-14	795	28.4	824	29.3	1,619	28.8
15-19	554	19.8	604	21.4	1,158	20.6
TOTAL	2,802	100.0	2,817	100.0	5,619	100.0
Missing=2						

Source: Delaware Client Information System II (DCIS II); Medicaid Management Information System.

Gender and Age:

- Like the DHCP eligibles, as presented in Table 5, the statewide and countywide child enrollment in Medicaid is divided almost equally between males and females.
- On a statewide basis, Table 12 reveals that the proportion of children within the 0-4 age group is substantially lower –almost one-half-- for the DHCP (17.3%) than the Medicaid program (31.0%). Contributing to this fact is that, the Medicaid income limits for children between the ages of 0-5 are higher. Children age 0-1 qualify for Medicaid if the household income is at or below 185% FPL, while children between the ages of 1-5 are eligible for Medicaid at or below 133% of the FPL.
- Participation in the 10-14 and 15-19 age brackets is slightly greater for the DHCP than Medicaid. This differential may be attributable to the fact that, with older children, families can devote less time for direct child rearing, and thus they can participate more in the work force and earn higher income that disqualifies them for Medicaid.
- Although the clientele age structure differs for both programs, the county age pattern of each program parallels its statewide age structure. (See the appendix for the breakdown of clientele age structure according to counties).

**TABLE 13
MEDICAID CHILDREN AND DHCP ELIGIBLES, 1998-99 BY RACE**

Race	DHCP, 1999*		Medicaid, 1998		Medicaid, 1999*	
	No.	%	No.	%	No.	%
White not Hispanic	2,698	48.0	18,631	36.5	18,324	36.2
Black not Hispanic	2,151	38.3	25,789	50.5	25,228	49.9
Hispanic	530	9.4	4,885	9.6	5,101	10.1
Asian or Pacific Islander	25	0.4	180	0.4	221	0.4
American Indian	9	0.2	72	1.4	76	0.2
Other	89	1.6	693	0.1	756	1.5
Unknown	119	2.1	693	1.4	896	1.8
STATEWIDE TOTAL	5,621	100.0	50,943	100.0	50,602	100.0

*January 1999 to October 1999.

Source: Delaware Client Information System II (DCIS II); Medicaid Management Information System.

Race:

- On a statewide basis, DHCP has a greater “White not Hispanic” enrollment (48.0%) than the Medicaid program (36.5%).
- The “Black not Hispanic” population is the dominant group in Medicaid with 50.5% of all eligibles.
- This group is the second largest one in the DHCP comprising 38.3% of DHCP eligibles.
- The remaining racial groups, which have a similar enrollment pattern in the two programs, account for 14% of all eligibles.
- Hispanic participants comprise an average 9.5% of the clientele in each program.

**TABLE 14
MEDICAID CHILDREN AND DHCP ELIGIBLES BY RACE AND COUNTY**

MEDICAID, 1999*								
	Statewide		New Castle County		Kent County		Sussex County	
Race	No.	%	No.	%	No.	%	No.	%
White not Hispanic	18,324	36.2	7,897	28.8	4,854	45.4	5,487	44.8
Black not Hispanic	25,228	49.9	15,245	55.5	4,853	45.4	5,028	41.0
Hispanic	5,101	10.1	3,328	12.1	557	5.2	1,208	9.9
Asian or Pacific Islander	221	0.4	173	0.6	23	0.2	25	0.2
American Indian	76	0.2	16	0.1	31	0.3	29	0.2
Other	756	1.5	313	1.1	174	1.6	266	2.7
Unknown	896	1.8	477	1.7	204	1.9	215	1.7
Total	50,602	100.0	27,449	100.0	10,696	100.0	12,258	100.0
DHCP, 1999*								
	Statewide		New Castle County		Kent County		Sussex County	
Race	No.	%	No.	%	No.	%	No.	%
White not Hispanic	2,698	48.0	1,066	37.4	763	61.0	858	57.0
Black not Hispanic	2,151	38.3	1,305	45.8	384	30.7	460	30.4
Hispanic	530	9.4	343	12.0	49	3.9	136	9.0
Asian or Pacific Islander	25	0.4	20	0.7	5	0.4	0	0.0
American Indian	9	0.2	1	0.0	6	0.5	2	0.1
Other	89	1.6	41	1.4	21	1.7	27	1.8
Unknown	119	2.1	73	2.6	23	1.8	23	1.5
Total	5,621	100.0	2,849	100.0	1,251	100.0	1,506	100.0

Source: Delaware Client Information System II (DCIS II); Medicaid Management Information System.

*January 1999 to October 1999

Race By County:

- As indicated above, the county racial profiles of DHCP eligibles do not conform to the program's statewide racial distribution of participants.
- Likewise, the county racial patterns of Medicaid eligibles vary considerably from the statewide racial enrollment.
- The countywide racial composition of children differs substantially for DHCP and Medicaid.
- In New Castle County (NCC), "Black not Hispanic" children are the largest group of eligibles (45.8% of the county participants), with 1.2 Black children for each "White not Hispanic" child. For the Medicaid program within NCC, "Black not Hispanic" eligibles are also the predominant participants, but comprise 55.5% of county eligibles and nearly twice the number of the "White not Hispanic" enrollees.
- In Sussex and Kent counties, "White not Hispanic" eligibles comprised a large majority of DHCP eligibles (approximately 60%) resulting in a 2 to 1 ratio of White to "Black not Hispanic" participants. In contrast, for the Medicaid program, the eligibles of both racial groups within each of the two southern counties are approximately equal in size accounting for a total of more than 85% of all county enrollments.
- The racial pattern of the remaining other racial groups enrolled in both Medicaid and DHCP is somewhat similar across all three counties.

IV. RESEARCH ISSUES: FRAMEWORK OF ANALYSIS

The baseline evaluation undertaken here is to establish a partial basis for comparing DHCP performance over time before and after its implementation. (The assessment of eligibility status presented in the above section did contribute to the baseline evaluation). This assessment is to provide a “profile” of DHCP eligibles and their households prior to their participation in the DHCP according to various policy issues. The data generated and the results of the analysis of the issues should yield a foundation for evaluating the impact of the DHCP upon eligibles and their households in the future.

A. Issues

The present evaluation examines several issues about the initial/first year of participation in the DHCP. The following issues are examined:⁷

1. Barriers and access to health care prior to DHCP application,
2. Health status of eligible children prior to DHCP application,
3. Health care utilization by eligible children prior to DHCP application,
4. Health care costs to eligible clients prior to DHCP application,
5. The role of private sector insurance in eligibility and enrollment decisions (the crowding out issue),
6. Impact of the required premium payment on client enrollment decisions, and
7. Access to DHCP enrollment.

These research issues are appraised with data acquired from a survey of a parent/guardian of eligible DHCP clients. The survey was purposely designed to conduct the baseline analysis. Some corresponding data on a limited number of family characteristics was obtained from applications for enrollment in DHCP. This data is compiled in the Delaware Client Information System II, (DCIS II). Additional information was retrieved from the Medicaid Management Information System (MMIS). Unfortunately, many variables in DCIS II were unavailable for the statistical analysis.

Some general principles and guidelines for the baseline analysis have been drawn from State Children’s Health Insurance Program Evaluation Tool (SHIPS) developed by the American Academy of Pediatrics,⁸ and the Consumer Assessment Of Health Plans (CAHPS) produced by the Agency for Healthcare Research and Quality.⁹ Many of the dimensions employed in the present baseline analysis have been adapted from some concepts and measures included in these approaches since they are applicable mostly for evaluation of the DHCP after the program has been in operation for at least one year.

B. Format

For most issues the analysis follow a basic format. First, a brief statement is made regarding the characteristics and the importance of the issue for policy/managerial reasons. Second, the question (or questions) asked on the surveys that measures the issue is presented. Third, the responses are shown on a table in both frequencies (i.e., absolute numbers) and percentages, and then the results are briefly described and interpreted. (The totals in some tables may not add up to 100% due to rounding, and the totals do not

include unknown data). Finally, a statistical analysis is undertaken for most issues. A multiple regression model is estimated to ascertain the reasons (in the form of independent variables) for differences or variation in the responses (measured by the dependent variable) among applicants (parents/guardians) and/or eligible (children) clients. The estimation results are given and an interpretation is provided.

C. The Survey

The survey (hereafter “DHCP sample”) was designed jointly by present researchers, staff of DSS Medicaid, and EDS (the Health Benefits Manager, HBM) personnel. The survey was conducted from January 1999---the beginning month of the program---through October 1999. Three types of surveys were undertaken and were to be answered by the parent/guardian applicant: a telephone questionnaire for enrollees, a mail questionnaire for enrollees, telephone follow-up of applicants who did not enroll. Each parent/guardian was asked questions about their role in the participation in DHCP as well as questions that required separate responses for each eligible child living with the household/family.

The telephone and mail surveys were comprised of questions encompassing all of the research issues listed above. A Spanish language questionnaire was used for Spanish-speaking respondents. The follow-up survey contained only a limited number of questions to ascertain the reasons and obstacles for not enrolling in DHCP. Unfortunately, the number of final follow-up surveys was too small for analysis because many of the respondents enrolled their eligible child or children after the interview. All three surveys are presented in the appendix. As time permitted, EDS personnel undertook the phone survey when a parent/guardian applicant enrolled a child/children with the HBM through a telephone call. A mail survey was sent out to those parent/guardian applicants not interviewed on the telephone. The DHCP parent/guardian applicants receiving the mail survey were offered an inducement of a waiver of one monthly premium to participate in the survey.

Parents/guardians of 528 families were surveyed. Of these surveys, 365 (69.5%) were mail surveys, 160 (30.5%) were telephone surveys, and three surveys could not be identified by type. A total of 856 eligible children were included in the 528 surveyed families.

The number of surveys was sufficient to produce a total sample size and mix of respondents to make reliable estimates about the population of DHCP participants and to test hypotheses about respondents' characteristics (variables) and their responses to survey questions. The DHCP surveys yielded a large stratified simple random sample (the DHCP sample of 856) with a small or minimal sampling error. This conclusion is based on the following (which are required inputs of the formula to calculate sample size):¹⁰

1. The population for which inferences are to be made, i.e., the 5,621 eligibles approved between January 1999 to October 1999;
2. An acceptable level of precision established by a choice of confidence intervals that would result in reliable (consistent) estimates.

- By way of example, a very common standard is the application of a 95% confidence interval and thus the setting of a 5% sampling error. A 95% confidence interval indicates that in 95 out of a 100 samples, the parameter (or true value) of a selected variable of population (means, and/or proportion) lies within the range of sample values established by the interval.¹
 - Conversely, only 5 out of 100 times the population parameter will not be within the estimate range of sample interval values—a 5% error.
3. A very conservative estimated sample proportion was assumed for the selected variable(s) (responses/questions) of interest in the survey;
- Most DHCP survey questions (variables of interest) entailed multiple response categories to which various proportions of respondents could answer.
 - The proportions for each question were unknown before the survey was undertaken, and the proportions are likely to differ according to each question.
 - Thus a very conservative position is to choose the largest proportion of response to a question since it would produce the largest sample needed.
 - The proportion of .5 does so, given the formula for sample size determination.

As shown in Table 15, if a sampling error of .05 or 5% were applied to the DHCP sample, reflecting a 95 % confidence interval, then only a sample size of 373 respondents would be required. The DHCP sample of 856 respondents exceeds this size requirement, and results in a smaller sampling error of .03 or 3%.

Several strata (groups or groupings) of DHCP participants were chosen by administrators as important dimensions for policy making. Therefore, to ensure the reliability of the strata estimates of the responses to the survey questions, the required sample size for each category (or each stratum) of the separate strata was determined on the basis of the total size of the stratified simple random DHCP sample.¹¹ In all cases the various strata of county residence, age, race gender, and FPL income/premium class resulted in adequate sample sizes. These strata/groupings are also employed as independent variables posited as hypotheses to explain differences in the survey answers of the DHCP respondents.

¹ A variable measuring a mail or telephone survey was included in every regression equation. The variable was not found to be statistically significant except for the question about the willingness to pay for the DHCP. The type of survey variable was then dropped--because it is an "irrelevant variable"--and the equations were re-estimated. How the one statistically significant finding was addressed is discussed in a footnote with the analysis involving the willingness to pay a premium amount by applicants.

TABLE 15
SAMPLE SIZE AND SAMPLING ERROR FOR DHCP SURVEY

Sampling Characteristics	Sampling Error With Sample of 856 Respondents	Sample Size Required For 0.05 Sampling Error
DHCP Population (the Eligibles)	5,621	5,621
DHCP Sample Size	856	--
Minimum Sample Size	--	373
Estimated Sample Proportion	.5	.5
Sampling Error	.03	.05

Statistical Analysis

A second focus of the present baseline analysis is to conduct a statistical analysis that may answer the following basic question. What social, economic and health characteristics and behavior of parent/guardian applicants or their eligible children explain their differences with respect to the various issues (which are measured by the DHCP survey responses). To answer this basic question, most of the issues are analyzed with multiple regression models. A basic regression model is comprised of the following equation:

$$Y = B_0 + B_1X_1 + B_2X_2 \dots + B_nX_n$$

Where Y is a dependent variable measuring a response to a question/issue from the survey,

X₁ through X_n are independent variables (family or child characteristics) hypothesized to explain the differences on an issue as measured by responses to a survey question,

B₀ through B_n are regression parameters/coefficients that indicate the extent of the impact of the independent variables.

All models have a set of independent variables on the right hand side of the equation.¹² The independent variables represent hypotheses that are tested with the estimation of a particular model. A hypothesis provides an explanation for the expected/predicted relationship between an independent variable and the dependent variable. Put differently, a hypothesis clarifies why a social, economic, or health characteristic or factor would influence an issue response. Hypotheses and thus the independent variables of a regression model are not the same for all issues. However, as the health care and health economics literature indicates, there is reason to expect consistency in hypotheses and thus independent variables in a model to explain particular similar issues.

Consequently, the seven issues listed above were grouped into three sections in the following chapter so that the statistical analysis could be conducted. The first grouping entails various facets of health care of eligible children prior to DHCP (policy issues 1, 2, and 3). They are the types and extent of health services utilization, health status, and health care costs. Second, financial considerations are evaluated. These involve issues 5 and 6: the role of private sector insurance in eligibility and enrollment decisions

(including the crowding out question), and impact of the required premium payment on client enrollment decisions. The third group encompasses various dimensions about applicant access to the DHCP, i.e., issue 7.

The hypotheses to be tested, and thus the independent variables included, in a regression model for a policy issue are explicated in the three separate subsections of Part V of this study. Although the regression models will differ in the composition of their independent variables, there is a common set of independent variables on the right hand side of all the equations.¹³ These variables and their measurement are shown in the Table 16. Additional variables are included in a particular equation according to the set of issues being examined. For example, to analyze the bases for differences in health care costs, the chronic illnesses of clients are added on the right hand side of the equation.

TABLE 16
COMMON SET OF INDEPENDENT VARIABLES USED IN
THE VARIOUS EQUATIONS

Variable Name	Variable Measurement	Included in Family Unit Equation	Included In Eligible Child Equation
1. DHCP Premium Category	\$10.00 (100%-133% FPL) = 1, \$15.00 (134%-166% FPL) = 1, \$25.00 (167%-200% FPL) = 0 (reference)	Yes	Yes
2. Number of DHCP eligibles	Number of children in family participating in DHCP	Yes	Yes
3. Race of Parent/guardian Applicant and Child	White not Hispanic = 1, Black not Hispanic = 1, Hispanic = 1, Other = 0 (reference)	Race of Oldest Child in DHCP	Yes
4. Age of DHCP eligible	Date of Application minus birth date*	Age of Oldest Child in DHCP	Yes
5. Gender of DHCP eligible	Female = 1, Male = 0, (reference)*	Gender of Oldest Child in DHCP	Yes
6. Health Insurance coverage	Medicaid eligible in year prior to DCHP = 1, Private Insurance in year prior to DHCP = 1, No Health Insurance in year prior to DHCP = 0 (reference)	Yes	Yes
7. Medicaid history	Prior Medicaid Linkage (eligible for Medicaid in past 10 Years) = 1, No prior Medicaid Linkage = 0 (reference)	Yes	Yes
8. Geographical Location of Eligibles or Applicants: Cities (incorporated areas) and Rural Areas of Counties	Cities (incorporated areas): Newark = 1, Wilmington = 1, Dover = 1, Georgetown = 1, Elsemere = 1, Smryna = 1, New Castle City = 1 Rural areas (Non-incorporated areas): Rural Kent Co. = 1, Rural Sussex Co. = 1, Rural New Castle County = 0 (reference) Use of zip codes for identification	Yes	Yes
9. Survey Type	Mail = 1, Telephone = 0 (reference)	Yes	Yes

The unit of analysis varies according to the issue being examined. The parent/guardian of an eligible child or eligible children is the focus of analysis for issues 6 and 7--(access to DHCP, and the impact of required premium)--, with each parent/guardian counted as one observation irrespective of the number of their children enrolled. For example, to analyze the sources of information about DHCP enrollment, the responses of the parent/guardian who applied for all their eligible children in their household are assessed. For issues 1 through 5 (health status, costs, and utilization the role of private sector insurance), the behavior of each eligible (child) client is defined as an observation for analysis. For example, for the utilization of health care, the amount of services received or not received by each eligible child is taken as a data point.

What follows is a brief discussion of the general form and characteristics of the regression models employed and the interpretation of the estimated equations, irrespective of the independent variables included. A number of different types of regression models and estimation have been employed. The type of model used, and thus the type of estimation undertaken¹⁴ was based on the measurement of the dependent variable (i.e., the responses to the selected survey question). The following models and estimations that have been utilized are presented in Table 17.

TABLE 17
VARIOUS REGRESSION MODELS EMPLOYED IN THE ANALYSES

Type of Model	Measurement of Dependent Variable	Example of Dependent Variable Measurement
Ordinary List Squares (OLS)	Variable with interval scale	Amount of Premium
Binary logistic analysis	Dichotomous or two mutually exclusive categories	Immunization up-to-date; yes =1 no = 0
Multinomial (polychotomous or polytomous) logistic analysis	Multiple mutually exclusive categories	Difficulties obtaining health care: cost =1 provider = 1 hours = 1 distance to provider = 1 child care problems = 0
Cumulative or proportional odds logistic analysis	Ordinal values of categories	Difficulties in paperwork in the application process: very easy = 1 easy =2 hard =3 very hard = 4
Tobit analysis	Variable with many observations that has a single value at the low (censored) or high (truncated) end of the variable's range	Number of doctor visits with many "no" (zero) visits

An independent variable can be concluded to have an impact on a dependent variable if both the equation and the particular independent variable are statistically significant at the .05 level of significance, ($p < .05$). The independent variables in the estimated equation, if statistically significant, can be interpreted in a similar way for the models of binary logistic analysis, multinomial logistic analysis, and cumulative logistic analysis. The estimated regression coefficients yield an odds ratio¹⁵ that indicates the comparative odds of an occurrence of the dependent variable based on the value of the independent variable.

Some examples regarding the dependent variable of whether or not a child received health care in the last year can illustrate a concrete interpretation to a statistically significant coefficient. If a categorical independent variable, say males, has a positive sign and a coefficient with an odds value of 2, then males have 2 times the odds of

females, as the reference category, to receive health care; alternatively males are twice as likely to receive care than females. If an independent variable with an interval scale, e.g., earned income measured in hundreds of dollars, produced an odds ratio of 1.5 with a positive sign, then for every unit increase in the independent variable, \$100 in income earned, the odds of receiving care would increase by 50% (1.50-1.00; or 150%-100%). For a Tobit analysis, a statistically significant coefficient measures the probability, rather than calculated odds, of the impact on a dependent variable for a change or difference in an independent variable.

Because of the mathematical complexity of the equations and because their interpretations are not readily accessible to most readers, all estimated equations and their relevant statistical results are shown in an appendix. Technical dimensions of the various models and their analyses are confined to footnotes and citations. The statistical results are reported in the form of general statements of what (independent) variables/factors are significant determinants of issue differences (the dependent variable).

V. INDIVIDUAL RESEARCH ISSUES/QUESTIONS: ANALYSIS

In this section we present the assessment of the seven individual research issues, outlined above in the Part IV, which are grouped into three sections. The first section presents the evaluation of several issues pertaining to the health care of eligible children in the year prior to their DHCP enrollment. Secondly, the evaluation of various financial dimensions of the DHCP involving insurance coverage and premium payments by parent/guardian applicants and/or eligibles is reviewed. Thirdly, the access to the DHCP involving parent/guardian applicants is discussed.

A. HEALTH CARE OF ELIGIBLES PRIOR TO DHCP ENROLLMENT

A series of survey questions were directed at various health care dimensions of eligible children in the year prior to their enrollment in DHCP. These questions encompassed dimensions involving (a) barriers and access to healthcare, (b) the state of health of a child, (c) utilization of health services, and (d) costs incurred in health care service provision. The specific health care dimensions captured by the questions are presented in Table 18. As shown by the analyses below, the responses to the questions verified substantial variation in health care among eligible children.

TABLE 18
HEALTH CARE DIMENSIONS

Health Care Dimension Analyzed (Dependent Variables)	Health Care Dimension Analyzed (Dependent Variables)	Health Care Dimension Analyzed (Dependent Variables)	Health Care Dimension Analyzed (Dependent Variables)
A. Barriers and Access to Child's Health Care	B. State of Health of Eligible Children	C. Health Care Service Utilization	D. Health Care Costs
A1. Obstacles to Child's Medical Care	B1. Chronic Illnesses of Children	C1. Whether or Not Health Care Received	D1. Amount Spent on Medical Care
A2. Obstacles to Child's Prescription Medicine	B2. Child's Health Status	C2. Incidence of Health Care Utilization Doctor Visits Dentist Visits Prescription Emergency Room Visits Hospital Stays	
		C3. Immunization Status	

Statistical analyses are conducted with various regression models to explain these differences among eligibles. A major focus of these analyses is upon the extent to which the social and economic characteristics of households of eligibles account for the variations in health care of their children. More specifically, the research assesses whether relationships exist between the separate health care dimensions of eligible children and (a) age, race and gender of eligibles, (b) family size, (c) household urban or rural location, (d) family/income, (e) health insurance, and Medicaid linkage. This

common set of independent variables and their measurements, --included in all regression models, --is shown in Table 16 (Part IV).

The selection of the common set of independent variables in the regression models is drawn from the hypotheses and research in findings of the health care literature. Only summary statements of the expected relationships are presented.

- **AGE.** Studies indicate that age of a child is a source of health risk. Younger dependent children have a greater need for medical care and should have poorer health status; consequently, they are likely to utilize more health services than older children. Age was measured as the time difference between a child's enrollment date and birth date.
- **GENDER.** Past research shows that gender of a child is a basis of differential health risk. Males are more prone to illness than females and therefore they will manifest a poorer quality of health. The greater amount of illness and the lower health status of males should produce more service utilization by them than females.
- **RACE/ETHNICITY.** Because of their cultural isolation and values, nonwhites have lower participation in the health care system. With less utilization, non-whites are likely to have poorer health status. Four race/ethnicity categories have been employed: White not Hispanic, Black not Hispanic, Hispanic, and Other.
- **URBAN/RURAL LOCATION.** Urban centers have more accessible transportation facilities as well as more communication sources and more prevalent and complex social networks than rural areas. As a result, parents of the eligible child are likely to encounter fewer obstacles to obtaining care, and have easier access to a greater amount of and different types of medical care. Eligibles were classified by their household location as residents in the major cities of the state and then in the rural areas of their particular county. The geographic location of eligibles and applicants correspond to the major cities and rural areas of the counties within the state. The cities are Newark, Wilmington, Elsemere, New Castle City, Symrna, Dover, and Georgetown; the remaining locations are the separate rural areas of New Castle, Kent, and Sussex Counties. Each eligible child and parent/guardian applicant were assigned to a location according to the ZIP codes of their household residence.
- **INCOME.** Economic considerations play a major role in whether a child is healthier and receives medical attention. With higher income, medical care is more affordable and the family has greater financial capability for paying for health care. Moreover, in economic terms, health is a normal good; as income increases, there is more demand for quality goods such as health. Because income of eligibles' households was unavailable, the three DHCP premium levels that are based on family FPL classification were used as a proxy.
- **FAMILY SIZE.** The larger the number of eligible children in a family, as a proxy of household size, places more constraints on family income. Larger families would be less willing and less able to afford medical care for their children with the consequence that children's health status and utilization is expected to be lower than those children in smaller families.
- **HEALTH INSURANCE.** With health insurance coverage for their children, parents/guardians would have increased financial capability to purchase medical care.

That is, parents/guardians would have additional resources beyond their income. In fact, because health insurance is a third party and major payer of care, the price of services are lower than the market price; consequently the insurance holder would consume more services than the uninsured since the reduced cost of care to the insurance taker.¹⁶

1. Compared to the uninsured children, one would expect that the insured children would have a higher health care incidence, i.e., consume greater quantity of care. The insured would also consume certain types of care since particular services are restricted by insurance coverage. In particular, wellness visits/preventive care, which lead the insured to have more doctor visits, more dentist visits, more prescriptions are likely to occur for the insured than the uninsured, even if the child is healthy.
2. Moreover, given their less expensive and more extensive access to health care, insured children are more likely to have received required immunization. Utilization of services should be higher for the children who are chronically ill and/or in poor health. Likewise, insured children with poor health quality would utilize the hospital more frequently. Not only would their “traditional” service utilization be less because of constraints on affordability, uninsured children are expected to be larger users of emergency room services due to its low, if not zero, costs for the care.
3. It is unclear how insurance and the lack of it affects the costs incurred for children by parents/guardians. On the one hand, insured children may incur higher costs than uninsured children since the latter's family may be reticent to obtain care. However, where services are provided to both insured and uninsured, the cost should be higher for those children without coverage due to co-payment/coinsurance capabilities of the insured.
4. Because health insurance gives easier access to medical care, insured children should be healthier, in term of health status and less chronic illness than uninsured dependents.
5. The ability to obtain care should be more problematic for uninsured, given their low income, the full price to be paid, and understanding of the health care system. They are expected to have encountered barriers, especially financial ones, to the obtainment of care. However, parents of insured children are likely to view health insurance payments as a difficulty in receiving services (especially if coverage is limited).

Three categories of the insurance variable are employed to evaluate the hypothesized relationships:

- (1) Medicaid Insured (children who were covered in the year prior to the DHCP inclusive of rollovers),
 - (2) Privately Insured (children with private health insurance coverage within the 12 months preceding their DHCP enrollment), and
 - (3) Noninsured (children who were never covered with any health insurance, and children who did have private health insurance or Medicaid coverage but more than 12 months before their DHCP enrollment).
- **MEDICAID LINKAGE.** The impact of health insurance coverage on child health care could be mitigated by the fact that some eligibles have had a past linkage with the Medicaid program. Prior research has shown that Medicaid eligibility improved access to medical care. Children who were previously enrolled in Medicaid should have received health care services including immunization. Thus one might expect

that these children have better health status than those children never enrolled in Medicaid. Moreover, parents/guardians may have become acculturated i.e., developed habits and values, to health care utilization. If so, their service utilization for their children in the year prior to the DHCP may have been greater than children without Medicaid experience. The Medicaid Linkage variable is measured with two categories: children who were enrolled in Medicaid at least once in the past 10 years and those children who have never been enrolled in Medicaid.

An additional and central argument is that some health care dimensions have an impact on other dimensions. Where they are hypothesized/expected to do so, such health care dimensions should be included as independent variables in the regression model. These expected relationships are depicted in Table 19.

- Children with poorer health status (assessed by parent in the survey) and those eligibles with chronic illnesses are expected to have greater demand for medical services.
- Chronic illnesses are ongoing poor physical conditions and persistent maladies that require continuous or intermittent medical care over time. Children with chronic illness are at increased risk for developmental, behavioral or emotional problems and require more health and related services than is typically needed by other children (Newacheck and Stoddard, 1994). Children with multiple chronic illnesses have more mental and physical problems and use substantially more services than children with one chronic illness.
- Consequently, those children with chronic illness are more likely to have greater utilization of health care services than children without such illnesses. More specifically, given the complexity and intensity of services required for their treatment, chronically ill children are likely to have larger number of hospital stays, in addition to more doctor visits and prescriptions.
- Children with poor health, but who are not categorized as chronically ill, need more health care services and are expected to use them to a greater extent than healthier children, although not as much as children with chronic illnesses.
- Given the more extensive nature and greater frequency of treatment for both chronically ill eligibles and children with poorer health status, their parents/guardians are more likely to have encountered obstacles in their obtainment of their child's health care. Consequently, both chronic illness and health status dimensions of eligibles are included as separate independent variables in the regression models estimated to explain differences in barriers to healthcare and types and quantity of service utilization.
- An obvious expectation is that where higher service utilization occurs, irrespective of the sources of and reasons for it, the cost of medical care is likely to be greater.
- Moreover, medical care costs incurred should be higher for children with chronic illnesses and those with poorer quality of health. Thus variables measuring children's health status and the types and quantity of service utilization will be placed on the right hand side of the equation to evaluate whether they affect the healthcare costs paid for eligible children by their parents.
- Similarly, given the income levels of eligibles' households, together with greater amount of services needed and the larger costs that would be incurred, the barriers for

the parents in obtaining health care for their children with poor health status or chronic illness are more likely to be financial.

Although both chronic illness and health status were predicted to affect various dependent variables, they prove to be collinear, i.e., they measured the same factor. As a result, the equations could not be estimated accurately with both of them included. Given that chronic illness was considered to be a more objective assessment by guardians of a child's health, this variable was left in the equations and health status omitted.

**TABLE 19
MODELS TO BE TESTED**

Health Care Dependent Variables	Independent Variables for Hypothesized Relationships		
Difficulties In Obtaining Medical Care	Common Variables	+	Chronic Illness
Difficulties In Obtaining Prescription Medicine	Common Variables	+	Chronic Illness
No Chronic Illnesses One Chronic Illness Multiple Chronic Illnesses	Common Variables	+	Health Status
Rating of Child Health Status By Parent	Common Variables	+	Chronic Illness Insured Chronic Ill
Health Care Received No Health Care Received	Common Variables	+	Chronic Illness Insured Chronic Ill
No. of Doctor Visits	Common Variables	+	Chronic Illness Insured Chronic Ill
No of Dentist Visits	Common Variables	+	Chronic Illness Insured Chronic Ill
No. of Prescriptions	Common Variables	+	Chronic Illness Insured Chronic Ill
No. of Emergency Room Visits	Common Variables	+	Chronic Illness Insured Chronic Ill
No. of Hospital Stays	Common Variables	+	Chronic Illness Insured Chronic Ill
Immunization up-to-date or not	Common Variables	+	Chronic Illness Insured Chronic Ill
Amount of Cost Incurred	Common Variables	+	Chronic Illness Insured Chronic Ill Types of Utilization

A1. Barriers and Access to Health Care

This policy issue encompasses the same question and set of responses about obstacles to obtaining both medical care and prescription medicine. Parent/guardian applicants could cite all the available answers that were pertinent. Consequently, the responses produced a large number of separate categories that were various combinations of the original 10 categories. For both medical care and prescriptions, the number of responses does allow

sound inferences to be drawn, but greater understanding may be gained if parents/guardians were asked about the primary difficulty encountered in obtaining health care for their children prior to DHCP enrollment.

Figure 1

Survey question: What difficulties, if any, have you had in getting this child medical care and prescription medicine in the past year before applying for the DHCP. (Please check all that apply.) If none, check “No difficulties”.

A1.1 Child's Medical Care

The responses to the survey question produced forty-three (43) separate categories of obstacles to medical care that were various combinations of the original 10 categories. Some respondents chose up to six (6) sources. However, as shown in Table 20, 353 of the 805 responses (or 43.8% of them) was for one difficulty. The responses for multiple choices,--152 or 18.9% of all responses,--have been collapsed into four additional categories. They are (a) cost and insurance chosen together along with other difficulties, (b) cost and other difficulties were chosen but not insurance, (c) insurance and other difficulties were chosen but cost was not, and (d) all remaining combined choices in which neither medical cost nor insurance were selected.

**TABLE 20
DIFFICULTIES IN OBTAINING MEDICAL CARE FOR CHILDREN**

Types of Difficulties	No.	%
A. No difficulties	300	37.3
B. Had Difficulties	505	62.7
Total Eligibles (A+B)	805	100.0
Missing	51	--
TYPES OF DIFFICULTIES (single response 1 to 9)		
1. Too far away	3	0.4
2. Difficulties speaking English	3	0.4
3. Provider's hours weren't convenient	7	0.9
4. Didn't know where to find	2	0.3
5. No available child care for other children	6	0.8
6. Too sick myself	1	0.1
7. No transportation to get medical care	0	0.0
8. Difficulty in getting insurance to pay for it	42	5.2
9. Cost	289	35.9
Total Single Responses (1 through 9)	353	43.8
Combined Responses (10 through 13)		
10. Cost and insurance	113	13.7
11. Cost and other responses and no insurance	28	3.5
12. Insurance and other responses and no cost	9	1.1
13. Other non-cost non-insurance responses	2	0.4
Total Combined Responses (10 through 13)	152	18.9
All Responses (single and combined responses)	805	100.0

- For a sizeable proportion of DHCP eligibles, -- 37.3% of all (805) children respondents, parents/guardians did not encounter any difficulty in obtaining medical care prior to enrolling in DHCP. Conversely, for 62.7% of all eligibles, their parents/guardians did have problems in accessing medical care for their children.
- Financial considerations were the primary obstacles of parents/guardians to providing their children with medical care services.
 1. The importance of financial capability of families in limiting the provision of medical care is indicated by the fact that, both cost and insurance obstacles for both the single and combined answers account for 59.5% of all responses.

2. For eligibles whose parents encountered difficulties, a majority of parents/guardians (289 of 353) cited the cost of medical care to be a barrier. (See line 9 of Table 20).
 3. A secondary barrier for eligibles (5.2%) to receiving medical care was a problem with insurance payments.
 4. The combined responses encompassing cost and/or insurance were cited as obstacles to medical care by 18.9% of all respondents.
- Non-financial difficulties posed only very limited obstacles to obtaining medical care since no more than 3% of all eligible children experienced any one non-financial difficulty.
 - These results are consistent with a major premise of CHIP that medical care is expensive for low-income households and the cost hinders the provision of health services for their children.
 - This conclusion could be strengthened further by the determination that those eligibles, who had no difficulties were encountered, were children with better health. These hypotheses are investigated immediately below.

STATISTICAL ANALYSIS

- Dependent variables of Difficulties in Obtaining Medical Care:
 - (a) no difficulties and (b) had difficulties.
- Binary Logistic Equation with the common set of independent variables and the addition of the variables measuring child chronic illness.
 1. Although the dependent variable is dichotomized into no difficulties and difficulties, virtually all the obstacles encountered by parents/guardians were financial (inclusive of cost and insurance) as given in Table 22. Thus the equations should be interpreted in light of these known responses.
 2. The estimation revealed similar results for all variables, irrespective of whether the prevalence of chronic illness or the parent's/guardian's views of child health status were put separately in the equation.
 3. A child health status was negatively associated with parents encountering difficulties in obtaining medical care for the child. Parents with children in fair to excellent health were less likely to have had obstacles to obtaining medical care than parents/guardians with children in poor and very poor health. This finding can be a misleading indicator of problems encountered, since children with higher health quality had less need, if any, for medical care and thus their parents were less likely to find that such services were difficult to obtain.
 - *The odds of not encountering obstacles to medical care by parents/guardians of the healthier children were between 3 to 5 times greater than the odds of parents/guardians applicants with children in poorer health.*
 4. Child chronic illness is positively associated with obstacles to obtaining medical care. Parents of children with two or more chronic illnesses were more likely to have had barriers to obtaining medical care for their children than parents of eligibles with no chronic illness and with one chronic illness.
 - *The odds of encountering obstacles to medical care by parents/guardians of the children with two or more chronic illnesses were 2.0 times greater than*

the odds of parents/guardians applicants with children with no or one chronic illness.

5. Family financial capability influences the extent to which barriers were encountered to obtaining medical care for a child. Families in the two lower premium levels (101%-133% of FPL, and 134%-166% FPL) were more likely to have confronted barriers to obtaining medical care for their children than parents in the highest FPL premium level (167-200%). They had predicted odds of encountering difficulties of 1.5 times the odds of families in the higher FPL premium level (167-200%). Put differently, the odds of the two lower groups are approximately 50% higher than the odds of the higher FPL group.
 - *The odds of **encountering** obstacles to medical care by parents/guardians in the two lower premium levels were 1.5 times greater than the odds of parents/guardians applicants in the highest FPL premium level.*
6. Families whose eligible children have a past Medicaid linkage were more likely not to have had difficulties in obtaining medical service compared to families where children have not had an affiliation with Medicaid.
 - *The odds of **not** having had obstacles to medical care by parents/guardians of children with a past Medicaid history were 2.1 times greater than the odds of parents/guardians applicants of children without a past Medicaid connection.*
7. Availability of health insurance affected the extent to which barriers to medical care were encountered. Families in which eligibles were insured in the prior year, either Medicaid or privately, were less likely to have had problems in obtaining medical services for their children. However, families with Medicaid coverage were three times as likely as families whose children were privately insured **not** to have encountered obstacles in obtaining medical services.
 - *The odds of **not** having had obstacles to medical care by parents/guardians of children with Medicaid insurance were 6.8 times greater than the odds of parents/guardians applicants of children without any insurance coverage. The odds of **not** having had obstacles to medical care by parents/guardians of children with private insurance were 2.3 times greater than the odds of parents/guardians applicants of children without any insurance coverage.*

A1.2 Child's Prescription Medicine

The responses to the survey question shown in Figure 1 produced eighteen (18) separate categories of obstacles to medical care that were various combinations of the original 10 categories. Some respondents chose up to six (6) sources. However, as shown in Table 21, 227 of the 468 responses (or 48.5% of them) was for one difficulty. The responses for multiple choices, -- 73 or 15.5% of all responses -- have been collapsed into four additional categories. They are (a) cost and insurance chosen together along with other difficulties, (b) cost and other difficulties were chosen but not insurance, (c) insurance and other difficulties were chosen but cost was not, and (d) all remaining combined choices in which neither medical cost nor insurance were selected.

TABLE 21
DIFFICULTIES IN OBTAINING PRESCRIPTION MEDICINE
FOR CHILDREN

Types of Difficulties	No.	%
A. No difficulties	168	35.9
B. Had Difficulties	300	64.1
Total Eligibles (A+B)	468	100.0
Missing	388	--
TYPES OF DIFFICULTIES (single response 1 to 9)		
1. Too far away	0	0.0
2. Difficulties speaking English	0	0.0
3. Provider's hours weren't convenient	0	0.0
4. Didn't know where to find	0	0.0
5. No available child care for other children	1	0.2
6. Too sick myself	0	0.0
7. No transportation to get medical care	0	0.0
8. Difficulty in getting insurance to pay for it	10	2.1
9. Cost	216	46.2
Total Single Responses (1 through 9)	227	48.5
Combined Responses (10 through 13)		
10. Cost and insurance	61	13.0
11. Cost and other responses and no insurance	2	0.4
12. Insurance and other responses and no cost	7	1.5
13. Other non-cost non-insurance responses	3	0.6
Total Combined Responses (10 through 13)	73	15.5
All Responses (Single and Combined)	468	100.0

- For a sizeable proportion of DHCP eligibles, --35.9% of all (468) children, parents/guardians did not encounter any difficulty in obtaining prescription medicine prior to enrolling in DHCP. Conversely, for 64.1% of all eligibles, their parents/guardians did have problems in acquiring prescription medicine for their children.
- Financial considerations were the primary obstacles of parents/guardians to providing their children with prescription services.

1. The importance of financial capability of families in limiting the provision of prescriptions is indicated by the fact that, both cost and insurance obstacles for both the single and combined answers account for (63.2%) of all responses.
 2. For almost half of all eligibles (46.2%), parents/guardians found acquiring medical prescriptions for their child to be problematic due to the cost of prescription services.
 3. Similarly, a sizeable portion of eligibles (9.5%) had difficulty with receiving medical care because of problems with insurance payments.
 4. The combined responses encompassing cost and/or insurance were cited as obstacles to medical care by 14.9% of all respondents.
- Non-financial difficulties posed virtually no obstacle to parents/guardians for obtaining prescription medicine for their children.

STATISTICAL ANALYSIS

- Dependent variables of Difficulties in Obtaining Prescription Medicine:
 - (a) no difficulties and (b) had difficulties.
- Binary Logistic Equation with the common set of independent variables and the addition of the variables measuring child chronic illness.
 1. Like medical care, although the dependent variable is dichotomized into no difficulties and difficulties, virtually all the obstacles encountered by parents/guardians were financial (inclusive of cost and insurance) as given in Table 23. Thus the equations should be interpreted in light of these known responses.
 2. While there are similarities to obtaining medical care—insured and Medicaid linkage and income (FPL)—there are difference with respect to all other variables impact on obstacles burden barriers to obtaining prescription medicine by parents for eligibles.
 3. Children’s chronic illness does not determine whether parents/guardians/ encounter barriers to obtaining prescription medicine.
 4. Eligibles with excellent health status were positively associated with parents not encountering difficulties in obtaining prescription medicine for their children. Parents with children in excellent health were less likely to have had obstacles to obtaining prescription services than parents/guardians of children with lesser health quality. This finding can be a misleading indicator of problems encountered, since children with higher health quality were probably not ill during the year and therefore had less need, if any, for prescription medicine; thus their parents were less likely to find that such services were difficult to obtain.
 - *The odds of **not** encountering obstacles to obtaining prescription medicine by parents/guardians of children with excellent health status were 3 times greater than the odds of parents of children with lower health status.*
 5. Family financial capability influences the extent to which barriers were encountered to obtaining prescription for a child. Families in the lowest premium level (101%-133% of FPL) were more likely to have confronted barriers to

obtaining prescription medicine for their children than parents in the two higher FPL premium levels (134%-166% FPL and 167%-200).

- *The odds of **encountering** obstacles to obtaining prescription medicine by parents/guardians in the two lower premium levels were 2.2 times greater than the odds of applicants in the highest FPL premium level.*
6. Families whose eligible children have had a past Medicaid linkage were less likely to encounter difficulties in obtaining prescription medicine services than families where children did not had an affiliation with Medicaid.
- *The odds of **not** having had obstacles to prescription medicine services by parents/guardians of children with a past Medicaid history were 2.4 times greater than the odds of parents/guardians applicants of children without a past Medicaid connection.*
7. Having health insurance affected the extent to which barriers to prescription services were encountered. Families in which eligibles were insured in the prior year, either Medicaid or privately, were less likely to have had problems in obtaining prescriptions for their children. However, families with Medicaid coverage were almost five times as likely as families whose children were privately insured not to have encountered obstacles in obtaining medical services.
- *The odds of **not** having encountered obstacles to prescriptions by parents/guardians of children with Medicaid insurance were 14.1 times greater than the odds of parents/guardians applicants of children without any insurance coverage.*
 - *The odds of **not** having had encountered obstacles to medical care by parents/guardians of children with private insurance were 3.6 times greater than the odds of parents/guardians applicants of children without any insurance coverage.*

A2. Health Status of Eligible Children Prior to DHCP Enrollment

A2.1 Chronic Illness of Children

Chronic illness of a child is the primary indicator of his/her health status (i.e., the state of quality of one's health). Chronic illnesses are ongoing poor physical conditions and persistent maladies that require continuous or intermittent medical care over time. Children with chronic illness are at increased risk for developmental, behavioral or emotional problems and typically require more health and related services than other children (Newacheck and Stoddard, 1994). Children with multiple chronic illnesses have more mental and physical problems and use substantially more services than children with one chronic illness.

FIGURE 2

*Survey question: **Has this child had any ongoing (chronic) illnesses? (Please check all that apply. Please check “Not applicable” if the child(ren) do not have any ongoing illnesses.)***

Parent/guardian applicants were to indicate whether or not their eligible child/children had a chronic illness, and if so, to select all those illnesses from the list of the first six separate responses shown in Table 22. Parents/guardians were also requested to indicate under the choice of "other" any illness they considered to be chronic. A seventh separate category, "Allergies", was devised, while the "other" illnesses were deemed not to be chronic. Including the category of no illness, the survey resulted in seven single and sixteen multiple responses, i.e., some parents identified their children who had one chronic illness, and others identified their children as having two or more ongoing illnesses. No more than three chronic illnesses were designated for an eligible child by a parent.

**TABLE 22
ONGOING (CHRONIC) ILLNESSES**

	Children	
	No.	%
A. Children Without Chronic Illness	605	67.3
B. Children With Chronic Illness	222	33.7
C. TOTAL ELIGIBLES (A+B)	827	100.0
Missing	29	--
CHILDREN WITH SINGLE CHRONIC ILLNESS (1 to7)		
1. Diabetes	4	0.5
2. Asthma	62	7.5
3. Ear Infections	60	7.3
4. Lead Poisoning	3	0.4
5. Attention Deficit Disorder	32	3.9
6. Pneumonia	3	0.4
7. Allergies	14	1.7
Total Single Responses	178	21.5
Multiple Responses		
2 Chronic Illnesses	38	4.6
3 Chronic Illnesses	6	0.6
Total Multiple Illnesses	44	5.2

- The survey responses are consistent with previous research regarding the prevalence of chronic illnesses among children.
- A large majority, 67.3%, of DHCP eligible children did not have any ongoing or chronic illness.
- One-third of all eligibles, 33.7%, suffer from one or more chronic illnesses.
- Asthma and ear infections are the most prevalent chronic illnesses with similar incidence among eligibles of 11% and 10.8% respectively.

- Attention Deficit Disorder ranks third with 5.3% of all eligibles suffering from the illness.
- When taken together less than one percent of all eligibles have diabetes, lead poisoning, and pneumonia.
- The prevalence of multiple chronic illnesses among DHCP children corresponds to previous research findings.
 1. Less than 5% of eligible children are afflicted with two chronic illnesses.
 2. Less than 1% of all eligibles have three chronic illnesses.
 3. No children were found to have more than three illnesses.

STATISTICAL ANALYSIS

- Dependent variable of Prevalence of Chronic Illness:
 - (a) no chronic illness = 1, (b) one chronic illness = 2, and (c) two or more chronic illnesses = 3.
- Cumulative Logistic Equation or Multinomial Logistic Equation with the common set of independent variables and child health status.
- Equation results:
 1. Eligible males have a higher probability of chronic illnesses than female eligible children do.
 - *The odds of male eligibles having chronic illness were 1.4 times greater than the odds of females.*
 2. The size of a family is inversely associated with the number of chronic illnesses that afflict children. Families with more children, -- the number of eligible children of a family enrolled in the DHCP, -- are less likely to have a child with a chronic illness. That is, a child with chronic illness is more likely to be found in families with fewer children.
 - *The odds of having a child with a chronic illness decrease by 50% for each additional child in a family.*
 3. The age of eligible children is inversely associated with the number of chronic illnesses that afflict children. Older children are likely to have fewer chronic illnesses. Put differently, chronic illnesses are more likely to be found in younger children.
 - *The odds of having a chronic illness decrease by 4% for each year of a child's life.*
 4. Eligible children residing in Dover, Smyrna, Georgetown, and the rural (non-Georgetown) areas of Sussex County are less likely to have chronic illnesses than all other eligibles living in other parts of the State.
 - *The odds of eligible children of **not** having chronic illness in the cited areas range from 2.0 to 9.7 times that of eligible children in the remainder of the State.*
 5. Parents who assessed their children as having a chronic illness also evaluated their children as having poor or very poor health status.

A2.2. Parent/Guardian View of Child's Health Status

Parents/guardians of eligibles were requested to appraise their children's health status. Five categories were provided ranging from low to high quality of health. The five-point scale is shown on the following table.

FIGURE 3

Survey question: **How would you describe this child’s health? (Check the one that applies.)**

**TABLE 23
PARENT VIEW OF CHILD'S HEALTH STATUS**

	Children	
	No.	%
1. Very Poor	6	0.7
2. Poor	34	4.0
3. Fair	157	18.4
4. Very good	327	38.3
5. Excellent	330	38.6
Total	854	100.0
Missing Data	2	-

- 80% of all eligibles were considered by their parents/guardians to be in very good or excellent health while 18.4% were categorized as fair.
- A very small portion of all eligible children, 4.7%, was deemed by their parents to be in poor or very poor health.
- One conclusion from the above figures is, as a group, DHCP eligibles appear to be very healthy children. However, the 80% of eligibles in very good and excellent health is slightly higher than the findings about chronic illness, where 73.2% of all children enrolled have been reported as not having some ongoing malady.
- What may explain this difference is that some parents/guardians who reported that their children have one or more of the defined chronic illnesses may not consider the classified chronic illnesses to be “permanent” or long-run problems, i.e., they are viewed as ephemeral conditions.
- This perspective is explored immediately below by the examination of whether health condition, health care utilization, and health care spending influences, together with other variables, affect the parentally defined health status of their children.

STATISTICAL ANALYSIS

- Dependent variable of Child Health Status:
(a) very poor and poor = 1, (b) fair =2, (c) very good = 3, and (d) excellent = 4.
(Very poor and poor were collapsed because of the few cases in the former category).
- Cumulative Logistic Equation with the common set of independent variables with the addition of chronic illness of children and insured chronically ill.

- Equation results:
 1. Eligible children of Hispanic origin are more likely to have lower health status than eligibles of all other ethnic/racial origins. Conversely, for the latter, each ethnic/racial group has similar health status and equal probability of higher quality of health.
 - *The odds of Hispanic eligibles having lower health status were 4.8 times greater than the odds of all other eligibles.*
 2. The age of eligible children is negatively related to their health status. Older children were more likely to manifest a lesser quality of health. Alternatively, younger children have a higher probability of being in good to excellent health than older children.
 - *The odds of being in better health decreases by 7% for each year of a child's life.*
 3. Family size, -- the number of eligible children of a family enrolled in the DHCP, - is positively related to children's health status. Eligible children living in larger families were more likely to have greater quality of health.
 - *The odds of having a child with a higher health status increases by 19% for each additional child in a family.*
 4. Children with Medicaid health insurance in the year prior to DHCP enrollment were positively associated with higher health status. Families in which eligibles obtained medical services through Medicaid in the prior year were more likely to have higher quality of health than children without Medicaid insurance as well as children who were insured through private policies. Conversely, children with private coverage did not differ in health status from children without any health insurance.
 - *The odds of eligibles with Medicaid health insurance having higher health status were 1.31 times greater than the odds of eligible children without such coverage.*
 5. As would be expected, chronic illness of eligible children was negatively related to child health status. Eligible children with one chronic illness were more likely to have lower health status than children with no chronic illness. Compared to the former, eligible children with two or more chronic illnesses have a higher probability of poorer health quality.
 - *The odds of eligibles with one chronic illness having lower health status were 4.0 times greater than the odds of eligible children without a chronic illness. The odds of eligibles with two or more chronic illnesses having lower health status were 12.3 times greater than the odds of eligible children without a chronic illness.*
 6. When the extent of chronic illness among eligibles is taken into consideration, eligibles located in New Castle County, (with the exception of the city of New Castle), and the city of Georgetown were more likely to have a higher health status than eligible children in any urban center or rural section of the State. Eligible children residing in the city of New Castle, Smyrna, Dover, the rural (non-Georgetown) areas of Sussex County, and the rural areas of Kent County have greater probability of lower health status than all other eligibles living in other parts of the State.

- *The odds of eligible children having poorer quality of health in the cited areas range from 2.0 to 2.8 times that of eligible children in the remainder of the State.*

A3. Health Care Service Utilization

There are two major dimensions of health care utilization that were explored with the survey. The first is whether or not DHCP eligibles received health care in the year prior to their enrollment. A second inquiry entails the types and quantity of health care that was received, (viz., incidence of health care utilization). The findings should be considered within the context that both the Nemours and Public Health clinics have been providing health services to children of families with annual incomes under 200% of the FPL. These facilities could have affected the health care utilization of eligibles prior to their enrollment in DHCP. Unfortunately, data on such utilization is unavailable.

A3.1. Health Care Received

FIGURE 4

Survey question: Please tell us about your child’s medical care in the last year before enrolling in DHCP: (Please estimate if you do not know the exact numbers.)

**TABLE 24
HEALTH CARE RECEIVED BY DHCP CHILD IN LAST YEAR
BY PRIOR PARTICIPATION IN DHCP**

Reception of Health Care	Total Sample	
	No.	%
Received Care	702	85.9
Not Received Care	115	14.1
Total	817	100.0
Missing	39	--

- A substantial proportion of eligible children, 85.9%, received health care in the year prior to enrolling in DHCP.
- 14.1% of eligibles did not use the health care system in the last year.
- While utilization appears to be considerable, it should **not** be readily concluded that eligibles did not encounter obstacles in obtaining healthcare prior to the DHCP. Some eligibles may have been ill but their parents were hindered in purchasing (a) care at all, or (b) additional needed care beyond the amount that was received.
- As will be seen below, these figures obscure the substantial variation in the types of health services utilization of DHCP eligibles.

STATISTICAL ANALYSIS

- Dependent variable of Health Care Utilization:
 - (a) received health care, and (b) did not receive health care.
- Binary Logistic Equation with the common set of independent variables with the addition of chronic illness and insured chronically ill.
 1. The age of eligible children is negatively related to having received medical care in the year prior to DHCP eligibility. Older eligible children are less likely to have received medical care than younger eligibles.
 - *The odds of not receiving medical care decreases by 7% for each year of a child's life.*
 2. Family size is inversely associated with the receipt of health care by eligible children. In families with more children--the number of eligible children of a family enrolled in the DHCP--an eligible child is less likely to have received medical care in the past year.
 - *The odds of a child not receiving medical care increases by 60% for each additional child living within a family.*
 3. Receipt of medical care by eligibles was less likely in the cities of Newark, Elsmere and Smyrna than in the other areas of the state, but more likely in Elsmere than any other areas within the state.

A3.2 Incidences of Health Care Utilization

Incidences of health care utilization refer to the number of times an eligible child received services from any of five medical care sources in the year prior to DHCP enrollment. The parent/guardian applicants were to indicate the number of: (a) doctor visits; (b) dentist visits, (c) prescriptions, (d) emergency room visits, and (e) hospital stays. The results for each type of service and the quantity utilized are presented in Table 25.

FIGURE 4

Survey Question: Please tell us about your child's medical care in the last year before enrolling in DHCP: (Please estimate if you do not know the exact numbers.)

**TABLE 25
HEALTH CARE INCIDENCES IN LAST YEAR BY DHCP CHILD**

No. of Incidences	Doctor Visits		Dentist Visits		Prescriptions		Emergency Room Visits		Hospital Stays	
	Children Who Utilized Service									
	No.	%								
0	190	23.8	506	62.5	337	41.9	608	75.10	760	93.7
1	134	16.8	126	15.6	90	11.2	124	25.3	39	4.8
2	158	19.8	116	14.3	124	15.4	43	5.3	9	1.1
3	90	11.3	29	3.6	55	6.8	16	2.0	1	0.1
4	66	8.3	13	1.6	53	6.5	11	1.4	1	0.1
5	34	4.3	1	0.1	34	4.2	4	0.4	1	0.1
6	38	4.8	6	0.7	24	3.0	1	0.1	0	0.0
7	12	1.5	2	0.2	12	1.5	1	0.1	0	0.0
8	13	1.6	0	0.0	9	1.1	0	0.0	0	0.0
9	2	0.3	0	0.0	7	0.2	0	0.0	0	0.0
10	26	3.3	3	0.4	16	2.0	2	0.2	0	0.0
11-15	18	2.3	6	0.7	22	2.7				
16-20	7	0.9	1	0.1	9	1.1				
21-30	5	0.6	1	0.1	10	1.2				
31-40	4	0.5			1	0.1				
40+	2	0.3			2	0.2				
Total	799	100.0	810	100.0	805	100.0	810	100.0	811	100.0
Missing data	57	--	46	--	51	--	46	-	45	-

DOCTOR VISITS

- Doctor visits by eligibles ranged between zero and more than 40 per year.
- 24% of all eligibles had no visits to a physician in the last year while 76% had at least one doctor visit.
- Most eligible children who had doctor visits were limited to 4 or less in the year.
- However, almost 20% of all eligibles had visits that exceeded five or more with a steady number of visits occurring up to 15 per year.

DENTIST VISITS

- A large majority of DHCP eligibles (62.5%) did not have a dental visit in the past year, and only 37.5% of all eligibles did. This indicates that a substantial number of children did not receive minimal preventive care during the year.
- Most commonly, children who received dental care had two or less visits, (i.e. 29.9% of all children).

PRESCRIPTIONS

- 42% of all DHCP children did not obtain any prescription services in the past year.

- Of the 58% of eligibles who obtained prescription medicine, one-half obtained one to two prescriptions while a considerable proportion, 20.5%, had 3 to 6 prescriptions filled during the year.

EMERGENCY ROOM VISITS

- 75% of all eligible children did not visit an emergency room.
- Most eligibles (i.e., 30.6% of all children) who did use the emergency room for health care had between one and two visits.

HOSPITAL STAYS

- Eligibles were extremely limited in their hospital utilization.
- 93.7% of all children did not have any hospital stays.
- Of the 6.3% eligibles admitted for a hospital stay, only three had more than two stays.

STATISTICAL ANALYSIS

What remains is the bases for eligibles receiving health care as well as the types and quantity of services. Such consumption, or lack thereof, could be due to the health of a child. In addition, whether care is provided to a child may be influenced by parents' financial considerations, i.e., the capability to obtain care because of income, the availability of health insurance, and the connections to the Medicaid program. These concerns are investigated with respect to the statistical analyses of the five categories of health care utilization.

- Dependent variable of Health Care Utilization:
Number of visits or units of service with many zero (or no) incidences for each type of utilization.
 - Five separate Tobit Equations, one for each type of utilization; each equation includes the common set of independent variables with addition of chronic illness, and insured chronic illness.
1. The statistical analyses did not produce common findings across the types of service utilization.
 2. Medicaid insurance in the year prior to DHCP enrollment proves to be an important influence on doctor visits and the number of prescriptions.

1. DOCTOR VISITS.

- i. Family size affects the number of physician visits. Families with more (eligibles) children had fewer physician visits. The probability of visiting a physician decreases with the number of children in a family.
- ii. Children with Medicaid health insurance in the year prior to DHCP enrollment were positively associated with doctor visits. Eligibles who were covered through Medicaid in the prior year were more likely to have higher number of doctor visits than children without Medicaid insurance as well as children insured through private policies. Conversely, children with private coverage and children without any health insurance did not differ in the number of doctor visits.

- iii. Eligible children with one and with two or more chronic illnesses had greater probability of using more physician services than children without any chronic illnesses. As would be expected, the probability of having more visits was greater for the children with two or more illnesses than for children with one chronic illness.
- iv. Eligibles who reside in Newark, Elsemere, Dover, and the rural areas of Kent and Sussex Counties have a lower likelihood of physician visits than children who live in other areas of the state.

2. NUMBER OF PRESCRIPTIONS.

- i. Family size influences the number of prescriptions a child receives. Families with more (eligible) children consumed fewer prescriptions. The probability of obtaining prescriptions decreased with the number of children in a family.
- ii. Age of eligibles was positively related to the number of prescriptions received. Older eligible children were more likely to receive more prescriptions than younger ones.
- iii. Children with Medicaid health insurance in the year prior to DHCP enrollment were positively associated with prescriptions. Families with eligibles covered through Medicaid in the prior year were more likely to have a higher number of prescriptions than children without Medicaid insurance.
- iv. Children who were insured through private policies in the year prior to DHCP enrollment were positively associated with prescriptions. Eligibles who had prescription services paid through private insurance in the prior year were also more likely to have a higher number of prescriptions than children without Medicaid insurance. The difference between private insurance and Medicaid is that the former has a slightly higher impact than the latter.
- v. Eligible children with one and with two or more chronic illnesses had greater probability of using more prescriptions than children without any chronic illnesses. The probability of obtaining more prescriptions was greater for the children with two or more illnesses than for children with one chronic illness.
- vi. No regional difference was found among eligibles for prescriptions.

3. EMERGENCY ROOM VISITS.

- i. The gender of eligibles was positively related to the number of emergency room visits. Males have a greater probability of being treated in the emergency room than females.
- ii. The insurance status of an eligible did not have any impact on whether they received treatment in an emergency room. That is, the number of visits by eligible children did not differ according to whether they had insurance or not.
- iii. Eligible children living in households of both the lowest and middle premium categories had more emergency room visits than the children in the highest premium category. Children in the two lowest categories had equal probability of the same number of emergency room visits.
- iv. Eligible children with one and with two or more chronic illnesses had greater probability of emergency room visits than children without any chronic

illnesses. The probability of more emergency room visits was greater for the children with two or more illnesses than children with one chronic illness.

4. HOSPITAL STAYS.

- i. The age of eligibles was positively related to the number of hospital stays. Older eligible children were more likely to have more stays in a hospital than younger ones.
- ii. Family size affected the number of hospital stays that a child had. Families with more (eligible) children had fewer hospital stays. The probability of having hospital stays decreases with the number of children in a family.
- iii. Eligible children living in households of both the lowest and middle FPL premium categories had fewer hospital stays than the children in the highest FPL premium category. Children in the lowest FPL category were almost twice as likely as children in the middle category to have fewer stays.
- iv. Children with past Medicaid linkage were less likely to have hospital stays.
- v. Eligibles in Wilmington were more likely to have stays in the hospital than all the eligibles in the remainder of the state.

5. DENTIST VISITS.

- i. The gender of eligibles was related to the number of dentist room visits. Females have a greater probability of having more dentist visits than males.
- ii. Non-Hispanic Whites, Non-Hispanic Blacks and Hispanic children had fewer visits to the dentist than the remaining other ethnic/racial groups.
- iii. Children who reside in New Castle City, rural areas of Kent County and Elsmere had more dental visits than children in any other area of the state.

A3.3 Immunization Status of DHCP Eligibles

An important measure of a child's health care is whether he/she has been immunized against potential diseases. Such minimum measures could prevent the contraction of illnesses that would require costly medical care. Immunization is a "standard" service that would be provided to DHCP participants.

FIGURE 5

Survey Question: Is your child up-to-date on immunization.

TABLE 26
IMMUNIZATION STATUS OF DHCP CHILDREN

Immunization Status	Total Sample	
	No.	%
Immunization Up-To-Date	637	89.3
Immunization Not Up-To-Date	76	10.7
Total	713	100.0
Missing	143	-

- An overwhelming number of children, 89.3% of all eligibles, had their immunization up-to-date prior to enrollment in DHCP.
- Only 10% were not fully immunized.

STATISTICAL ANALYSIS

- Dependent variable of Immunization Status:
 - (a) immunization up-to-date, and (b) immunization not up-to date.
- Binary Logistic Equation with the common set of independent variables with addition of chronic illness, and insured chronic illness.
 1. The status of insurance coverage does account for differences in immunization. Eligible children whose immunizations are up-to-date were more likely to have been insured by Medicaid in the last year than children who had no insurance at all or private insurance in the year prior to their DHCP enrollment.
 - *The odds of having a child with up-to-date immunization who had Medicaid coverage in the year prior to the DHCP are 2.9 times the odds of children with private insurance or no insurance.*
 2. Past Medicaid linkage does not explain differences in immunization among eligibles. Put differently, the same level of immunization prevails for all eligibles irrespective of whether they have had past linkage with the Medicaid program.
 3. Family size, -- the number of eligible children of a family enrolled in the DHCP, - - is negatively related to children’s immunization status. Eligible children living in larger families were less likely to have their immunization up-to-date. Conversely, families with fewer (eligible) children were more likely to have their children's immunization up-to-date.
 - *The odds of not having children with their immunization up-to-date increases by 14% for each additional child in a family.*
 4. Family financial capability affects whether the immunization of an eligible child was up-to-date prior to DHCP enrollment. Children in families of the lowest premium level (101%-133% of FPL) were less likely to have their immunization up-to-date than eligibles of the families in the two higher FPL premium levels (134%-166% and 167%-200%).
 - *The odds of **not** having a child’s immunization up-to-date in the lowest premium level were 3.4 times greater than the odds of children in the two highest FPL premium levels.*

5. Eligible children residing in the rural areas of Kent and Sussex Counties are more likely to have their immunization up-to-date than eligibles in other parts of the state.
 - *The odds of eligible children living in the rural areas of Kent and Sussex counties having their immunization up-to-date are respectively 2.7 and 3.8 times higher than the odds of eligibles located within the remainder of the state.*

A4. Health Care Costs

Parent/guardian applicants were requested to give an estimate of the medical care costs they incurred for each of their eligible children in the year prior to DHCP enrollment. In addition to none, five categories were specified. The responses are shown in Table 27.

FIGURE 6

Survey Question: Over the past year, what were your medical costs for this child? (Check the one that applies.)

**TABLE 27
HEALTH CARE COSTS OF ELIGIBLES**

	Children	%
	No.	Percent
1. None	208	24.9
2. Less than \$200	292	35.0
3. Between \$201 and \$500	205	24.6
4. Between \$501 and \$1,000	67	8.0
5. Over \$1,000	62	7.4
Total	834	100.0
Missing Data	22	-

- Parents/guardians of one quarter of all DHCP eligibles did not incur any medical costs for their eligible children.
- Households that incurred costs had significant outlays, given their low income.
 1. Even though parents of 35% of all eligibles paid less than \$200.00 in the year prior to DHCP, they may well have incurred a substantial burden, since they may have more than one child for which medical care costs were realized.
 2. For 40% of all eligibles, medical care cost exceeded \$200 a year, a large amount for low-income households. Again, these figures only apply to a single child; a household could have paid for additional children. Thus, the numbers could obscure the magnitude of household financial burden.
 3. For a sizeable number of children, medical expenses were very high; costs were greater than \$500 for 15.4% of all eligibles.

An "approximate" measure of the household burden by family income capacity (measured by their FPL premium) and number of children can be culled from Table 28. The average medical costs per family and average medical costs per child are given in the Table. Medical care costs are the annual out of pocket costs and were estimated, albeit crudely, in the following way. One, eligibles for whom financial costs were not incurred were excluded. Two, midpoint estimates were made for each of the costs categories given in Table 27¹⁷. Three, the midpoint estimates were multiplied times the number of eligibles whose medical care spending was estimated by their parent/guardian to fall within the various cost categories. Four, the resulting values were allocated to the number of eligible children in a family according to the appropriate FPL premium categories. Fifth, the total values in each FPL premium category were divided by the number of families within the categories for whom the out of pocket spending was made.

TABLE 28
MEDICAL COSTS BY INCOME AND NUMBER OF ELIGIBLE CHILDREN

FPL PREMIUM CATEGORY	NUMBER OF ELIGIBLE CHILDREN IN A FAMILY										
	ALL FAMILIES		ONE			TWO			THREE		
	NO.	AVG. COST	NO.	AVG. FAMILY COST	AVG. COST PER CHILD	NO.	AVG. FAMILY COST	AVG. COST PER CHILD	NO.	AVG. FAMILY COST	AVG. COST PER CHILD
100%-133%	142	\$380	78	\$338	\$338	45	\$370	\$185	19	\$574	\$191
134%-166%	160	\$435	85	\$420	\$420	58	\$499	\$250	17	\$291	\$97
167%-200%	110	\$383	64	\$357	\$357	34	\$463	\$232	12	\$287	\$96

- The average cost estimates for all families are substantially different according to the number of children. For all FPL categories, families with one child have lower spending for medical care than families with two children. However, families with one child have higher spending per child than families with three or more children only in the two highest FPL premium categories.
- With one exception, in the lowest FPL category, spending on medical care declines per child in larger families.
- What these figures also obscure is whether medical care costs were constrained by income, the lack of insurance inclusive of Medicaid, family size, and the extent to which spending was influenced by the health status of the children. These issues are addressed with the following statistical analysis.

STATISTICAL ANALYSIS

- Dependent variable of Medical Care Costs:
 - (a) none = 1, (b) less than \$200 = 2, (c) \$201 to \$500 = 3, (d) \$501 to \$1,000 = 4, and (e) greater than \$1,000.
- Cumulative Logistic Equation with the common set of independent variables with addition of chronic illness, and insured chronic illness and the level of each type of service utilization.¹⁸

1. More medical care costs were incurred by eligible White and Hispanic children than by all other racial/ethnic groups. Parents/guardians for non-White and non-Hispanic eligibles were more likely to be similar in spending levels for medical care.
 - *The odds of parents of White eligibles and Hispanic eligibles incurring higher medical care costs were respectively 2.1 and 1.0 times greater than the odds of all other eligibles with different ethnic/racial origins.*
2. Larger families spent less on each child. Families with more children are more likely to incur less medical costs for an individual child.
 - *The odds of incurring higher medical care costs for a child decreased by 80% for each additional child in a family.*
3. As expected, children with Medicaid coverage in the year prior to DHCP enrollment were more likely to incur smaller medical care costs than children either without any insurance or with private insurance. That is, eligibles who were privately insured or without insurance were equally likely to spend the same amount on medical care. Therefore, these two groups were equally likely to incur higher costs than Medicaid eligibles.
 - *The odds of eligibles with Medicaid health insurance having lower medical costs were 2.3 times greater than the odds of eligible children without such coverage.*
4. Medicaid Linkage was negatively associated with medical care costs. Parents of children who were Medicaid eligible within the past 10 years were more likely to have incurred lower medical costs than parents of children without such a connection.
 - *The odds of eligibles with Medicaid health insurance having lower medical costs were 1.9 times greater than the odds of eligible children without such coverage.*
5. The prevalence of chronic illness of a child affects the amount of medical care costs incurred by a family for the child. Families of children with one chronic illness have a higher probability for larger medical spending than families of children without any chronic illnesses. Moreover, families of children with two or more chronic illnesses have an even greater probability of incurring more medical care costs than families of children without chronic illnesses.
 - *The odds of a family with children with one chronic illness and with children with two or more chronic illnesses were respectively 1.9 and 4.1 times the odds for a family of children with no chronic illness.*
6. However, private insurance affects the amount of medical costs if a child has chronic illnesses. Families of children with private health insurance and two or more chronic illnesses have a substantially greater likelihood of spending less on medical care than children with two or more chronic illnesses but not privately insured.
 - *The odds of incurring less medical costs for families with privately insured children with two or more chronic illnesses are 11.6 times the odds of families of eligible children with two or more chronic illnesses but not privately insured.*

7. Families residing in Newark, Georgetown, Wilmington and rural Kent County were more likely to spend more on medical care for their eligible children than families of eligible children living in the rest of the state.

B. VARIOUS FINANCIAL DIMENSIONS OF THE DHCP

Two financial dimensions of the DHCP are examined. First, several facets of health insurance of eligibles, including crowding out of private coverage, are analyzed. Second, the financial valuation of the DHCP by the applicant parents/guardians of eligibles is assessed.

B1. Health Insurance Coverage

The purpose of the DHCP is to provide health insurance coverage to children in low-income families/households who cannot afford private insurance coverage for their young dependents. Whether enrollment in the program is consistent with the DHCP goal can be affirmed through the investigation of the following four interrelated policy concerns. One, what was the insurance status of eligibles before enrollment? Two, what are the reasons for not having health insurance? Three, did enrollment in DHCP entail any crowding out, i.e., was DHCP coverage of eligibles substituted for their private coverage? Four, how financially beneficial is the DHCP for the families of children who did enroll. These policy concerns are addressed with the responses to two survey questions that are presented in Tables 29 to 36.

FIGURE 7

Survey question: If this child has ever been covered by health insurance, please tell us the most recent type of insurance, when the child was last covered (month & year), and the \$ amount of monthly premium paid by you or the financially responsible parent:

(If you do not know exactly \$ amount of monthly premium, then please estimate. Please make sure you indicate whether the health insurance was through employer or paid totally by Parent/guardian. Please put DK if you don't know.)

FIGURE 8

Survey question: If this child had been covered by health insurance, including Medicaid, why did his/her health insurance stop? (Check all that apply)

B1.1 Health Insurance Status

The survey responses about the health insurance status of eligibles are shown in Table 29-32. The insurance history of DHCP eligibles and the reasons for not having such coverage reveals some important insights into the present and future clientele of the program. The following comments should be viewed as approximations since data is missing on the time frame of 63 private insurance holders, accounting for 7.4% of all eligibles.

Eligibles were categorized by their insurance status prior to enrolling in DHCP. These categories include: A) uninsured, B) publicly insured through Medicaid, which does not require a premium, and C) privately insured. Coverage through private insurance could have been paid solely by parent/guardian, or it could have been employer-based in which the premium is most commonly paid jointly by employer and parent/guardian as an employee. These three insurance status categories are given in Table 29 that portrays three interrelated profiles of the health insurance status of the DHCP eligibles prior to the DHCP. The first part of Table 29 shows the most recent types of health insurance coverage that eligibles had before their DHCP enrollment. Shown on the second part of the table is the insurance coverage of eligibles in the year prior to their DHCP enrollment. Part three of the table presents the extent to which eligibles had a past linkage with Medicaid.

**TABLE 29
HEALTH INSURANCE STATUS OF SURVEYED ELIGIBLES**

Insurance Category	Children	
	No.	Percent
I. MOST RECENT HEALTH INSURANCE COVERAGE		
A. Never Been Covered	140	16.6
B. Medicaid	424	50.3
C. Private Insurance	279	33.1
Total (A + B + C)	843	100.0
Missing	13	--
II. INSURANCE COVERAGE ONE YEAR PRIOR TO DHCP		
Insured Eligibles		
1. Medicaid Enrollees In Prior Year	123	14.6
2. Private Insurance Coverage in Prior Year (0-12 Mos.)	111	13.2
2A. Private Insurance and Prior Medicaid Enrollees	(29)	(3.4)
2B. Private Insurance and Not Prior Medicaid Enrollees	(82)	(9.7)
Total Insured In Prior Year (1 + 2)	234	27.8
Uninsured		
3. Never Been Covered	140	16.6
4. Medicaid Enrollee two of more years prior DHCP	301	35.7
5. Private Insurance two of more years prior DHCP	105	12.5
5A. Private Insurance and Prior Medicaid Enrollees	(22)	(2.6)
5B. Private Insurance and Not Prior Medicaid Enrollees	(83)	(9.8)
Total Uninsured Eligibles (3 + 4 + 5)	546	64.8
Missing Private Insurance With Time of Coverage	63	7.4
Total Eligibles (1+ 2+ 3 + 4 + 5)	843	100.0
Missing responses to most recent insurance	13	
III. ELIGIBLES WITH MEDICAID LINKAGE PRIOR TO DHCP ENROLLMENT		
A. Medicaid Enrollees In Prior Year	123	14.6
B. Medicaid Enrollee two or more years prior DHCP	301	35.7
C. Private Insurance in the Year Before DHCP Enrollment	29	3.4
D. Private Insurance two or more Years Before Enrollment	22	2.6
Total Eligibles With Medicaid Linkage (A + B + C + D)	475	--
Total Eligibles With Medicaid Linkage As % of Eligibles	--	56.3

- In its initial year, DHCP enrollment has been very consistent with its objective of providing coverage to low-income uninsured children.
 1. A substantial proportion of all eligible children, --(64.8%, or 72.2% if the 7.4% of missing were added), --did not have health insurance coverage in the year before their DHCP participation. (See Part II of Table 29).
 2. Only 27.8% of all eligibles were covered by health insurance in the year prior to their DHCP enrollment. (See Part II of Table 29).
 3. Although 83.4% of all eligibles did have some health insurance in the years prior to their DHCP enrollment, this high proportion of insurance takers obscures the coverage that eligibles had in any given year especially in the year prior to DHCP enrollment.

- It appears that the DHCP has provided health insurance to children who are considered a major target population of the program, i.e., a population that is in persistent need of such assistance.
 1. This structural element is manifested by the 16.6% of all eligibles who have never had any type of health insurance (Part I of Table 29).
 2. However, without data on family past behavior, a firm conclusion about the extent to which these children were without health insurance due to the access, affordability or unwillingness to pay for insurance coverage must be reserved.

- Both the private and public sectors were equally important as health insurance providers for the low-income DHCP eligibles in the year prior to the DHCP.
 1. Of the 27.8% insured eligibles, one-half (14.6% of all eligibles) had coverage through the Medicaid program.
 2. The 14.6% of all eligibles who were provided coverage through Medicaid in the year prior to DHCP enrollment (see Part 3 of Table 29) “moved” into the state CHIP program because their family income increased to between 101% and 200% FPL. It can be inferred assuredly (and supported by the following points) that many of these children would not have had health insurance if the DHCP had not been implemented.
 3. 13.2 % of the eligibles were recipients of insurance through private policies during some period in the last 12 months preceding their enrollment date (Part II of Table 29).

- Medicaid has played a major and continuous role as a health insurance provider to low-income eligibles.
 1. 50.3 %, of all eligibles had Medicaid as their last health insurance protection (Part I of Table 29).
 2. As shown in Table 30, over the past ten years most eligibles have been periodically dependent on the Medicaid program as a provider of health insurance coverage. This past Medicaid linkage is also indicated in Part III of Table 29. Slightly more than half, 56.3%, of all DHCP eligibles were former Medicaid clients at least once within the past ten years.

**TABLE 30
MEDICAID LINKAGE OF ELIGIBLES**

	SURVEYED ELIGIBLES (A)		TOTAL DHCP ELIGIBLES (B)		PRIVATELY INSURED ELIGIBLES (C)	
	No.	%	No.	%	No.	%
Last Year In Medicaid						
1999	123	14.4	3,122	55.5	9	2.8
1998	172	20.1	694	12.3	25	7.8
1997	21	2.5	38	0.7	8	2.5
1996	23	2.7	42	0.7	8	2.5
1995	19	2.2	27	0.5	5	1.6
1994	29	3.4	44	0.8	10	3.1
1993	30	3.5	47	0.8	6	1.9
1992	24	2.8	38	0.7	11	3.4
1991	13	1.5	32	0.6	2	0.6
1990	21	2.5	44	0.8	6	1.9
Never Covered By Medicaid	380	44.4	1,493	26.6	232	72.0
TOTAL	855	100.0	5,621	100.0	322	

- Further support of this periodic dependence on Medicaid is given by the experience of the DHCP eligibles with private insurance.
 1. The most recent health care insurance coverage for a substantial portion of eligibles, 37.3%, was through the private sector. (See Part I of Table 29).
 2. A sizeable proportion of eligibles, approximately 28% (Column C of Table 30) of DHCP children, who had private insurance also had insurance coverage through Medicaid in the past ten years.

**TABLE 31
LENGTH OF TIME SINCE PRIVATE INSURANCE COVERAGE**

Timed Insured Before Application	Insurance Category					
	Total		Private Insurance Through Parent/Guardian and Employer		Private Insurance Paid Totally by Parent/Guardian	
	No.	%	No.	%	No.	%
0 to 6 Months	64	29.6	51	27.9	13	34.9
7 to 12 Months	47	21.8	47	25.7	0	0
1 to 2 Years	54	25.0	40	21.9	14	42.4
2 to 5 Years	38	17.6	32	17.5	6	18.2
> Than 5 Years	13	6.0	13	7.1	--	--
Total	216	100.0	183	100.0	33	100.0
Missing	63					

- Many eligibles who did have private coverage as their last insurance have been without such health protection for a considerable amount of time in the past ten years.
 1. As shown in Table 31, almost 50% of the former private insured have been without coverage for more than a year.
 2. Some children, 17.6% of the formerly insured, have not had health insurance for 2 to 5 years, and 6% have been without it for 5 (or more) years.

- As a group, the families of eligibles are economically vulnerable and financially unstable households and likely to have periodic need for health insurance for their children. Support of this perspective is bolstered by the findings about applicants' reasons for the loss or stopping of their children's health insurance. In their multiple responses-- (see Table 32)--, parent/guardian applicants cite a combination of reasons for why their child's health insurance stopped. These reasons signify employment instability, periods of unemployment, job changes, and income limitation that impinge on their capability to provide health insurance coverage for their children.

- Parent/guardian applicants' single responses point to their households' social and economic status and changes that constrain them from providing health insurance for their children on a continuous basis. Putting aside the Medicaid income disqualification, the predominant single responses demonstrate lack of availability or affordability of health insurance. The difficulty of the financial burden of insurance coverage is indicated by responses 4, 5 and 7 (parent dropped insurance, or cost of it increased). Responses 3 (unemployed), 6 (new job without insurance), and 8 (employer cancelled insurance) suggest that applicants have problems in obtaining access to health insurance through their employment. In these circumstances, however, affordability may be the underlying reason for not having coverage for their children, given that, in principle, they could purchase, albeit costly, insurance directly from their household income.

- Responses 3 through 8 taken together with many of the multiple responses indicate employment instability and low income jobs may be a somewhat enduring economic situation that hinders sustained coverage for most families of eligibles. It is unclear that there may be more ephemeral participation in DHCP due to changes in family status, as given on response 5. Divorce, marital separation, or death could produce a temporary need for insurance of the household's children until the family member(s) obtain income that could exceed the income limit of the DHCP. This type of situation is likely to prevail where the parent/guardian is well educated. Moreover, these DHCP eligibles are likely to be parent/guardian of new entrants, i.e., without a past Medicaid linkage. Whether the DHCP is used as a mechanism to fulfill a temporary gap by parent/guardian applicants requires an analysis over time and data on marital status, family employment characteristics, and education of family members to yield a conclusive answer.

FIGURE 9

*Survey question: **If this child had been covered by health insurance, including Medicaid, why did his/her health insurance stop? (Check all that apply)***

**TABLE 32
REASONS FOR TERMINATION OR LOSS OF HEALTH INSURANCE**

Single answers	#	%
1 Income went up and affected Medicaid eligibility	242	28.3%
2. Change in Family Situation (separation, divorce, death)	25	2.9%
3. Parent/guardian became unemployed	68	7.9%
4. Parent/guardian dropped insurance that they paid totally from own income	26	3.0%
5. Parent/guardian dropped employer insurance for this child	7	0.8%
6. New job with no employer insurance	59	6.9%
7. The costs you paid for your employer insurance increased	15	1.8%
8. Employer cancelled family coverage for children	6	0.7%
9. Didn't stop	23	2.7%
Sub-total	471	55.0%
Multiple answers	#	%
Change in family situation, income went up	7	0.8%
New job/ no insurance for children	19	2.2%
New job/no insurance for children, income went up	4	0.5%
New job/no insurance for children, change in family situation	2	0.2%
Unemployed, change in family situation	10	1.2%
Unemployed, new job/no insurance for children	3	0.4%
Parent dropped child's private insurance, change in family situation	8	0.9%
Parent dropped child's private insurance, new job/no child insurance	2	0.2%
Parent dropped child's private insurance, unemployed	4	0.5%
Parent dropped child's private insurance, unemployed, change in family situation	1	0.1%
Parent dropped child's employer insurance, change in family situation	1	0.1%
Parent dropped child's employer insurance, unemployed	1	0.1%
New job/no insurance, income went up	6	0.7%
New job/no insurance/ change in family situation	1	0.1%
New job/no insurance, no child insurance	1	0.1%
New job/no insurance, unemployed	9	1.1%
New job/no insurance, unemployed, income went up	2	0.2%
New job/no insurance, dropped child's employer insurance	3	0.4%
Cost increased, change in family situation	3	0.4%
Cost increased, new job/no child insurance	1	0.1%
Cost increased, dropped child's private insurance	1	0.1%
Cost increased, dropped child's employer insurance	5	0.6%
Cost increased, dropped child's employer insurance, income went up	2	0.2%
Cost increased, new job/no insurance	2	0.2%
Employer cancelled children insurance, unemployed	3	0.4%
Employer cancelled children insurance, dropped child's private and employer insurance, new job/no child insurance	1	0.1%

Employer cancelled children insurance, cost increased	3	0.4%
Employer cancelled, employer decreased child coverage, new job/no insurance, unemployment,	2	0.2%
Employer cancelled insurance, change in family situation	1	0.1%
Employer cancelled insurance, unemployed	2	0.2%
Employer cancelled insurance, new job/no insurance, unemployment	1	0.1%
Employer cancelled insurance, new job/no insurance, unemployment, change in family situation	2	0.2%
Employer cancelled insurance, increase in cost, new job/no insurance, unemployment, change in family situation	1	0.1%
Employer cancelled insurance, cancelled child insurance	1	0.1%
Employer cancelled insurance, cancelled child insurance, income went up	2	0.2%
Employer cancelled insurance, cancelled child insurance, new job/no insurance	2	0.2%
Employer cancelled insurance, cancelled child insurance, new job/no insurance, unemployed	2	0.2%
Employer cancelled insurance, dropped children's employer insurance, new job/no insurance	2	0.2%
Didn't stop, income went up	2	0.2%
Didn't stop, change in family situation	2	0.2%
Didn't stop, change in family situation, unemployed	1	0.1%
Didn't stop, cost increased	1	0.1%
Total	600	100.0%
Missing answers	256	

The above discussion and survey findings about the health insurance status of eligibles and their households lead to several very plausible conclusions. First, eligible children and their families are comprised mainly of an economically vulnerable class of households that manifest recurrent unemployment, continual income fluctuation, and persistent financial constraints. Two, many eligibles through their households (and those non-enrolled children who are similarly situated) are unlikely to have a reliable and constant source of health insurance. Three, eligibles have had considerable linkages over time with the Medicaid program as the provider of their health insurance coverage. Fourth, the DHCP through its connection with the Medicaid program can be the basis of stable and available insurance coverage for children who live within households that encounter substantial difficulties in providing such coverage.

B1.3 Crowding Out Issue

Crowding out would occur when public health insurance coverage is substituted for private sector health insurance coverage. The concern for such substitution regarding CHIP has been spurred by several major studies of crowding out that may have occurred with Medicaid during its expansion in the 1980s and 1990s. These studies have produced substantially different estimates of crowding out, --ranging from the inconsequential to a considerable amount. They have used different national data sources, different time frames, and different assumptions--especially about changes in the economy--for the statistical models employed. This ambiguity has led researchers to advocate a focus on individual state programs to document the extent to which crowding out prevails before substantial remedial policy actions are taken, e.g., changing eligibility income limits.

Crowding out with respect to the DHCP can be manifested in several ways. One, CHIP coverage could induce employers to intentionally drop their insurance benefits for employees' children who would then qualify for public coverage. Alternatively, if they determine that their employer-based or individually paid private sector coverage is more expensive, employees could elect to drop their children's insurance or refuse such coverage to obtain the less costly DHCP coverage. In so doing, they would save money on the premium differential of the two types of insurance. In addition, employers could also reduce their contribution to employees' insurance that covered their children and thereby would encourage employees to seek lower cost public DHCP insurance. If any of these actions result, employees and employers would escape or reduce their economic burden and shift the financial responsibility unnecessarily onto the public to pay for the DHCP, given that the DHCP premium does not cover the costs of the children's public insurance program. The present baseline study does not investigate whether employers have deliberately dropped the insurance coverage of employees whose children have become DHCP eligibles. Rather, the focus is upon whether parents/guardians have deliberately declined private coverage in favor of DHCP insurance.

States as producers of the CHIP program could put fiscal mechanisms in place so as to avert or minimize crowding out initiated by employees. These options are cost sharing arrangements with clients (in this case parent/guardian of eligible children). The mechanisms are premiums, copayments, coinsurance, enrollment restrictions (most commonly, time period without private coverage and income limits). In all cases, cost sharing by families of eligibles can not exceed 5% of their income—known as the five-percent rule. The ability of a state to implement any of these instruments depends on whether its CHIP is a Medicaid expansion or a separate program.

Delaware has chosen three fiscal mechanisms to avert crowding out prompted by employees dropping their private sector coverage. One, a family income limit has been established at 200% of the FPL. Two, parents/guardians of eligibles in the DHCP must pay premiums based on a sliding scale comprising three premium levels. Three, a restriction stipulates that children must have been uninsured in the private sector or underinsured (without comprehensive private coverage) for at least six months prior to DHCP application with some exceptions. The DHCP allows exceptions for those who had comprehensive private insurance during the prior six months but lost it due to:

1. Death of a parent,
2. Disability of a parent,
3. Termination of employment,
4. Change to a new employer who does not cover dependents,
5. Change of address so that no employer-sponsored coverage is available,
6. Expiration of the coverage periods established by COBRA,
7. Employer terminating health coverage as a benefit for all employees.

The enforcement of this provision is a simple declaration at the time of application and during each re-determination.

As a first approximation, Table 29 reveals that crowding out is not a very large problem. Only 13.2% of all eligibles (111 of 843) had private insurance coverage within the year prior to their enrollment. Only 7.6% (64 of 843) of the surveyed respondents did have private insurance six months prior to applying. Crowding out would not have occurred within the DHCP if eligible children who had private insurance but lost comprehensive coverage within six months of their application date complied with at least one of the exceptions to the six-month waiting period restriction. This compliance can be determined by an examination of the responses by parents/guardians to the question of why the health insurance for their eligible children did stop. These responses are given in Table 33.

**TABLE 33
REASONS FOR INSURANCE STOPPAGE
6 MONTHS BEFORE DHCP APPLICATION**

Reasons		
Single answers	#	%
1. Change in family situation (separation, divorce, death)	2	3.4%
2. Parent/guardian became unemployed	17	29.3%
3. New job with no employer insurance	10	17.2%
4. Employer cancelled insurance for you as employee	1	1.7%
5. Parent/guardian dropped employer insurance for this child	5	8.6%
6. Parent/guardian dropped insurance that they paid totally from own income	8	13.8%
7. It didn't stop	1	1.7%
Sub-total	44	75.9%
Multiple answers	#	%
8. parent dropped child's private insurance, change in family situation	1	1.7%
9. parent dropped child's private insurance, new job/no child insurance	1	1.7%
10. Parent dropped child's private insurance, unemployed	2	3.4%
11. Parent dropped child's employer insurance, change in family situation	1	1.7%
12. cost increased, change in family situation	2	3.4%
13. cost increased, new job/no insurance	2	3.4%
14. employer cancelled, new job/no insurance, unemployed	1	1.7%
15. employer cancelled, cost increased, unemployed, change in family situation	1	1.7%
16. cost increased, dropped child's employer insurance	3	5.2%
Total	58	100.0%
no answer	6	

Table 33 shows the single and multiple responses (resulting from “answer all that apply”) given by parents/guardians. These responses represent answers of 58 of the 64 surveyed applicants. The responses indicate that the “loss” of insurance is strictly consistent with the stipulated exceptions for 70.5% of all 58 parent/guardian applicants. Single responses 1 through 4 (51.6% of the 58 parent/guardian applicants) and multiple responses 8 through 15 (18.9% of the 58 parent/guardian applicants) are congruent with the allowed exceptions to the six-month restriction. Single response 5, 6, and 7 (24.1% of the 58 parent/guardian applicants) and the multiple response 16 (5.2% of the 58 parent/guardian applicants) seemingly violate the rule. However, because of the lack of corroborating data, it is unclear whether the parent/guardian applicants who dropped insurance did so because of the affordability of the coverage or were underinsured, i.e., their child’s

insurance was not comprehensive as defined by DHCP rules. Similarly, due to the absence of supporting information, it cannot be firmly determined whether, for the parent/guardian applicants whose children’s private insurance didn’t stop, their private coverage was not comprehensive which would permit them to be qualified for DHCP enrollment.

B1.4. Financial Benefit of Applicant Households.

Like any health insurance, the DHCP provides considerable financial protection to DHCP households in one of two ways. The DHCP can make payments for medical services if the eligible child becomes ill. The DHCP can also help households by the provision of preventive health services to eligible children; such care is expected to reduce or inhibit future illness so that financial costs can be avoided.

An approximation of how much financial benefit, --in the form of avoided financial costs--, that the households of eligible children are likely to obtain from the DHCP can be given from two perspectives. One is the medical costs that would have been avoided by households without private insurance for their eligible children in the year prior to their DHCP enrollment. The second is the amount of medical care costs that would have been avoided by DHCP households that had private insurance in the year prior to DHCP enrollment. The avoided financial costs would be the expected financial savings or benefits to DHCP parent/guardian applicants. The estimated savings can mask the social costs to eligibles and their applicant households due to untreated illnesses and unattended health needs because of the inability to afford medical care. (The methodology for calculating medical care costs was described in section B).

Table 34 presents the estimated medical cost savings that could be realized by a DHCP family that did not have Medicaid or private health insurance (i.e. they were uninsured in the year prior to their children’s DHCP enrollment). The estimated annual savings (column D) were calculated by subtracting the annual DHCP family premium (column C) from the annual family medical costs (column A). The table reveals savings could be obtained for families in all premium levels. The savings are much larger in dollar value for families in the two lower poverty levels due to the smaller DHCP premiums.

**TABLE 34
ESTIMATES BY MEDICAL COST SAVINGS UNINSURED ELIGIBLES**

	All Families (A)		Premium Amount (B)	Annual Premium (C)	Estimated Cost Savings (D)
	No.	\$	\$	\$	\$
FPL 1 100%-133%	99	\$319	\$10.00	\$120.00	\$199.00
FPL 2 134%-166%	123	\$385	\$15.00	\$180.00	\$205.00
FPL 3 167%-200%	73	\$323	\$25.00	\$300.00	\$23.00

A second set of savings estimates encompassed households whose eligible children had private coverage as their last health insurance protection. Table 35 shows the average annual premium paid according to source of insurance -- employer based, or totally paid by parent/guardian -- and type of insurance coverage -- individual child or family policy. The data does not yield precise measures of the cost of insurance for an individual child. The data indicates, however, that insurance payments did pose a substantial economic burden upon DHCP households given their low income and the sizeable monthly and annual premiums.

**TABLE 35
PRIVATE INSURANCE PREMIUMS PAID BY APPLICANTS**

Private Insurance	Individual Child				Family			
	No.	Range	Monthly Average	Annual Average	No.	Range	Monthly Average	Annual Average
Paid by Parent/Guardian and Employer	183	\$5-\$500	\$65	\$680	77	\$54-\$875	\$369	\$4,428
Paid Totally by Parent/Guardian	28	\$75-\$500	\$227	\$2,724	35	\$16-\$627	\$231	\$2,772
All Insurance	211	\$5-\$500			112	\$54-\$875	\$274	

Table 36 presents an approximation of cost savings for applicants with children who were privately insured in the year prior to DHCP enrollment and for whom medical costs were also incurred in the year prior to their DHCP enrollment. The table shows a comparison for each FPL premium level. The annual costs of three premium levels are compared with the combined annual costs of medical care and annual private insurance premiums. The medical costs were calculated as described above; the premiums for private coverage are an average of all premiums paid for all eligibles within the particular FPL categories. The estimates indicate that, on average, DHCP households that had private insurance could save over \$2,000 a year. Moreover, the savings differ only slightly among households within the three DHCP premium categories.

**TABLE 36
SAVINGS FROM MEDICAL COSTS AND PRIVATE INSURANCE**

Premium Category		Avg. Monthly Private Premium. (A)	Avg. Annual Private Premium (B)	Total Medical Costs (C)	Monthly FPL Premium (D)	Annual FPL Premium (E)	Estimated Savings (B+C)-E (F)
FPL	No.						
100%-133%	35	\$183.8	\$2,205.60	\$300.00	\$10	\$120.00	\$2,385.60
134%-166%	42	\$184.7	\$2,216.40	\$396.40	\$15	\$180.00	\$2,432.80
167%-200%	36	\$205.9	\$2,470.80	\$376.40	\$25	\$300.00	\$2,547.20
TOTAL	113	\$191.2		\$360.7			

B2. Financial Valuation of DHCP by Parent/Guardian Applicants.

The financial valuation of the DHCP by parents/guardians as applicants focuses upon how much they are willing to pay (WTP) for the DHCP insurance coverage. The results indicate an underlying demand for the DHCP by applicants. The WTP estimates can be used to produce information important for policy decisions. A simple methodology is devised to assess the impact of different premium levels upon the volume of participation in the DHCP. Two and correlatively, a statistical analysis produces estimates of the social and economic reasons for applicant differences in the amounts they would pay for the DHCP. Such relationships could yield insight into the targeting of population.

The WTP analysis is based upon two survey questions asked in sequence.¹⁹ The first question was to prompt an applicant’s thinking about the benefits of the program so as to provide an “immediate context” for their consideration of the monetary value of the DHCP. Applicants were informed of the health care advantages gained from the DHCP and the coverage provided by the DHCP for the premium that is paid. These statements were made so that they could formulate a monetary valuation (price) that is connected directly to the program’s benefits. Then the applicants were requested to assign a value to the DHCP according to a rating scale that ranged from 0 to 10 with 10 as the highest value.

FIGURE 10

Survey question: **The DHCP provides medical care for safeguarding your child’s health. You are now charged a small premium for the DHCP that is based on your income but gives your child comprehensive coverage for doctor, hospital lab tests and x-ray bills. Please indicate on the following scale, what the value of the DHCP is to you and your child.**

The responses by applicant parents/guardians are shown in Table 37. An overwhelming 86.5% assigned the DHCP a value of 10 and 97.9% valued the program at 8 or higher.

This result indicates that virtually all DHCP parent/guardian applicants place great and similar value on the DHCP irrespective of their FPL income, which is reflected by premium level. As shown below, this consensus on the DHCP value among applicants does not match or translate to a similarity among applicants in a monthly premium they are willing to pay.

**TABLE 37
APPLICANT'S VALUATION OF DHCP PROGRAM**

Value	All Families	
	No.	%
0 lowest	1	0.2
1	1	0.2
2	0	0.0
3	1	0.2
4	1	0.2
5	4	0.9
6	1	0.2
7	7	1.6
8	14	3.3
9	28	6.5
10 highest	371	86.5
Total	429	100.0
Missing Data	99	

The question to capture the willingness to pay of parents/guardians applicant was phrased in the negative. It asked the applicants to designate the monthly premium that would cause them or by implication to leave or (not enroll) in the program. The scale stipulated responses that ranged from \$0.00 to \$50.00 per month with \$5.00 increments, but several respondents declared amounts between these increments and also above the \$50.00 limit. The figures above \$50.00 were assigned a value of \$60.00 for the statistical analysis.

FIGURE 11

Survey question: **The Delaware Healthy Children Program is looking into the impact of premiums on families in order to keep the program affordable. What is the amount of premium you would find that you cannot afford so that you would have to drop out of DHCP? Your answer to this question will not impact your medical insurance or fee.**

**TABLE 38
PREMIUMS APPLICANTS ARE WILLING TO PAY FOR THE DHCP**

Monthly Dollar Value of Premium	Household Survey Responses		FPL Category 1			FPL Category 2			FPL Category 3		
			Current Premium =\$10			Current Premium =\$15			Current Premium = \$25		
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)
Value	No.	%	No.	%	Cum.	No.	%	Cum.	No.	%	Cum.
0	4	0.9	1	0.6	0.6	2	1.2	1.2	1	0.9	0.9
5	0	0	0	0	0.6	0	0	1.2	0	0	0.9
10	13	3.0	11	7.0	7.6	1	0.6	1.8	1	0.9	1.8
12	1	0.2	0	0.0	7.6	0	0.0	1.8	1	0.9	2.7
15	15	3.5	7	4.4	12.0	8	5.0	6.8	0	0.0	2.7
18	1	0.2	1	0.6	12.6	0	0.0	6.8	0	0.0	2.7
20	45	10.5	21	13.3	25.9	22	13.7	20.5	2	1.9	3.6
22	1	0.2	0	0.0	25.9	1	0.6	21.1	0	0.0	3.6
25	53	12.4	19	12.0	37.9	22	13.7	34.8	12	11.1	14.7
27	1	0.2	0	0.0	37.9	1	0.6	35.4	0	0.0	14.7
28	1	0.2	0	0.0	37.9	1	0.6	36.0	0	0.0	14.7
30	71	16.6	25	15.8	53.7	25	15.5	51.5	21	19.4	34.1
33	2	0.	0	0.0	53.7	0	0.0	51.5	2	1.9	36.0
35	23	5.4	6	3.8	57.5	5	3.1	54.4	12	11.1	47.1
37	1	0.2	1	0.6	58.1	0	0.0	54.4	0	0.0	47.1
40	36	8.4	13	8.2	66.3	15	9.3	63.7	8	7.4	54.5
45	7	1.6	4	2.5	68.8	2	1.2	64.9	1	0.9	55.4
50	112	26.2	34	21.5	90.3	43	26.7	91.6	35	32.4	87.8
50+	40	9.4	15	9.5	99.8	13	8.1	99.7	12	11.1	98.9
Total	427	100.0	158	100.0		161	100.0		108	100.0	

\$5 Premium Increment
 \$10 Premium Increment
 \$15 Premium Increment

Two items are presented in Table 38. One is the survey responses about the premium amount applicants are willing to pay for their children’s enrollment in the DHCP. The second is a demonstration of the impact that several hypothetical premium changes could have on enrollment. The responses and the impact of hypothetical premium changes are broken down according to the three DHCP premium categories.

- Columns A, B, and C show the maximum premiums that current applicants would pay for their children to remain in the DHCP.
 1. An anomaly is the 0.9% of all applicants not willing to pay a monthly amount greater than \$5.00. This value is less than the minimum premium required to participate in the program. (This value was not used in the statistical analysis).
 2. 68.9 % of all applicants (100.0% - 31.1%) put a willingness to pay value on the DHCP above the maximum premium of \$25.00 per month.
 3. 26.2% of all applicants were willing to pay a maximum of \$50.00/49.00 monthly to continue in the program.

4. 9.4% of all parents/guardians applicant were willing to pay more than \$50.00 a month for their children to remain in the DHCP.
- Columns E through L present the break down of maximum premiums that current applicants would pay according to their current premium category.
 1. The anomaly of applicants who are not willing to pay a monthly amount greater than \$5.00 is distributed evenly over all FPL categories. (This value was not used in the statistical analysis).
 2. Observation of the individual and cumulative frequencies indicates that the willingness to pay for the DHCP (a) is only slightly greater for premium category 2 than premium category 1, but (b) significantly higher among applicants of the premium category 3 than the other two lower premium categories. In general, applicants in the higher premium categories have a greater willingness to pay for the DHCP. That is, proportionally more applicants in the current \$25.00 premium category expressed a willingness to pay higher premiums than applicants did in lower categories. These points are supported by the statistical findings regarding the relationship of premium category and premium levels.
 3. A very large proportion of applicants in each premium category would pay a premium greater than their required current one.
 - i. Approximately 92.46% of all applicants in the \$10.00 monthly premium category declared a willingness to pay a premium above their required maximum.
 - ii. Approximately 93.2% of all applicants in the \$15.00 monthly premium category declared a willingness to pay a premium above their required maximum.
 - iii. Approximately 85.3% of all applicants in the \$25.00 monthly premium category declared a willingness to pay a premium above their required maximum premium of \$25.00 per month.
 4. For all premium levels, however, a considerable proportion of applicants in each premium level-- respectively 46.3%, 48.5%, and 65.9% in categories 1, 2, and 3-- are willing to pay more then \$25.00 per month, the maximum premium of the program.
 5. A considerable proportion of applicants indicated that they would support a large monthly DHCP premium.
 - i. 21.5% of all applicants in category 1 were willing to pay a maximum of \$50.00/49.00 monthly to continue in the program.
 - ii. 9.5% of all applicants in category 1 were willing to pay more than \$50.00 a month for their children to remain in the DHCP.
 - iii. 26.7% of all applicants in category 2 were willing to pay a maximum of \$50.00/49.00 monthly to continue in the program.
 - iv. 8.1% of all applicants in category 2 were willing to pay more than \$50.00 a month for their children to remain in the DHCP.
 - v. 32.4% of all applicants in category 3 were willing to pay a maximum of \$50.00/49.00 monthly to continue in the program.
 - vi. 11.1% of all applicants in category 3 were willing to pay more than \$50.00 a month for their children to remain in the DHCP.

- Columns F through L indicate the likely effect on enrollment if the DHCP premium were increased above the current levels by three alternative different amounts--\$5.00, \$10.00, and \$15.00. The shaded areas show the expected impacts in terms of the number and proportion of applicants choosing to leave the program. As the hypothetical premium increases in value, additional applicants would be expected to leave program. Thus the proportion of dropouts would rise, reflected by the cumulative percentages of columns F, L, and I. The following three examples illustrate the \$10.00 premium increase across the board for all categories.
 1. With a \$10.00 increase in premium from \$10.00 to \$20.00, 25.9% of all applicants in premium category 1 (column F) would have their children leave the DHCP.
 2. If the premium were raised an additional \$10.00 from \$15.00 to \$25.00, then 34.8% of all applicants in category 2 (column I) would remove their children from the DHCP.
 3. A \$10.00 increase from \$25.00 to \$35.00 for applicants in category 3 would likely to produce a decline in 47.1% of applicants (column L) in that premium class.
 4. Of course, this simple method could be employed for determining the likely impact of only one category, or for differential premium increments for all three premium categories. In any case, the proportional reductions in applicant participation in the various premium categories can be estimated and used as approximations of expected decline in total DHCP enrollment. The estimated departure or drop in participation in a premium category due to a rise in premium is likely to produce an equivalent proportional drop in DHCP eligibles within that premium category. This statement is based on the fact that there is little difference/variation in the number of eligible children per applicant household. The survey and the actual enrollment figures indicate an average number of children, 1.6 children per household, with very few families having more than three children (87% of the families have two or fewer children). Therefore the simulated premium changes can be employed to provide a “crude” estimate of the impact that premium changes would have on DHCP enrollment.

STATISTICAL ANALYSIS

A (OLS) regression equation was estimated to determine which factors influence applicants’ willingness to pay lower or higher premium levels for DHCP coverage. The following are hypotheses about expected relationships between the independent variables and applicants’ premium scale value.²⁰

Family Size. Families with more children have greater potential need for medical services (since the likelihood of more illness is greater). Therefore they should have greater demand for health insurance. Moreover, given that the DHCP charges an uniform premium for a household, according to its FPL income, the cost per child declines for each additional child enrolled. Consequently, there is a greater incentive for larger families to be willing to pay higher premiums for DHCP coverage.

Child's Age. Families with older children should have less incentive to pay higher premiums for the DHCP, since younger children are in need of more medical care.

Health Status. If a child has one or more chronic illnesses he/she will have greater need for medical care. Consequently his parents/guardians would be more impelled to support higher premiums.

Financial Capability. More financial resources of a family provide them with a greater capability to pay for health care. Thus families with higher incomes should be willing to spend more for their children's medical care coverage. Family income is measured separately by the three FPL premium categories of the DHCP.

Race/Ethnicity. White families are expected to have larger demand for health care, and therefore be willing to spend more for the DHCP coverage.

Insurance Status. Families that have health insurance prior to DHCP enrollment of their children should appreciate the benefit of having insurance. Families that had private insurance coverage should appreciate the DHCP even more because of the higher costs of the former coverage. The variables that measure insurance status are: (a) private insurance in the year prior to DHCP enrollment, (b) Medicaid insurance in the year prior to DHCP enrollment, (c) Medicaid insurance linkage, and (d) never insured.

Geographical Areas. People living in cities are more likely to have access to medical services, and have a greater appreciation of the benefits of health care. Therefore, families residing in urban areas should be willing to pay higher DHCP premium.

- The estimated equations produced the following statistically significant relationships.
 1. Families with more children were willing to pay higher DHCP premiums. Parents/guardians are willing to pay an additional \$5.30 in premiums for each additional child enrolled in the DHCP.
 2. Families with younger children enrolled in the DHCP are willing to pay more in premiums than families with older children. Conversely, families with older children are less willing to pay higher DHCP premiums. For each year of age of a child, families are willing to pay \$0.68 less in premium.
 3. Families in the highest premium category, FPL category of \$25.00 per month, are more willing to pay higher premiums than families assigned the two lower FPL premium categories. The parents/guardians in the highest FPL premium category are willing to pay \$3.95 per month more than families in the two lowest DHCP premium groups. That is families in the lowest premium category were willing to pay \$3.95 a month less than families in the \$25.00 FPL category.

C. ACCESS TO DHCP

An assessment of access to DHCP should contribute to a better understanding of mechanisms that could be effective in facilitating the enrollment of eligible children by their parents/guardians. Access entails two dimensions. One is the sources of information about the DHCP that were used by parent/guardian applicants. Specifically, the investigation focuses on how the parent/guardian applicants were informed about the existence of the DHCP so that they could apply for their child's enrollment. A second dimension is the application process. Here, the concern is whether, and to what extent, several administrative processes, procedures and requirements could be impediments or obstacles to DHCP enrollment.

C1. Applicants' Information Source About DHCP

The State through the Department of Health and Social Services (DHSS) initiated an outreach program to enroll the targeted uninsured children. This effort included traditional information distribution points: media outlets such as newspapers, advertisement on buses, public service announcements on radio and TV directed at diverse populations, social organizations and governmental agencies. Information on the availability of DHCP was also conveyed to primary and secondary schools within the state. Children known to be eligible because of their participation in the food stamps program, WIC, and subsidized childcare were invited to join DHCP.

To determine the impact of the state's outreach effort, parent/guardian applicants were asked to name all the sources that provided them with information about the DHCP. These sources included 12 distinct categories encompassing media outlets, social organizations and governmental agencies that are shown in Table 39.

FIGURE 12

Survey question: How did you hear about Delaware Healthy Children Program? (Check all that apply.)

Because the applicants could indicate any number of sources, the responses to the survey question produced sixty-eight (68) separate categories of information sources that were various combinations of the original 12 categories. Some respondents chose up to six (6) sources. However, as shown in Table 39, 346 of the 460 respondents/applicants (or 75% of them) chose only one source of information. (While this number of responses does allow sound inferences to be drawn, greater clarity and effectiveness for the resource allocation of outreach efforts may be achieved if respondents were asked the primary source of knowledge about the DHCP). The responses for multiple choices have been collapsed into three additional categories: (a) mixed media (radio, TV, newspaper, billboard in various combinations), (b) all choice combinations that included schools, and (c) all remaining combined choices in which schools not selected.

**TABLE 39
APPLICANTS' INFORMATION SOURCES OF THE DHCP**

Source	No.	%	Source	No.	%
1. Billboard ^a	9	2.0	Combined Media Only	10	2.2
2. Newspaper ^a	30	6.6	School Combinations	42	9.1
3. Radio ^a	13	2.8	Other Combinations	114	13.5
4. TV ^a	15	3.3			
5. School	70	15.2			
6. Friend/Relative	56	12.2	Total Combined Responses	166	24.8
7. Social Worker ^b	81	17.6			
8. Child Support Office ^b	10	2.2			
9. Unemployment Office ^b	1	0.0			
10. Daycare	9	2.0			
11. Medical Care Provider	47	10.2			
12. Community Organization	5	1.0			
Total Single Responses	346	75.2	Total Responses	460	100.0
Missing	68				

^a Media outlet. ^b Government agency

- No one particular source was a predominant basis for obtaining knowledge of the DHCP.
- The most frequent single source of information for applicants (at 17.6% of all responses) was social workers. This importance may be related to Medicaid history of applicants and their children, a hypothesis examined below.
- With 15.2% of all responses, schools played a substantial role in conveying information of the DHCP to applicants. Moreover, the importance of schools is understated, given that 9.1% of all applicants cited them as being an information source in tandem with other sources.
- While media outlets individually were limited in their impact, as a group including the mix of media only responses, they account for a substantial source of information from which 16.9% of all applicants heard about the DHCP.
- Medical providers also contributed significantly to knowledge of the DHCP by informing 10.2% of all applicants.
- Somewhat perplexing is that friends/relatives are responsible for informing 12.2% of all applicants. Unfortunately from the standpoint of outreach direction, these responses beg the question of how friends or relatives found out about the DHCP.

STATISTICAL ANALYSIS

The literature on health care does not offer much insight into why applicants would have been informed of the DHCP by different sources. Some variables, however, do provide

some intuitive bases for expecting variation among applicants' responses. All of the variables employed are presented in Table 16 in Part IV.

- Risk Factors. Parents/guardians with more children, and younger children, given the scope of medical needs, should be more concerned with health care coverage for them. Therefore they should be more observant and searching about information related to such insurance, *viz.* the DHCP.
- Urban and Rural Areas. Parents/guardians who live in urban areas are more likely to have knowledge of media sources and school linkages than their rural counterparts.
- Medicaid Insured. Applicants who had Medicaid insurance in the year before the DHCP should be more informed of the program by social workers, given that their child's Medicaid coverage expired at the time of the initiation of the DHCP.
- Medicaid Linkage. Parents/guardians whose children have had prior Medicaid linkage are more likely to be more aware of public programs that provide benefits for lower income families. Since they are more likely to be economically vulnerable, they may interact regularly with government agencies especially through social workers who could be expected as an information source of the DHCP. New entrants without prior Medicaid links are expected to have little direct knowledge about government programs. Thus there is an expectation these parents/guardians were informed more through the media and schools.
- Other variables employed in the statistical analyses are merely exploratory as influences on information sources of applicants.

INFORMATION SOURCES

- Dependent variable of Applicant Sources of Information About DHCP: school and daycare = 1, social worker = 1, friend = 1, medical provider = 1.
- Multinomial Logistic Equations with common set of independent variables. The reported equations are based on a comparison of responses of a selected information source with the responses of all other information sources together.

The statistical analyses resulted in very few statistically significant variables. However, the limited findings provide some important weights into policy alternatives for improving access to the DHCP.

1. All categories. Having private insurance was not associated with any source of information of the DHCP by applicants.
2. School and Daycare.²¹ It appears that school-oriented outreach is an effective approach. The only statistically significant variable was the age of the oldest eligibles in the family/household. Applicants with older children were more likely to hear about the DHCP through their child's school than other sources.
 - *The odds of applicants hearing about the DHCP through their children's school increase by 7% for each year of age of their child.*
3. Social Worker.²² An obvious and expected relationship is that applicants who found out about the DHCP through social workers had current and previous involvement in

the Medicaid program. Applicants whose children were: (a) insured through Medicaid in the year prior to their DHCP enrollment, and (b) Medicaid eligible within the past ten years were more likely to have heard about the DHCP through social workers than any other information sources. In addition, applicants in the lowest premium category (100% to 133% FPL) were more likely to have been informed about the DHCP by social workers than applicants in the two higher premium categories (134% to 166% FPL and 167% to 200% FPL). This result may indicate that, given their income, applicants in the 100% to 133% FPL bracket are probably beneficiaries, at least periodically, of other government social programs whereby they are in frequent contact with social workers.

- *The odds of an applicant with Medicaid insurance in the past year having a social worker as an information source about the DHCP were 2.0 times greater than the odds of applicants without private insurance and without any health insurance.*
- *The odds of an applicant with past Medicaid linkage in the past year having a social worker as an information source about the DHCP were 3.0 times greater than the odds of applicants without private insurance and without any Medicaid linkage.*
- *The odds of applicants in the 100% to 133% FPL bracket having been informed about the DHCP by a social worker were 2.4 times greater than the odds of applicants in the 133% to 166% and the 167% to 200% FPL categories.*

4. Friend. It appears that friends of applicants were a communication bridge to applicants who have little knowledge of government benefit programs. This assertion is supported by the finding that applicants who were informed about the DHCP by friends were more likely to have children who did not have any past connection with the Medicaid program over the past ten years.

- *The odds of an applicant, whose children did **not** have a past Medicaid linkage, hearing about the DHCP through a friend are 3 times the odds of applicants whose children did have previous Medicaid linkage.*

5. Media Outlets (TV, Radio, Billboard, and Newspaper as a group). Applicants were more likely to have been informed about the DHCP through a individual media outlet than all other sources if their children were not insured by the Medicaid program in the year prior to their DHCP enrollment.

- *The odds of an applicant whose children were **not** insured by Medicaid in the year prior to their DHCP enrollment, hearing about the DHCP through a separate medial outlet are 5.4 times the odds of applicants whose children did have Medicaid insurance in the previous year.*

Medical Provider. No statistically significant associations were found for the information source of medical provider. That is, applicants who were informed about the DHCP by a medical care provider were equally likely to have different social and economic status and different insurance status.

C2. Rating/appraisal of the DHCP Application Processes

The DHSS has simplified the application process for DHCP enrollment. The Medicaid enrollment process has been replicated for DHCP, and families are allowed to apply and be screened for both programs using a single application by mail without face to face interviews. Parents/guardians can also call the Health Benefits Manager (HBM) to obtain an application and afterwards to finalized their eligibility by selecting a MCO and a physician. The DHCP/Medicaid application is processed by the same staff and thereby ensures coordination with the Medicaid program.

Four steps in the DHCP process are evaluated. Parent/guardian applicants were asked to appraise the extent to which they encountered difficulties in (1) paperwork, (2) making contact with program personnel, (3) affording the premium, and (4) obtaining needed information. The scale to rate these potential problems was very easy, easy, hard and very hard. In addition, applicants were requested to denote the application step that they considered the most difficult of all steps.

FIGURE 13

Survey questions: **Please rate each step of the DHCP application process listed below. Please circle which of the above steps caused the most problems for you – even if all the steps were “easy” or “very easy”.**

**TABLE 40
APPLICANT ASSESSMENT OF DHCP APPLICATION PROCESS**

Rating	Filling out paperwork		Getting in contact with someone to help		Affording the premium		Getting information that you needed	
	No.	%	No.	%	No.	%	No.	%
Very Hard	3	0.6	15	3.0	7	1.4	9	1.8
Hard	13	2.6	64	12.6	45	9.0	54	10.8
Easy	338	67.2	295	58.3	319	63.7	315	63.1
Very Easy	149	29.6	132	26.1	130	25.9	121	24.2
Total	503	100.0	506	100.0	501	100.0	499	100.0
Missing data	25		22		27		29	

TABLE 41
MOST DIFFICULT STEP IN APPLICATION PROCESS

Application Step	Most Difficult		Very Hard and Hard		Easy and Very Easy	
	No.	%	No.	%	No.	%
Filling Out Paperwork	15	3.9	16	3.2	487	96.8
Getting In Contact with Someone to Help You	46	11.9	79	15.6	427	84.4
Affording Premium	37	9.6	52	10.4	449	89.6
Getting Information that You Needed	36	9.3	63	12.6	436	87.3
No Difference	252	65.3				
Total	386	100.0	--	--	--	--
Missing Data	142		47		56	

Applicants rated all steps in the application process as being very similar in difficulty.

- Very few applicants considered any of the steps process as “**hard**” or “**very hard**”.
- All steps received a determination of “**easy**” and “**very easy**” by at least 84% of all applicants.
- A very large majority of applicants—on the average over 60%--found participation in all steps to be “**easy**”.
- Surprisingly, only 10.4% of the DHCP applicants assigned “affording the premium” a “**hard**” and “**very hard**” designation. The converse that 89.6% of all applicants found “affording the premium” was “**easy**” or “**very easy**” is consistent with parent/guardians' valuation of the DHCP and the financial amount they are willing to pay for the program.
- The application step considered by applicants to be the **most difficult** was “getting in contact”, but it is viewed only marginally more difficult than the other application steps. However, appraisal of this difficulty must take into account that: (a) only a small proportion of applicants, 11.9%, judged “getting in contact” to be problematic, (b) 65.3% of all applicants stated that there was **no difference** in difficulty among all steps, and (c) a very large portion of applicants did not think any of the separate steps were “**hard**” or “**very hard**” to complete.
- A major conclusion is that the application process is not an obstacle to enrollment, once the applicants of potential eligible children find information about DHCP.

RECOMMENDATIONS

The recommendations are to spur further analysis, the details of which would have to be developed.

POLICY RECOMMENDATIONS

1. Premiums. The premiums required for each FPL category should be maintained. For each FPL category, between 85% and 93 % of all surveyed respondents were willing to pay a premium equal to or above their current premium.

2. Access to the DHCP: Schools. The findings on access to the DHCP indicate that spending on information dissemination about the DHCP in schools should be continued since it reaches a large portion of the targeted population. Since parents/guardians with older children are more likely to be informed about the DHCP, an implication is that older children may be more responsible for bringing the information to their households. Additional efforts could be directed to targeting younger children in schools, perhaps through school mailings and school organizations to distribute literature to households directly.

3. Access to the DHCP: Friend and Media. The findings also indicate money spent on the media is effective in reaching applicants that are not connected with government programs. Friends and media outlets have a common determinant that the eligible children are unlikely to have been insured through Medicaid in the prior year. Media outlets appear to create DHCP awareness for those individuals that may not be familiar with governmental assistance programs and activities.

4. Access to the DHCP: Medical Providers. Continued outreach efforts should be directed through medical providers since they informed a large proportion of applicants of the DHCP.

5. Dental Services. At minimum, preventive dental services should be evaluated for addition to the DHCP benefit package. A very large proportion of eligible children (62.5%) did not have any dental services in the past year, and therefore they have forgone preventive care. Such services would likely mitigate long-run illness, with the consequence that larger medical care costs may be avoided in the future.

LESSONS LEARNED.

Some of the lessons learned by conducting the baseline analysis can be remedied by the adoption of some of the suggested research initiatives outlined in the "next steps".

1. Type of Survey. Although the mail and telephone surveys did not reveal differences in responses, except for the willingness to pay, the mail survey is easier to administer and to conduct. It also can produce more surveys, which allows a larger number of respondents that could enhance the statistical analysis. Moreover, the mail survey would

allow more questions to be asked since responding to it is not as constrained by time pressures as the telephone survey. The incentive offered to complete the survey (a waiver of a monthly premium) appears to have worked well, given the response rate.

2. Sample Size. The issue of sample size is related to the above point. Even though the sample size of the baseline survey was large—greatly exceeding the size needed to meet the required statistical criteria—a larger sample would permit evaluation of different classes of eligibles for which there were too few cases to conduct statistical analysis. For example, there was a small number of observations of (a) each chronic illness, and (b) chronically ill eligibles according to each type of (private and public) insurance. Consequently, a rigorous statistical assessment of the impact of these types of risks on health care utilization, health status, medical care access, medical costs, and insurance issues could not be conducted.

3. Survey Scope. If costs were not a major constraint, it would be fruitful to survey all new and continuing eligibles of a given year. Besides generating a large “sample” for an enhanced statistical analysis, such an approach would facilitate an analysis of the reasons for enrolling in and leaving the DHCP. The analysis could provide insight into whether and how employment, family status and changes in the economy affect DHCP participation.

4. Data Requirements. Through the use of the DCIS II data, the statistical analysis—especially costs, utilization and insurance issues—could have revealed additional insights into eligibles’ behavior, e.g. the role of family structure, size, and income in health care access and utilization. The first baseline study could be refined through an additional analysis of the survey results using the DCIS II data.

5. Survey Questions. For some survey questions, multiple responses (“check all that apply”) were problematic. Such choices inhibited clarity about the issues. A reformulation of “multiple response” questions needs to be undertaken.

NEXT STEPS.

Next steps encompass proposed changes in the first baseline survey as well as additional research initiatives.

1. Survey to Determine Target Population. The existing data sources and the methodology employed to derive the number of qualified children in Delaware may not generate reliable and valid estimates of the targeted population consistent with the scope and objectives of the DHCP. Besides the problem of extrapolating from a small sample, the present approach may not accurately capture the length of time that a person is uninsured (uninsured for six months), nor does it address the underinsurance of low-income children (the lack of comprehensive insurance). Consequently, it is difficult to accurately assess DHCP outreach efforts—i.e., to know the extent to which the actual target population is reached.

What is needed is a periodic survey for issues relating to the DHCP, comprised of a large sample of Delaware respondents with a wide range of income levels. Survey questions should elicit information at least on health insurance status: length of time, coverage type of insurance financing, as well as education, employment inclusive of occupation type, income, company/firm and type, family size, and income earners in household to name a few. At minimum, an annual survey is necessary, but more accuracy in estimation could be obtained if semi-annual or even quarterly surveys were conducted, since changes in the economy during the year could affect employment that in turn determines the insurance “take up” by workers. Given that surveys have considerable fixed costs, efficiency could be enhanced by “piggy backing” the DHCP concerns with other health considerations. If so, with additional effort, the survey could be formulated into a periodic health risk appraisal of the state of Delaware. Putting aside the expansion of its scope, the DHCP survey if conducted over time could provide an analytical basis for comparison of changes, and reasons for them, in the insurance status of the targeted population.

2. Crowding Out. While questions in the DCHP baseline survey were directed at crowding out (see some additional suggestions below), this policy issue was not examined from the standpoint of the behavior of firms. Since the DHCP has been operating for more than a year, firms as employers could now be more aware of the program’s existence, and this awareness could intensify their incentive to drop health insurance coverage for their employees’ dependents. Such activities are more likely to occur among small businesses, which are employers of labor with low-income. An analysis of the insurance status of firms before and after the initiation of DHCP would reveal whether dropping insurance coverage (crowding out) has been a response adopted by businesses.

3. Panel Study. A panel study of DHCP eligibles and their parents/guardians could be undertaken. A panel study would track a selected group (a sample) over time until the eligibles reach the age above the required DHCP limit. It would also track the selected participants even when they leave and re-enter the program. With a sufficiently large panel, an analysis could focus on how changes in the economy, employment, social and family status as well as health status and needs influence DHCP participation. Such an evaluation could aid decisions for two policy dimensions. First, the data could help answer the question whether DHCP enrollment is comprised of children in families that are economically vulnerable on a continuous basis over a period time. Two, in tandem with the target population survey (point 1 above), a predictive model could be developed so that the volume of the DHCP could be forecasted.

4. Survey Follow-up. The survey of eligibles and parents/guardians (with refinements listed below) should be conducted for second year enrollees. The first year baseline survey results should be compared with the second year survey of new enrollees. The cohort of the first year survey should be evaluated with DHCP medical care records to determine the difference if any in medical care access, utilization and health status before and after entering the program. Former DHCP enrollees could be tracked after leaving

the program to determine whether and how their health status and utilization, access and status changes over time.

5. Baseline Survey Refinements. The survey could be improved without compromising comparability for analysis over time. Shown highlighted below are the original questions of the baseline study. Changes and additions to the questions are given with commentary about questions and structured responses appearing in parentheses.

1. How did you hear about Delaware Healthy Children Program? (Check all that apply.)

Change:

What is the main way you heard about the program? (instead of all that apply)

Add:

Did you hear about the DHCP from your employer? (Data on crowding out).

3. Please circle which of the above steps caused the most problems for you – even if all the steps were “easy” or “very easy”.

Change to:

Which step, if any, caused the most problems for you?

Add questions:

1. How long did it take you to get the application package after contacting about the DHCP?

Response categories for 1 and 2:

(a) a couple of days, (b) a week, (c) two weeks, (d) a month, (e) more than a month.

4. What difficulties, if any, have you had in getting this child medical care and prescription medicine in the past year before applying for the DHCP. (Please check all that apply.) If none, check “No difficulties”.

Change:

1. What was the main difficulty...? (instead of all that apply).
2. Separation of medical care from the prescription medicine. (It appears that some applicants didn't realize that it was a two-part question since the response rate to the prescription medicine question was lower than the medical care question.

5. If this child has ever been covered by health insurance, please tell us the most recent type of insurance, when the child was last covered (month & year), and the \$ amount of monthly premium paid by you or the financially responsible parent:

(If you do not know exactly \$ amount of monthly premium, then please estimate. Please make sure you indicate whether the health insurance was through employer or paid totally by Parent/guardian. Please put DK if you don't know.)

Change question to: If this child has ever been covered by **private** health insurance... (and take out Medicaid as a response and make into a separate question).

Add to this question:

Length of time (months) that the child was covered by insurance

Add:

Longest length of time this child was NOT covered by health insurance?

6. If this child had been covered by health insurance, including Medicaid, why did his/her health insurance stop? (Check all that apply)

In addition to this question ask:

What was the main reason that his/her health insurance stopped?

7. Please tell us about your child's medical care in the last year before enrolling in DHCP: (Please estimate if you do not know the exact numbers.)

Add:

1. Length of hospital stays
2. Place you usually get health care for your child
Response: (a) doctors office, (b) clinic, e.g., Nemours, public health, (c) emergency room.

8. Has this child had any ongoing (chronic) illnesses? (Please check all that apply. Please check "Not applicable" if the child(ren) do not have any ongoing illnesses.)

Add:

1. Allergies to the categories.
2. How often has this chronic condition required you to obtain medical care (doctor, clinic, and/or emergency room) for this child in the past year.
3. Number of days the chronic condition kept the child out of school in the last year (if the child is school age).
4. Has this illness required medication?
5. Is this illness temporary or is it continuous?

10. Over the past year, what were your medical costs for this child? (Check the one that applies.)

Change:

1. Remove categories encompassing range of costs and ask for an estimate of an absolute amount.
2. Break the question into sub-questions:
 - \$ Amount for prescriptions:
 - \$ Amount for doctor visits:
 - \$ Amount for emergency room visits:
 - \$ Amount for hospital care:
 - \$ Amount for dental care:

12. The Delaware Healthy Children Program is looking into the impact of premiums on families in order to keep the program affordable. What is the amount of premium you would find that you cannot afford so that you would have to drop out of DHCP? Your answer to this question will not impact your medical insurance or fee.

Change:

Increase premium scale to \$100.

Additional variables that need to be collected either through DCIS II records or through survey:

1. Family structure: (married couple, single head of household, etc.).
2. Number of children in family (including ones not enrolled in DHCP) and ages of children.
3. Present employment status of parent(s): F/T, P/T.
4. Employment history, i.e., Number of months employed this past year.
5. Have you been unemployed for a month or more in the past year?
6. Income in the last year, income in the last month.
7. Other forms of income in kind (or public benefits) in the past year (food stamps, section 8).
8. Occupation of parent(s)/guardian(s).
9. Employment industry: e.g., service, retail, or construction.
10. Main form of transportation (car, bus).
11. Health insurance coverage of head of household.
12. Rent or own home.
13. Medicaid Coverage
 - a. Has this child ever been covered by Medicaid?
 - b. How many times has he/she been covered by Medicaid since his/her birth?
 - c. Date of last Medicaid coverage.
 - d. Length of last Medicaid coverage (months).
14. How long did it take to get enrolled after applying for DHCP?

DATE: _____
M/T

**DELAWARE HEALTHY CHILDREN PROGRAM
MAIL SURVEY**

DCIS HH# _____

Name and MCI# of each child:

Child #1 _____

Child #2 _____

Child #3 _____

Child #4 _____

1. How did you hear about Delaware Healthy Children Program? (Check all that apply.)

Billboard	School	Daycare	Community Organization
Child Support Office	Unemployment Office	Medical Care Provider	Radio
Newspaper	Social Worker	Friend/Relative	TV
Other:			

2. Please rate each step of the DHCP application process listed below.

1. Filling out paperwork	<input type="checkbox"/> Very Hard	<input type="checkbox"/> Hard	<input type="checkbox"/> Easy	<input type="checkbox"/> Very Easy
2. Getting in contact with someone to help you	<input type="checkbox"/> Very Hard	<input type="checkbox"/> Hard	<input type="checkbox"/> Easy	<input type="checkbox"/> Very Easy
3. Affording the premium	<input type="checkbox"/> Very Hard	<input type="checkbox"/> Hard	<input type="checkbox"/> Easy	<input type="checkbox"/> Very Easy
4. Getting information that you needed	<input type="checkbox"/> Very Hard	<input type="checkbox"/> Hard	<input type="checkbox"/> Easy	<input type="checkbox"/> Very Easy

3. Please circle which of the above steps caused the most problems for you – even if all the steps were “easy” or “very easy”.

For each child in the household being enrolled:

4. What difficulties, if any, have you had in getting this child medical care and prescription medicine in the past year before applying for the DHCP. (Please check all that apply.) If none, check “No difficulties”.

	Medical Care				Prescription Medicine			
	Child#1	Child#2	Child#3	Child#4	Child#1	Child#2	Child#3	Child#4
1. No difficulties								
2. Too far away								
3. Difficulties with speaking English								
4. Provider’s hours weren’t convenient								
5. Didn’t know where to find								
6. No available child care for other children								
7. Cost								
8. Difficulty in getting insurance to pay for it								
9. Too sick myself								
10. No transportation to get medical care								
11. Other (write in your answer):								

5. If **this child** has ever been covered by health insurance, please tell us the most recent type of insurance, when the child was **last covered** (month & year), and the \$ amount of monthly premium paid by **you** or the financially responsible parent:

(If you do not know exactly \$ amount of monthly premium, then please estimate. Please make sure you indicate whether the health insurance was through employer or paid totally by Parent/guardian. Please put DK if you don't know.)

I. II. III. IV. Type of Insurance		Child#1	Child#2	Child#3	Child#4	Family Premium for all children if applicable
1. Never been covered by health insurance:						
2. Medicaid:	Date:					
3. Private health insurance <u>through parent/guardian employer</u>	Date: Premium:					
4. Private health insurance <u>paid totally by parent/guardian:</u>	Date: Premium:					

6. If **this child** had been covered by health insurance, **including Medicaid**, why did his/her health insurance stop? (Check all that apply)

REASON	Child#1	Child#2	Child#3	Child#4
1. It didn't stop				
2. Employer cancelled insurance for you as employee				
3. Employer cancelled family coverage for children				
4. Employer decreased type of coverage for this child. If so, which ones (doctor, hospital, x-rays, lab tests): _____				
5. The costs you paid for your employer insurance increased				
6. Parent/guardian dropped employer insurance for this child				
7. Parent/guardian dropped insurance that they paid totally from own income				
8. Parent/guardian became unemployed				
9. New job with no employer insurance				
10. New job with insurance but no coverage for children				
11. Change in family situation (separation, divorce, death)				
12. Income went up and affected Medicaid eligibility				
14. Other: (write in your answer)				

7. Please tell us about your child’s medical care in the last year before enrolling in DHCP: (Please estimate if you do not know the exact numbers.)

	Child#1	Child#2	Child#3	Child#4
1. This child has not received medical care				
2. Number of visits to doctor/clinic				
3. Number of dentist visits				
4. Number of prescriptions filled				
5. Number of emergency room visits (outpatient)				
6. Number of hospital stays (inpatient)				
7. Is your DHCP child up-to-date on his/her immunization shots (Yes, no, or don’t know)				

8. Has this child had any ongoing (chronic) illnesses? (Please check all that apply. Please check “Not applicable” if the child(ren) do not have any ongoing illnesses.)

	Child#1	Child#2	Child#3	Child#4
1. Diabetes				
2. Asthma				
3. Ear Infections				
4. Lead Poisoning				
5. Attention Deficit Disorder				
6. Pneumonia				
7. Other:				
8. Not applicable				

9. How would you describe this child’s health. (Check the one that applies.)

	Child#1	Child#2	Child#3	Child#4
1. Excellent				
2. Very Good				
3. Good				
4. Fair				
5. Poor				

10. Over the past year, what were your medical costs for this child? (Check the one that applies.)

	Child#1	Child#2	Child#3	Child#4
1. None				
2. Less than \$200				
3. Between \$201 and \$500				
4. Between \$501 and \$1,000				
5. Over \$1,000				

11. The DHCP provides medical care for safeguarding your child's health. You are now charged a small premium for the DHCP that is based on your income but gives your child comprehensive coverage for doctor, hospital lab tests and x-ray bills. Please indicate on the following scale, what the value of the DHCP is to you and your child.

10 highest value
9
8
7
6
5
4
3
2
1
0 no value

12. The Delaware Healthy Children Program is looking into the impact of premiums on families in order to keep the program affordable. What is the amount of premium you would find that you cannot afford so that you would have to drop out of DHCP? Your answer to this question will not impact your medical insurance or fee.

\$50
\$45
\$40
\$35
\$30
\$25
\$20
\$15
\$10
\$5
\$0

APPENDIX

- A. DHCP Eligibles**
- B. DHCP-Medicaid Comparison**
- C. Delaware Healthy Children's Program Survey**
- D. Health Services Utilization by Number of Children Within a Family**
- E. Equations**

APPENDIX A: DHCP ELIGIBLES

**TABLE A1
DHCP ELIGIBLES IN NEW CASTLE COUNTY BY GENDER AND AGE**

Age	Number			%		
	Male	Females	Total	Male	Females	Total
0-4	265	241	506	18.8	16.7	17.8
5-9	483	493	976	34.2	34.3	34.3
10-14	408	412	820	28.9	28.7	28.8
15-19	255	292	547	18.1	20.3	19.2
TOTAL	1,411	1,438	2,849	100.0	100.0	100.0

Source: Delaware Client Information System II (DCIS II).

**TABLE A2
DHCP ELIGIBLES IN KENT COUNTY BY GENDER AND AGE**

Age	Number			%		
	Male	Females	Total	Male	Females	Total
0-4	116	92	208	18.6	14.7	16.6
5-9	200	194	394	32.0	31.0	31.5
10-14	185	190	375	29.6	30.4	30.0
15-19	124	149	273	19.8	23.8	21.8
TOTAL	625	625	1,250	100.0	100.0	100.0
Missing Data = 1						

Source: Delaware Client Information System II (DCIS II).

**TABLE A3
DHCP ELIGIBLES IN SUSSEX COUNTY BY GENDER AND AGE**

Age	Number			%		
	Male	Females	Total	Male	Females	Total
0-4	125	129	254	16.5	17.3	16.9
5-9	261	235	496	34.5	31.4	33.0
10-14	200	222	422	26.4	29.7	28.0
15-19	171	162	333	22.6	21.7	22.1
TOTAL	757	748	1,505	100.0	100.0	100.0
Missing Data = 1						

Source: Delaware Client Information System II (DCIS II).

**TABLE A4
DHCP ELIGIBLES STATEWIDE BY AGE AND RACE**

Race	Age									
	0-4		5-9		10-14		15-19		Total	
	#	%	#	%	#	%	#	%	#	%
White not Hispanic	466	48.0	928	49.6	775	47.9	528	45.6	2,697	48.0
Black not Hispanic	311	32.0	671	35.9	661	40.8	508	43.9	2,151	38.3
Hispanic	141	14.5	192	10.3	123	7.6	73	6.3	529	9.4
Asian or Pacific Islander	4	0.4	12	0.6	5	0.3	4	0.4	25	0.4
American Indian	1	0.1	4	0.2	1	0.1	3	0.3	9	0.2
Other	21	2.2	40	2.1	16	1.0	12	1.0	89	1.6
Unknown	27	2.8	24	1.3	38	2.4	30	2.6	119	2.1
TOTAL	971	100.0	1,871	100.0	1,619	100.0	1,158	100.0	5,619	100.0
Missing Data = 2										

Source: Delaware Client Information System II (DCIS II).

**TABLE A5
DHCP ENROLLEES IN NEW CASTLE COUNTY BY AGE AND RACE**

Race	Age									
	0-4		5-9		10-14		15-19		Total	
	#	%	#	%	#	%	#	%	#	%
White not Hispanic	194	38.3	373	38.2	300	36.6	199	36.4	1,066	37.4
Black not Hispanic	203	40.1	438	44.9	395	48.2	269	49.2	1,305	45.8
Hispanic	80	15.8	124	12.7	88	10.7	51	9.3	343	12.0
Asian or Pacific Islander	4	0.8	8	0.8	5	0.6	3	0.6	20	0.7
American Indian	0	0.0	0	0.0	1	0.1	0	0.0	1	0.0
Other	8	1.6	19	2.0	7	0.9	7	1.3	41	1.4
Unknown	17	3.4	14	1.4	24	2.9	18	3.3	73	2.6
TOTAL	506	100.0	976	100.0	820	100.0	547	100.0	2,849	100.0

Source: Delaware Client Information System II (DCIS II).

**TABLE A6
DHCP ENROLLEES IN KENT COUNTY BY AGE AND RACE**

Race	Age									
	0-4		5-9		10-14		15-19		Total	
	#	%	#	%	#	%	#	%	#	%
White not Hispanic	131	63.0	258	65.5	236	62.9	137	50.2	762	61.0
Black not Hispanic	54	26.0	103	26.1	116	30.9	111	40.7	384	30.7
Hispanic	9	4.3	16	4.1	11	2.9	13	4.8	49	3.9
Asian or Pacific Islander	0	0.0	4	1.0	0	0.0	1	0.4	5	0.4
American Indian	1	0.5	2	0.5	0	0.0	3	1.1	6	0.5
Other	7	3.4	7	1.8	4	1.1	3	1.1	21	1.7
Unknown	6	2.9	4	1.0	8	2.1	5	1.8	23	1.8
TOTAL	208	100.0	394	100.0	375	100.0	273	100.0	1,250	100.0
Missing Data = 1										

Source: Delaware Client Information System II (DCIS II).

**TABLE A7
DHCP ENROLLEES IN SUSSEX COUNTY BY AGE AND RACE**

Race	Age									
	0-4		5-9		10-14		15-19		Total	
	#	%	#	%	#	%	#	%	#	%
White not Hispanic	138	54.3	293	59.1	238	56.4	189	56.8	858	57.0
Black not Hispanic	54	21.3	129	26.0	150	35.6	127	38.1	460	30.6
Hispanic	52	20.5	52	10.5	23	5.5	8	2.4	135	9.0
Asian or Pacific Islander	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
American Indian	0	0.0	2	0.4	0	0.0	0	0.0	2	0.1
Other	6	2.4	14	2.8	5	1.2	2	0.6	27	1.8
Unknown	4	1.6	6	1.2	6	1.4	7	2.1	23	1.5
TOTAL	254	100.0	496	100.0	422	100.0	333	100.0	1,505	100.0
Missing Data =1										

Source: Delaware Client Information System II (DCIS II).

APPENDIX B: DHCP AND MEDICAID COMPARISON

**TABLE B1
DHCP AND MEDICAID
ELIGIBLE CHILDREN, 1998-99 BY GENDER**

Gender	DHCP		MEDICAID, 1998		MEDICAID, 1999*	
	No.	%	No.	%	No.	%
Males	2,802	49.8	25,490	50.0	25,255	49.9
Females	2,819	50.1	25,536	50.0	25,347	50.1
STATEWIDE TOTAL	5,621	100.0	51,026	100.0	50,602	100.0

*January 1999 to October 1999.

Source: Delaware Client Information System, and Medicaid Management Information System.

**TABLE B2
MEDICAID AND DHCP ELIGIBLE CHILDREN,
1998-99 BY AGE**

Age Group	DHCP		MEDICAID, 1998		MEDICAID, 1999*	
	No.	%	No.	%	No.	%
0-4	971	17.3	15,566	30.5	15,701	31.0
5-9	1,871	33.3	15,644	30.7	15,099	29.8
10-14	1,619	28.8	11,324	22.2	11,526	22.8
15-19	1,158	20.6	8,492	16.6	8,276	16.4
STATEWIDE TOTAL	5,619	100.0	51,026	100.0	50,602	100.0
Missing data = 2						

*January 1999 to October 1999

Source: Delaware Client Information System, and Medicaid Management Information System

**TABLE B3
MEDICAID AND DHCP ELIGIBLES IN
NEW CASTLE COUNTY, BY GENDER AND AGE**

MEDICAID 1999						
Age	Number			%		
	Male	Females	Total	Male	Females	Total
0-4	4,372	4,175	8,547	31.8	30.5	31.1
5-9	4,119	4,051	8,170	29.9	29.6	29.8
10-14	3,205	3,060	6,265	23.3	22.4	22.8
15-19	2,065	2,402	4,467	15.0	17.6	16.3
TOTAL	13,761	13,688	2,7449	100.0	100.0	100.0
DHCP						
Age	Number			%		
	Male	Females	Total	Male	Females	Total
0-4	265	241	506	18.8	16.7	17.8
5-9	483	493	976	34.2	34.3	34.3
10-14	408	412	820	28.9	28.7	28.8
15-19	255	292	547	18.1	20.3	19.2
TOTAL	1,411	1,438	2,849	100.0	100.0	100.0

Source: Delaware Client Information System II (DCIS II); Medicaid Management Information System.

**TABLE B4
MEDICAID AND DHCP ELIGIBLES IN KENT COUNTY
BY GENDER AND AGE**

MEDICAID 1999						
Age	Number			%		
	Male	Females	Total	Male	Females	Total
0-4	1,635	1,595	3,230	31.1	29.4	30.2
5-9	1,633	1,625	3,258	31.0	29.9	30.5
10-14	1,253	1,278	2,531	23.8	23.5	23.7
15-19	742	935	1,677	14.1	17.2	15.7
TOTAL	5,263	5,433	10,696	100.0	100.0	100.0
DHCP						
Age	Number			%		
	Male	Females	Total	Male	Females	Total
0-4	116	92	208	18.6	14.7	16.6
5-9	200	194	394	32.0	31.0	31.5
10-14	185	190	375	29.6	30.4	30.0
15-19	124	149	273	19.8	23.8	21.8
TOTAL	625	625	1,250	100.0	100.0	100.0
Missing data = 1						

Source: Delaware Client Information System II (DCIS II); Medicaid Management Information System.

**TABLE B5
 MEDICAID AND DHCP ELIGIBLES IN SUSSEX COUNTY
 BY GENDER AND AGE**

MEDICAID						
Age	Number			%		
	Male	Females	Total	Male	Females	Total
0-4	2,009	1,890	3,899	33.0	30.6	31.8
5-9	1,826	1,828	3,654	30.0	29.6	29.8
10-14	1,326	1,381	2,707	21.8	22.4	22.1
15-19	921	1,074	1,995	15.1	17.4	16.3
TOTAL	6,082	6,173	12,255	100.0	100.0	100.0
DHCP						
Age	Number			%		
	Male	Females	Total	Male	Females	Total
0-4	125	129	254	16.5	17.3	16.9
5-9	261	235	496	34.5	31.4	33.0
10-14	200	222	422	26.4	29.7	28.0
15-19	171	162	333	22.6	21.7	22.1
TOTAL	757	748	1,505	100.0	100.0	100.0

Source: Delaware Client Information System II (DCIS II); Medicaid Management Information System.

**TABLE B6
MEDICAID AND DHCP ELIGIBLES STATEWIDE
BY AGE AND RACE**

MEDICAID										
Race	Age									
	0-4		5-9		10-14		15-19		Total	
	#	%	#	%	#	%	#	%	#	%
White not Hispanic	5,776	36.8	5,471	36.2	4,087	35.5	2,990	36.1	18,324	36.2
Black not Hispanic	6,927	44.1	7,636	50.6	6,222	54.0	4,443	53.7	25,228	49.9
Hispanic	2,086	13.3	1,530	10.1	899	7.8	586	7.1	5,101	10.1
Asian or Pacific Islander	102	0.7	65	0.4	35	0.3	19	0.2	221	0.4
Other	304	1.9	251	1.7	119	1.0	82	1.0	756	1.5
Unknown	483	3.1	121	0.8	146	1.3	146	1.8	896	1.8
TOTAL	15,678	100.0	15,074	100.0	1,1508	100.0	8,266	100.0	50,526	100.0
DHCP										
Race	Age									
	0-4		5-9		10-14		15-19		Total	
	#	%	#	%	#	%	#	%	#	%
White not Hispanic	466	48.0	928	49.6	775	47.9	528	45.6	2,697	48.0
Black not Hispanic	311	32.0	671	35.9	661	40.8	508	43.9	2,151	38.3
Hispanic	141	14.5	192	10.3	123	7.6	73	6.3	529	9.4
Asian or Pacific Islander	4	0.4	12	0.6	5	0.3	4	0.4	25	0.4
American Indian	1	0.1	4	0.2	1	0.1	3	0.3	9	0.2
Other	21	22.2	40	2.1	16	1.0	12	1.0	89	1.6
Unknown	27	2.8	24	1.3	38	2.4	30	2.6	119	2.1
TOTAL	971	100.0	1,871	100.0	1,619	100.0	1,158	100.0	5,619	100.0

Source: Delaware Client Information System II (DCIS II).

**TABLE B7
MEDICAID AND DHCP ELIGIBLES IN NEW CASTLE COUNTY
BY AGE AND RACE**

MEDICAID 1999										
Race	Age									
	0-4		5-9		10-14		15-19		Total	
	#	%	#	%	#	%	#	%	#	%
White not Hispanic	2,645	31.0	2,327	28.5	1,666	26.6	1,259	28.2	7,897	28.8
Black not Hispanic	4,191	49.0	4,622	56.6	3,790	60.5	2,642	59.1	15,245	55.5
Hispanic	1,229	14.4	1,007	12.3	663	10.6	429	9.6	3,328	12.1
Asian or Pacific Islander	89	1.0	46	0.6	24	0.4	14	0.3	173	0.6
American Indian	5	0.4	6	0.7	2	0.0	3	0.1	16	0.1
Other	145	1.7	92	1.1	44	0.7	32	0.7	313	1.1
Unknown	243	2.8	70	0.9	76	1.2	88	2.0	477	1.7
TOTAL	8,547	100.0	8,170	100.0	6,265	100.0	4,467	100.0	27,449	100.0

DHCP										
Race	Age									
	0-4		5-9		10-14		15-19		Total	
	#	%	#	%	#	%	#	%	#	%
White not Hispanic	194	38.3	373	38.2	300	36.6	199	36.4	1,066	37.4
Black not Hispanic	203	40.1	438	44.9	395	48.2	269	49.2	1,305	45.8
Hispanic	80	15.8	124	12.7	88	10.7	51	9.3	343	12.0
Asian or Pacific Islander	4	0.8	8	0.8	5	0.6	3	0.6	20	0.7
American Indian	0	0.0	0	0.0	1	0.1	0	0.0	1	0.0
Other	8	1.6	19	2.0	7	0.9	7	1.3	41	1.4
Unknown	17	3.4	14	1.4	24	2.9	18	3.3	73	2.6
TOTAL	506	100.0	976	100.0	820	100.0	547	100.0	2,849	100.0

Source: Delaware Client Information System II (DCIS II).

**TABLE B8
MEDICAID AND DHCP ELIGIBLES IN KENT COUNTY BY
AGE AND RACE**

MEDICAID 1999										
Race	Age									
	0-4		5-9		10-14		15-19		Total	
	#	%	#	%	#	%	#	%	#	%
White not Hispanic	1,487	46.0	1,511	46.4	1,126	44.5	730	3.5	4,854	45.4
Black not Hispanic	1,366	42.3	1,480	45.4	1,204	47.6	803	47.9	4,853	45.4
Hispanic	194	6.0	164	5.0	113	4.5	86	5.1	557	5.2
Asian or Pacific Islander	6	0.2	7	0.2	7	0.3	3	0.2	23	0.2
American Indian	9	0.3	10	0.3	8	0.3	4	0.3	31	0.3
Other	74	2.3	60	1.8	27	1.1	13	0.8	174	1.6
Unknown	94	2.9	26	0.8	46	1.8	38	2.3	204	1.9
TOTAL	3,230	100.0	3,258	100.0	2,531	100.0	1,677	100.0	10,696	100.0

DHCP										
Race	Age									
	0-4		5-9		10-14		15-19		Total	
	#	%	#	%	#	%	#	%	#	%
White not Hispanic	131	63.0	258	65.5	236	62.9	137	50.2	762	61.0
Black not Hispanic	54	26.0	103	26.1	116	30.9	111	40.7	384	30.7
Hispanic	9	4.3	16	4.1	11	2.9	13	4.8	49	3.9
Asian or Pacific Islander	0	0.0	4	1.0	0	0.0	1	0.4	5	0.4
American Indian	1	0.5	2	0.5	0	0.0	3	1.1	6	0.5
Other	7	3.4	7	1.8	4	1.1	3	1.1	21	1.7
Unknown	6	2.9	4	1.0	8	2.1	5	1.8	23	1.8
TOTAL	208	100.0	394	100.0	375	100.0	273	100.0	1,250	100.0

Source: Delaware Client Information System II (DCIS II).

**TABLE B9
MEDICAID AND DHCP ELIGIBLES IN SUSSEX COUNTY
BY AGE AND RACE**

MEDICAID										
Race	Age									
	0-4		5-9		10-14		15-19		Total	
	#	%	#	%	#	%	#	%	#	%
White not Hispanic	1,628	41.2	1,626	44.5	1,281	47.3	952	47.7	5,487	44.8
Black not Hispanic	1,363	35.0	1,525	41.7	1,219	45.0	921	46.2	5,028	41.0
Hispanic	661	17.0	359	9.8	123	4.5	65	3.3	1,208	9.9
Asian or Pacific Islander	7	0.2	12	0.3	4	0.2	2	0.1	125	0.2
American Indian	9	0.2	9	0.3	8	0.3	3	0.2	29	0.2
Other	85	2.2	99	2.7	48	1.8	34	1.7	266	2.2
Unknown	146	3.7	24	0.7	24	0.9	18	0.9	212	1.7
TOTAL	3,899	99.5	3,654	100.0	2,707	100.0	1,995	100.1	12,255	100.0

DHCP										
Race	Age									
	0-4		5-9		10-14		15-19		Total	
	#	%	#	%	#	%	#	%	#	%
White not Hispanic	138	54.3	293	59.1	238	56.4	189	56.8	858	57.0
Black not Hispanic	54	21.3	129	26.0	150	35.6	127	38.1	460	30.6
Hispanic	52	20.5	52	10.5	23	5.5	8	2.4	135	9.0
Asian or Pacific Islander	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
American Indian	0	0.0	2	0.4	0	0.0	0	0.0	2	0.1
Other	6	2.4	14	2.8	5	1.2	2	0.6	27	1.8
Unknown	4	1.6	6	1.2	6	1.4	7	2.1	23	1.5
TOTAL	254	100.0	496	100.0	422	100.0	333	100.0	1,505	100.0

Source: Delaware Client Information System II (DCIS II).

APPENDIX C: DELAWARE HEALTHY CHILDREN PROGRAM
MAIL SURVEY

M/T

DELAWARE HEALTHY CHILDREN PROGRAM
MAIL SURVEY

DCIS HH# _____

Name and MCI# of each child:

Child#1 _____

Child#2 _____

Child#3 _____

Child#4 _____

1. How did you hear about Delaware Healthy Children Program? (Check all that apply.)

Billboard	School	Daycare	Community Organization
Child Support Office	Unemployment Office	Medical Care Provider	Radio
Newspaper	Social Worker	Friend/Relative	TV
Other:			

2. Please rate each step of the DHCP application process listed below.

1. Filling out paperwork	<input type="checkbox"/> Very Hard	<input type="checkbox"/> Hard	<input type="checkbox"/> Easy	<input type="checkbox"/> Very Easy
2. Getting in contact with someone to help you	<input type="checkbox"/> Very Hard	<input type="checkbox"/> Hard	<input type="checkbox"/> Easy	<input type="checkbox"/> Very Easy
3. Affording the premium	<input type="checkbox"/> Very Hard	<input type="checkbox"/> Hard	<input type="checkbox"/> Easy	<input type="checkbox"/> Very Easy
4. Getting information that you needed	<input type="checkbox"/> Very Hard	<input type="checkbox"/> Hard	<input type="checkbox"/> Easy	<input type="checkbox"/> Very Easy

3. Please circle which of the above steps caused the most problems for you – even if all the steps were “easy” or “very easy”.

For each child in the household being enrolled:

4. What difficulties, if any, have you had in getting this child medical care and prescription medicine in the past year before applying for the DHCP. (Please check all that apply.) If none, check “No difficulties”.

	Medical Care				Prescription Medicine			
	Child#1	Child#2	Child#3	Child#4	Child#1	Child#2	Child#3	Child#4
1. No difficulties								
2. Too far away								
3. Difficulties with speaking English								
4. Provider’s hours weren’t convenient								
5. Didn’t know where to find								
6. No available child care for other children								
7. Cost								
8. Difficulty in getting insurance to pay for it								
9. Too sick myself								
10. No transportation to get medical care								
11. Other (write in your answer):								

If **this child** has ever been covered by health insurance, please tell us the most recent type of insurance, when the child was **last covered** (month & year), and the \$ amount of monthly premium paid by **you** or the financially responsible parent:

(If you do not know exact \$ amount of monthly premium, then please estimate. Please make sure you indicate whether the health insurance was through employer or paid totally by Parent/Guardian. Please put DK if you don't know.)

Type of Insurance	Child#1	Child#2	Child#3	Child#4	Family Premium for all children if applicable
1. Never been covered by health insurance:					
2. Medicaid:	Date:				
3. Private health insurance through parent/guardian employer	Date: Premium:				
4. Private health insurance paid totally by parent/guardian:	Date: Premium:				

6. If **this child** had been covered by health insurance, **including Medicaid**, why did his/her health insurance stop? (Check all that apply.)

REASON	Child#1	Child#2	Child#3	Child#4
1. It didn't stop				
2. Employer cancelled insurance for you as employee				
3. Employer cancelled family coverage for children				
4. Employer decreased type of coverage for this child. If so, which ones (doctor, hospital, x-rays, lab tests): _____				
5. The costs you paid for your employer insurance increased				
6. Parent/guardian dropped employer insurance for this child				
7. Parent/guardian dropped insurance that they paid totally from own income				
8. Parent/guardian became unemployed				
9. New job with no employer insurance				
10. New job with insurance but no coverage for children				
11. Change in family situation (separation, divorce, death)				
12. Income went up and affected Medicaid eligibility				
13. Other: (write in your answer)				

7. Please tell us about your child’s medical care in the last year before enrolling in DHCP: *(Please estimate if you do not know the exact numbers.)*

	Child#1	Child#2	Child#3	Child#4
1. This child has not received medical care				
2. Number of visits to doctor/clinic				
3. Number of dentist visits				
4. Number of prescriptions filled				
5. Number of emergency room visits (outpatient)				
6. Number of hospital stays (inpatient)				
7. Is your DHCP child up-to-date on his/her immunization shots (Yes, no, or don’t know)				

8. Has this child had any ongoing (chronic) illnesses? *(Please check all that apply. Please check “Not applicable” if the child(ren) do not have any ongoing illnesses.)*

	Child#1	Child#2	Child#3	Child#4
1. Diabetes				
2. Asthma				
3. Ear Infections				
4. Lead Poisoning				
5. Attention Deficit Disorder				
6. Pneumonia				
7. Other:				
8. Not applicable				

9. How would you describe this child’s health. (Check the one that applies.)

	Child#1	Child#2	Child#3	Child#4
1. Excellent				
2. Very Good				
3. Good				
4. Fair				
5. Poor				

10. Over the past year, what were your medical costs for this child? (Check the one that applies.)

	Child#1	Child#2	Child#3	Child#4
1. None				
2. Less than \$200				
3. Between \$201 and \$500				
4. Between \$501 and \$1,000				
5. Over \$1,000				

11. The DHCP provides medical care for safeguarding your child's health. You are now charged a small premium for the DHCP that is based on your income but gives your child comprehensive coverage for doctor, hospital lab tests and x-ray bills. Please indicate on the following scale, what the value of the DHCP is to you and your child.

10 highest value
9
8
7
6
5
4
3
2
1
0 no value

12. The Delaware Healthy Children Program is looking into the impact of premiums on families in order to keep the program affordable. What is the amount of premium you would find that you cannot afford so that you would have to drop out of DHCP? Your answer to this question will not impact your medical insurance or fee.

\$50
\$45
\$40
\$35
\$30
\$25
\$20
\$15
\$10
\$5
\$0

APPENDIX D: HEALTH SERVICES UTILIZATION

**TABLE D1
NUMBER OF DOCTOR VISITS IN LAST YEAR BY DHCP CHILD**

Number of Visits	Number of Children		Families with one Child		Families with two Children		Families with more than two Children	
	No.	%	No.	%	No.	%	No.	%
0	190	23.8	44	16.7	30	18.2	14	22.6
1	134	16.8	34	12.9	22	13.3	5	8.1
2	158	19.8	47	17.8	29	17.6	7	11.3
3	90	11.3	45	17.0	9	5.5	4	6.5
4	66	8.3	23	8.7	25	15.2	6	9.7
5	34	4.3	15	5.7	8	4.8	6	9.7
6	38	4.8	13	4.9	10	6.1	2	3.2
7	12	1.5	2	0.8	4	2.4	0	0.0
8	13	1.6	8	3.0	3	1.8	0	0.0
9	2	0.3	2	0.8	0	0.0	5	8.1
10	26	3.3	14	5.3	5	3.0	3	4.8
11-15	18	2.3	9	3.8	11	6.7	7	11.3
16-20	7	0.9	3	1.1	2	1.2	1	1.6
21-30	5	0.6	3	1.1	4	2.4	1	1.6
31-40	4	0.5	1	0.4	2	1.2	0	0.0
40+	2	0.3	1	0.4	1	0.6	1	0.0
Total	799	100.0	264	100.0	165	100.0	62	100.0
Missing data =	57	--	18	--	12	--	5	--

**TABLE D2
NUMBER OF DENTIST VISITS IN LAST YEAR BY DHCP CHILD**

Number of Visits	Number of Children		Families with one Child		Families with two Children		Families with more than two Children	
	No	%	No	%	No	%	No	%
0	506	62.5	159	59.3	97	58.4	35	55.6
1	126	15.6	41	15.3	19	11.4	4	6.3
2	116	14.3	48	17.9	29	17.5	11	17.5
3	29	3.6	13	4.9	3	1.8	3	4.8
4	13	1.6	4	1.5	7	4.2	3	4.8
5	1	0.1	0	0.0	2	1.2	0	0.0
6	6	0.7	0	0.0	4	2.4	3	4.8
7	2	0.2	0	0.0	1	0.6	0	0.0
8	0	0.0	0	0.0	1	0.6	0	0.0
9	0	0.0	0	0.0	0	0.0	0	0.0
10	3	0.4	2	0.7	0	0.0	0	0.0
11-15	6	0.7	1	0.4	3	1.8	1	1.6
16-20	1	0.1	0	0.0	0	0.0	1	1.6
21-30	1	0.1	0	0.0	0	0.0	2	3.2
40+	0	0.0	0	0.0	0	0.0	0	0.0
Total	810	100.0	268	100.0	166	100.0	63	100.0
Missing data	46	--	14	--	11	--	4	--

**TABLE D3
NUMBER OF PRESCRIPTIONS IN LAST YEAR BY DHCP CHILD**

Number of Visits	Number of Children		Families with one Child		Families with two Children		Families with more than two Children	
	No	%	No	%	No	%	No	%
0	337	41.9	91	34.3	53	32.1	22	34.9
1	90	11.2	31	11.7	18	10.9	3	4.8
2	124	15.4	35	13.2	26	15.8	7	11.1
3	55	6.8	21	7.9	18	10.9	3	4.8
4	53	6.5	26	9.8	12	7.3	7	11.1
5	34	4.2	15	5.7	5	3.0	2	3.2
6	24	3.0	8	3.0	4	2.4	3	4.8
7	12	1.5	3	1.1	4	2.4	0	0.0
8	9	1.1	6	2.3	3	1.8	1	1.6
9	7	0.2	3	1.1	2	1.2	1	1.6
10	16	2.0	8	3.0	4	2.4	0	0.0
11-15	22	2.7	8	3.0	5	3.0	5	7.9
16-20	9	1.1	5	1.9	4	2.4	5	7.9
21-30	10	1.2	3	1.1	3	1.8	1	1.6
31-40	1	0.1	1	0.4	2	1.2	2	3.2
40+	2	0.2	2	0.8	2	1.2	1	1.6
Total	805	100.0	266	100.0	165	100.0	63	100.0

**TABLE D4
NUMBER OF EMERGENCY ROOM VISITS IN LAST YEAR BY DHCP CHILD**

Number of Visits	Number of Children		Families with one Child		Families with two Children		Families with more than two Children	
	No.	%	No.	%	No.	%	No.	%
0	608	71.0	186	69.9	114	67.9	44	71.0
1	124	14.5	50	18.8	30	17.9	6	9.7
2	43	5.0	16	6.0	14	8.3	5	8.1
3	16	1.9	6	2.3	4	2.4	1	1.6
4	11	1.3	3	1.1	1	0.6	3	4.8
5	4	0.5	4	1.5	1	0.6	2	3.2
6	1	0.1	0	0.0	2	1.2	0	0.0
7	1	0.1	0	0.0	0	0.0	0	0.0
8	0	0.0	0	0.0	0	0.0	0	0.0
9	0	0.0	0	0.0	0	0.0	1	1.6
10	2	0.2	1	0.4	1	0.6	0	0.0
Greater > 10	0	0.0	0	0.0	1	0.6	0	0.0
Total	810	100.0	266	100.0	98	100.0	62	100.0
Missing Data	46	-	16	-	9	-	5	-

**TABLE D5
NUMBER OF HOSPITAL STAYS IN LAST YEAR BY DHCP CHILD**

Number of Visits	Number of Children		Families with one Child		Families with two Children		Families with more than two Children	
	No	%	No	%	No	%	No	%
0	760	93.7	252	94.0	153	92.2	55	88.7
1	39	4.8	12	4.5	10	6.0	4	6.5
2	9	1.1	2	0.7	1	10.6	2	3.2
3	1	0.1	1	0.4	1	10.6	1	1.6
4	1	0.1	0	0.0	1	00.6	0	0.0
5	1	0.1	1	0.4	0	0.0	0	0.0
6	0	0.0	0	0.0	0	0.0	0	0.0
7	0	0.0	0	0.0	0	0	0	0.0
8	0	0.0	0	0.0	0	0	0	0.0
Total	811	100.0	268	100.0	166	100.0	62	100.0
Missing Data	45	-	14	-	11	-	5	-

Appendix E. Equations

Equation 1. Difficulties in Obtaining Medical Care for Children

The LOGISTIC Procedure

Data Set: WORK.MERG8
 Response Variable: DIFFMED
 Response Levels: 2
 Number of Observations: 671
 Link Function: Logit

Response Profile

Ordered	<u>Value</u>	<u>DIFFMED</u>	<u>Count</u>
1	1	0	252
2	2	1	419

WARNING: 185 observation(s) were deleted due to missing values for the response or explanatory variables.

Model Fitting Information and Testing Global Null Hypothesis BETA=0
 Intercept

Criterion	Intercept Only	and Covariates	Chi-Square for Covariates
AIC	890.200	816.192	.
SC	894.709	919.894	.
-2 LOG L	888.200	770.192	118.008 with 22 DF (p=0.0001)
Score	.	.	113.703 with 22 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Standardized Estimate
INTERCPT	1	-0.1077	0.5804	0.0344	0.8528	.
MALE	1	-0.0282	0.1802	0.0244	0.8758	-0.007765
WHITE	1	-0.3240	0.4268	0.5762	0.4478	-0.085190
BLACK	1	-0.2924	0.4581	0.4076	0.5232	-0.068611
HISPANIC	1	0.1296	0.5424	0.0571	0.8111	0.017705
AGE	1	-0.00810	0.0208	0.1517	0.6969	-0.020414
CHILD	1	-0.1036	0.0975	1.1305	0.2877	-0.053822
KENTREST	1	-0.5101	0.3555	2.0587	0.1513	-0.103807
SUSREST	1	-0.0879	0.3178	0.0765	0.7822	-0.021362
NEWARK	1	-1.0236	0.4912	4.3421	0.0372	-0.136803
ELSEMERE	1	-0.6196	0.4321	2.0563	0.1516	-0.090602
WILM	1	0.5254	0.3880	1.8331	0.1758	0.087475
DOVER	1	-0.4923	0.3846	1.6383	0.2006	-0.085083
SMYRNA	1	0.3416	0.6152	0.3083	0.5787	0.028753
GEORGE	1	0.3245	0.5506	0.3473	0.5556	0.030447
NCCCTY	1	-0.5018	0.4540	1.2219	0.2690	-0.069252
CAT1	1	-0.4533	0.2437	3.4605	0.0629	-0.120106
CAT2	1	-0.4343	0.2296	3.5776	0.0586	-0.117134
PRIVINS	1	0.8246	0.2623	9.8863	0.0017	0.164010
MEDINS	1	1.9241	0.2660	52.3234	0.0001	0.394456
MEDLINK	1	0.5094	0.2214	5.2917	0.0214	0.133540
CHRONIC1	1	-0.2843	0.2272	1.5649	0.2110	-0.063728
CHRONIC2	1	-0.7286	0.4274	2.9063	0.0882	-0.091753

Analysis of Maximum Likelihood Estimates

<u>Variable</u>	<u>Odds Ratio</u>	<u>Variable Label</u>
INTERCPT	.	Intercept
MALE	0.972	
WHITE	0.723	
BLACK	0.746	
HISPANIC	1.138	
AGE	0.992	
CHILD	0.902	number of children
KENTREST	0.600	Kent rural
SUSREST	0.916	Sussex rural
NEWARK	0.359	
ELSEMERE	0.538	
WILM	1.691	
DOVER	0.611	
SMYRNA	1.407	
GEORGE	1.383	
NCCCTY	0.605	New Castle City
CAT1	0.636	100-133 FPL
CAT2	0.648	134-166 FPL
PRIVINS	2.281	Private insurance within last year
MEDINS	6.849	Medicaid insurance within last year
MEDLINK	1.664	medicaid linkage in past
CHRONIC1	0.753	one chronic disease
CHRONIC2	0.483	two chronic disease

Association of Predicted Probabilities and Observed Responses

Concordant = 73.5%	Somers' D = 0.472
Discordant = 26.2%	Gamma = 0.474
Tied = 0.3%	Tau-a = 0.222
(105588 pairs)	c = 0.736

Equation 2. Difficulties in Obtaining Prescription Care for Children

The LOGISTIC Procedure

Data Set: WORK.MERG8
 Response Variable: DIFFPRES
 Response Levels: 2
 Number of Observations: 374
 Link Function: Logit

Response Profile

Ordered	Value	DIFFPRES	Count
	1	0	146
	2	1	228

WARNING: 482 observation(s) were deleted due to missing values for the response or explanatory variables.

Model Fitting Information and Testing Global Null Hypothesis BETA=0

Criterion	Intercept		Chi-Square for Covariates
	Intercept Only	Intercept and Covariates	
AIC	502.349	444.981	.
SC	506.273	535.239	.
-2 LOG L Score	500.349	398.981	101.368 with 22 DF (p=0.0001) 91.644 with 22 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Standardized Estimate
INTERCPT	1	0.5724	0.8854	0.4179	0.5180	.
MALE	1	-0.2594	0.2547	1.0368	0.3086	-0.071593
WHITE	1	-2.0449	0.7106	8.2805	0.0040	-0.533589
BLACK	1	-1.7356	0.7627	5.1784	0.0229	-0.415646
HISPANIC	1	-0.9271	0.8815	1.1063	0.2929	-0.103577
AGE	1	-0.00292	0.0291	0.0101	0.9201	-0.007318
CHILD	1	0.0466	0.1469	0.1005	0.7512	0.022244
KENTREST	1	-0.3581	0.5217	0.4710	0.4925	-0.072055
SUSREST	1	0.2326	0.4619	0.2536	0.6145	0.056652
NEWARK	1	-0.3794	0.6815	0.3099	0.5777	-0.048218
ELSEMERE	1	-0.5902	0.6833	0.7461	0.3877	-0.079845
WILM	1	0.6283	0.5488	1.3105	0.2523	0.101022
DOVER	1	0.5386	0.5501	0.9585	0.3276	0.087692
SMYRNA	1	1.5436	0.8579	3.2378	0.0720	0.143982
GEORGE	1	1.2768	0.7059	3.2719	0.0705	0.133799
NCCCTY	1	1.1525	0.5795	3.9559	0.0467	0.177973
CAT1	1	-0.7105	0.3529	4.0526	0.0441	-0.187119
CAT2	1	-0.3020	0.3201	0.8903	0.3454	-0.081334
PRIVINS	1	1.2876	0.3654	12.4152	0.0004	0.266049
MEDINS	1	2.6453	0.4635	32.5733	0.0001	0.496990
MEDLINK	1	0.7852	0.3196	6.0341	0.0140	0.208840
CHRONIC1	1	-0.3742	0.3248	1.3276	0.2492	-0.083934
CHRONIC2	1	-0.7081	0.5988	1.3984	0.2370	-0.087944

Analysis of Maximum Likelihood Estimates

Variable	Odds Ratio	Variable Label
INTERCPT	.	Intercept
MALE	0.772	
WHITE	0.129	
BLACK	0.176	
HISPANIC	0.396	
AGE	0.997	
CHILD	1.048	number of children
KENTREST	0.699	Kent rural
SUSREST	1.262	Sussex rural
NEWARK	0.684	
ELSEMERE	0.554	
WILM	1.874	
DOVER	1.714	
SMYRNA	4.681	
GEORGE	3.585	
NCCCTY	3.166	New Castle city
CAT1	0.491	100-133 FPL
CAT2	0.739	134-166 FPL
PRIVINS	3.624	Private insurance within last year
MEDINS	14.087	Medicaid insurance within last year
MEDLINK	2.193	medicaid linkage
CHRONIC1	0.688	one chronic disease
CHRONIC2	0.493	two chronic disease

Association of Predicted Probabilities and Observed Responses

Concordant = 78.6%	Somers' D = 0.574
Discordant = 21.2%	Gamma = 0.575
Tied = 0.2%	Tau-a = 0.274
(33288 pairs)	c = 0.787

Equation 3. Ongoing (CHRONIC) Illnesses

The LOGISTIC Procedure

Data Set: WORK.MERG8
 Response Variable: MCHRONIC
 Response Levels: 3
 Number of Observations: 698
 Link Function: Logit

Response Profile

Ordered	Value	MCHRONIC	Count
	1	0	514
	2	1	146
	3	2	38

WARNING: 158 observation(s) were deleted due to missing values for the response or explanatory variables.

Score Test for the Proportional Odds Assumption

Chi-Square = 47.1293 with 23 DF (p=0.0022)

Model Fitting Information and Testing Global Null Hypothesis BETA=0

Criterion	Intercept and Covariates		Chi-Square for Covariates
	Intercept Only	Covariates	
AIC	996.639	900.373	.
SC	1005.735	1014.078	.
-2 LOG L	992.639	850.373	142.266 with 23 DF (p=0.0001)
Score	.	.	132.575 with 23 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Standardized Estimate
INTERCP1	1	-2.0023	0.7913	6.4028	0.0114	.
INTERCP2	1	0.1549	0.7866	0.0388	0.8438	.
MALE	1	-0.3219	0.1889	2.9028	0.0884	-0.088799
WHITE	1	-0.6615	0.5225	1.6027	0.2055	-0.174835
BLACK	1	-0.5629	0.5468	1.0598	0.3033	-0.132766
HISPANIC	1	0.0581	0.6218	0.0087	0.9255	0.008119
AGE	1	0.0453	0.0224	4.1080	0.0427	0.114009
CHILD	1	0.4139	0.1200	11.8961	0.0006	0.214452
KENTREST	1	0.3927	0.3551	1.2227	0.2688	0.079515
SUSREST	1	0.7417	0.3317	4.9992	0.0254	0.180294
NEWARK	1	-0.1725	0.4301	0.1609	0.6883	-0.023375
ELSEMERE	1	0.1674	0.4265	0.1540	0.6947	0.024669
WILM	1	0.4300	0.4168	1.0640	0.3023	0.070342
DOVER	1	0.6958	0.4052	2.9487	0.0859	0.120267
SMYRNA	1	2.0358	0.8250	6.0897	0.0136	0.168096
GEORGE	1	2.2754	1.0077	5.0981	0.0240	0.224095
NCCCTY	1	0.6385	0.4694	1.8506	0.1737	0.086521
CAT1	1	0.2212	0.2634	0.7052	0.4010	0.058814
CAT2	1	-0.2224	0.2411	0.8513	0.3562	-0.059930
MEDINS	1	-0.0528	0.2708	0.0381	0.8453	-0.011035
PRIVINS	1	-0.3357	0.2779	1.4596	0.2270	-0.066987
MEDLINK	1	-0.3720	0.2344	2.5188	0.1125	-0.097183
EXCEL	1	3.3997	0.4255	63.8491	0.0001	0.907550
VERYG	1	2.3934	0.3979	36.1744	0.0001	0.644416
FAIR	1	1.5609	0.4055	14.8146	0.0001	0.338217

Analysis of Maximum Likelihood Estimates

Variable	Odds Ratio	Variable Label
INTERCP1	.	Intercept 0
INTERCP2	.	Intercept 1
MALE	0.725	
WHITE	0.516	
BLACK	0.570	
HISPANIC	1.060	
AGE	1.046	
CHILD	1.513	number of children
KENTREST	1.481	Kent rural
SUSREST	2.099	Sussex rural
NEWARK	0.842	
ELSEMERE	1.182	
WILM	1.537	
DOVER	2.005	
SMYRNA	7.659	
GEORGE	9.731	
NCCCTY	1.894	New Castle City
CAT1	1.248	100-133 FPL
CAT2	0.801	134-166 FPL
MEDINS	0.949	Medicaid within last year
PRIVINS	0.715	Private insurance within last year
MEDLINK	0.689	medicaid linkage
EXCEL	29.956	excellent health
VERYG	10.951	very good health
FAIR	4.763	fair health

Association of Predicted Probabilities and Observed Responses

Concordant = 75.6%	Somers' D = 0.513
Discordant = 24.2%	Gamma = 0.515
Tied = 0.2%	Tau-a = 0.211
(100124 pairs)	c = 0.757

Equation 4. Parent View of Child Health Status

The LOGISTIC Procedure

Data Set: WORK.MERG8
 Response Variable: HEALTH describe health of child
 Response Levels: 4
 Number of Observations: 698
 Link Function: Logit

Response Profile

Ordered	Value	HEALTH	Count
1	1	1	261
2	2	2	273
3	3	3	133
4	4	4	31

WARNING: 158 observation(s) were deleted due to missing values for the response or explanatory variables.

Score Test for the Proportional Odds Assumption

Chi-Square = 94.1263 with 46 DF (p=0.0001)

Model Fitting Information and Testing Global Null Hypothesis BETA=0

Criterion	Intercept Only	Intercept and Covariates	Chi-Square for Covariates
AIC	1666.123	1553.292	.
SC	1679.767	1671.545	.
-2 LOG L	1660.123	1501.292	158.831 with 23 DF (p=0.0001)
Score	.	.	138.758 with 23 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Standardized Estimate
INTERCP1	1	0.9926	0.5137	3.7336	0.0533	.
INTERCP2	1	3.0052	0.5258	32.6616	0.0001	.
INTERCP3	1	5.1490	0.5604	84.4344	0.0001	.
MALE	1	0.0316	0.1480	0.0455	0.8311	0.008708
WHITE	1	-0.0282	0.3570	0.0062	0.9371	-0.007442
BLACK	1	-0.3725	0.3813	0.9544	0.3286	-0.087859
HISPANIC	1	-1.6279	0.4487	13.1596	0.0003	-0.227281
AGE	1	-0.0826	0.0177	21.8302	0.0001	-0.207960
CHILD	1	0.1751	0.0864	4.1036	0.0428	0.090730
KENTREST	1	-0.7934	0.2966	7.1539	0.0075	-0.160656
SUSREST	1	-1.0007	0.2737	13.3674	0.0003	-0.243247
NEWARK	1	-0.2680	0.3704	0.5235	0.4693	-0.036308
ELSEMERE	1	-0.3720	0.3527	1.1126	0.2915	-0.054831
WILM	1	0.0163	0.3408	0.0023	0.9617	0.002675
DOVER	1	-0.5742	0.3197	3.2262	0.0725	-0.099249
SMYRNA	1	-1.8064	0.5255	11.8170	0.0006	-0.149152
GEORGE	1	-0.7370	0.4636	2.5271	0.1119	-0.072590
NCCCTY	1	-0.7662	0.3711	4.2614	0.0390	-0.103814
MAIL	1	0.1932	0.1577	1.5004	0.2206	0.052932
CAT1	1	-0.0844	0.2034	0.1721	0.6783	-0.022436
CAT2	1	-0.1886	0.1933	0.9519	0.3292	-0.050804
PRIVINS	1	0.1579	0.2238	0.4979	0.4804	0.031514
MEDINS	1	0.3869	0.2142	3.2631	0.0709	0.080814

MEDLINK	1	-0.0566	0.1771	0.1021	0.7493	-0.014786
CHRONIC1	1	-1.2476	0.1864	44.7811	0.0001	-0.279953
CHRONIC2	1	-2.4320	0.3316	53.7828	0.0001	-0.304437

Analysis of Maximum Likelihood Estimates

<u>Variable</u>	<u>Odds Ratio</u>	<u>Variable Label</u>
INTERCP1	.	Intercept 0
INTERCP2	.	Intercept 1
INTERCP3	.	Intercept 2
MALE	1.032	
WHITE	0.972	
BLACK	0.689	
HISPANIC	0.196	
AGE	0.921	
CHILD	1.191	number of children
KENTREST	0.452	Kent rural
SUSREST	0.368	Sussex rural
NEWARK	0.765	
ELSEMERE	0.689	
WILM	1.016	
DOVER	0.563	
SMYRNA	0.164	
GEORGE	0.479	
NCCCTY	0.4	New Castle City
MAIL	1.213	survey sent through mail
CAT1	0.919	100-133 FPL
CAT2	0.828	134-166 FPL
PRIVINS	1.171	Private insurance within last year
MEDINS	1.472	Medicaid insurance within last
MEDLINK	0.945	medicaid linkage
CHRONIC1	0.287	one chronic disease
CHRONIC2	0.088	two chronic disease

Association of Predicted Probabilities and Observed Responses

Concordant = 70.6%	Somers' D = 0.415
Discordant = 29.1%	Gamma = 0.416
Tied = 0.3%	Tau-a = 0.278
(162952 pairs)	c = 0.708

Equation 5. Health Care received by DHCP Child in Last Year

The LOGISTIC Procedure

Data Set: WORK.MERG8
 Response Variable: NOCARE child did not receive medical care
 Response Levels: 2
 Number of Observations: 675
 Link Function: Logit

Response Profile

Ordered	Value	NOCARE	Count
1		0	575
2		1	100

WARNING: 181 observation(s) were deleted due to missing values for the response or explanatory variables.

Model Fitting Information and Testing Global Null Hypothesis BETA=0

Criterion	Intercept Only	Intercept and Covariates	Chi-Square for Covariates
AIC	568.303	528.482	.
SC	572.817	632.321	.
-2 LOG L Score	566.303	482.482	83.820 with 22 DF (p=0.0001) 82.475 with 22 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Standardized Estimate
INTERCPT	1	4.7108	0.9610	24.0283	0.0001	.
MALE	1	-0.3896	0.2426	2.5785	0.1083	-0.107458
WHITE	1	-0.8507	0.7781	1.1953	0.2743	-0.225499
BLACK	1	-1.1660	0.8050	2.0981	0.1475	-0.275336
HISPANIC	1	-0.7166	0.9064	0.6250	0.4292	-0.102582
AGE	1	-0.0650	0.0293	4.9249	0.0265	-0.164077
CHILD	1	-0.4571	0.1251	13.3544	0.0003	-0.234848
KENTREST	1	0.5022	0.5113	0.9645	0.3261	0.102326
SUSREST	1	-0.1166	0.4214	0.0766	0.7820	-0.028193
NEWARK	1	-1.0494	0.5151	4.1505	0.0416	-0.144422
ELSEMERE	1	1.6246	0.8245	3.8829	0.0488	0.239015
WILM	1	0.1262	0.5466	0.0533	0.8173	0.020965
DOVER	1	-0.4490	0.4789	0.8792	0.3484	-0.076472
SMYRNA	1	-1.4467	0.6832	4.4836	0.0342	-0.121424
GEORGE	1	1.4462	1.1149	1.6826	0.1946	0.141689
NCCCTY	1	-0.4496	0.5675	0.6276	0.4282	-0.060583
CAT1	1	-0.5021	0.3200	2.4626	0.1166	-0.133890
CAT2	1	0.4682	0.3473	1.8178	0.1776	0.125812
PRIVINS	1	0.1793	0.3818	0.2206	0.6386	0.036135
MEDINS	1	0.0411	0.3303	0.0155	0.9010	0.008670
MEDLINK	1	-0.3423	0.2911	1.3824	0.2397	-0.089596
CHRONIC1	1	0.4692	0.3299	2.0231	0.1549	0.106054
CHRONIC2	1	0.9219	0.7575	1.4811	0.2236	0.117243

Analysis of Maximum Likelihood Estimates

<u>Variable</u>	<u>Odds Ratio</u>	<u>Variable Label</u>
INTERCPT	.	Intercept
MALE	0.677	
WHITE	0.427	
BLACK	0.312	
HISPANIC	0.488	
AGE	0.937	
CHILD	0.633	number of children
KENTREST	1.652	Kent rural
SUSREST	0.890	Sussex rural
NEWARK	0.350	
ELSEMERE	5.076	
WILM	1.135	
DOVER	0.638	
SMYRNA	0.235	
GEORGE	4.247	
NCCCTY	0.638	New Castle City
CAT1	0.605	100-133 FPL
CAT2	1.597	134-166 FPL
PRIVINS	1.196	private insurance within last year
MEDINS	1.042	medicaid within last year
MEDLINK	0.710	medicaid linkage
CHRONIC1	1.599	one chronic disease
CHRONIC2	2.514	two chronic disease

Association of Predicted Probabilities and Observed Responses

Concordant = 75.0%	Somers' D = 0.505
Discordant = 24.5%	Gamma = 0.508
Tied = 0.5%	Tau-a = 0.128
(57500 pairs)	c = 0.753

Equation 6. Health Care Incidences in last Year by DHCP Child – Doctor Visits

Lifereg Procedure

Data Set =WORK.MERG8
 Dependent Variable=Log(LOWEST)
 Dependent Variable=Log(DOCTORVI) number of visits to doctor/clinic
 Noncensored Values= 507 Right Censored Values= 1
 Left Censored Values= 0 Interval Censored Values= 0
 Observations with Missing Values= 190
 Observations with Zero or Negative Response= 158

Log Likelihood for WEIBULL -608.4636348

Lifereg Procedure

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
INTERCPT	1	0.29248637	1.204931	0.058923	0.8082	Intercept
MALE	1			0.048216	0.8262	
	1	0.01524277	0.069418	0.048216	0.8262	0
	0	0	0	.	.	1
WHITE	1			0.411389	0.5213	
	1	0.09998732	0.15589	0.411389	0.5213	0
	0	0	0	.	.	1
BLACK	1			0.078986	0.7787	
	1	0.04831213	0.171902	0.078986	0.7787	0
	0	0	0	.	.	1
HISPANIC	1			0.031857	0.8583	
	1	0.03499577	0.196072	0.031857	0.8583	0
	0	0	0	.	.	1
AGE	1	0.00215019	0.007692	0.078145	0.7798	
CHILD	1	-0.2075367	0.044218	22.02906	0.0001	number of children
KENTREST	1			4.355389	0.0369	Kent rural
	1	0.28102576	0.134658	4.355389	0.0369	0
	0	0	0	.	.	1
SUSREST	1			3.10466	0.0781	Sussex rural
	1	0.22595689	0.128239	3.10466	0.0781	0
	0	0	0	.	.	1
NEWARK	1			5.849883	0.0156	
	1	0.43755237	0.180907	5.849883	0.0156	0
	0	0	0	.	.	1
ELSEMERE	1			7.391389	0.0066	
	1	0.46937135	0.172645	7.391389	0.0066	0
	0	0	0	.	.	1
WILM	1			0.101412	0.7501	
	1	-0.0523473	0.16438	0.101412	0.7501	0
	0	0	0	.	.	1
DOVER	1			3.723451	0.0537	
	1	0.29627904	0.153542	3.723451	0.0537	0

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
	0	0	0	.	.	1
SMYRNA	1			0.262409	0.6085	
	1	-0.132961	0.259558	0.262409	0.6085	0
	0	0	0	.	.	1
GEORGE	1			0.558359	0.4549	
	1	0.16041813	0.214683	0.558359	0.4549	0
	0	0	0	.	.	1
NCCCTY	1			1.558976	0.2118	New Castle City
	1	-0.2182976	0.174835	1.558976	0.2118	0
	0	0	0	.	.	1
CAT1	1			2.445207	0.1179	100-133 FPL
	1	0.15343671	0.098123	2.445207	0.1179	0
	0	0	0	.	.	1
CAT2	1			2.237178	0.1347	134-166 FPL
	1	-0.1317265	0.088069	2.237178	0.1347	0
	0	0	0	.	.	1
PRIVINS	1			2.330428	0.1269	Private insurance-last year
	1	0.17472776	0.114457	2.330428	0.1269	0
	0	0	0	.	.	1
MEDINS	1			5.246125	0.0220	Medicaid insurance-last yr
	1	-0.2607402	0.113838	5.246125	0.0220	0
	0	0	0	.	.	1
MEDLINK	1			0.001528	0.9688	medicaid linkage
	1	-0.0032016	0.081908	0.001528	0.9688	0
	0	0	0	.	.	1
CHRONIC1	1			33.00514	0.0001	one chronic disease
	1	-0.5910003	0.102872	33.00514	0.0001	0
	0	0	0	.	.	1
CHRONIC2	1			24.93866	0.0001	two chronic disease
	1	-0.888568	0.177932	24.93866	0.0001	0
	0	0	0	.	.	1
INTER4	1			0.481869	0.4876	chronic1*privins
	1	-0.1523632	0.21949	0.481869	0.4876	0
	0	0	0	.	.	1
INTER5	1			1.160996	0.2813	chronic2*privins
	1	0.35490826	0.329383	1.160996	0.2813	0
	0	0	0	.	.	1
INTER6	1			0.095022	0.7579	chronic1*medins
	1	-0.066693	0.216356	0.095022	0.7579	0
	0	0	0	.	.	1
INTER7	1			12.55	0.0004	chronic2*medins
	1	1.29029921	0.364224	12.55	0.0004	0
	0	0	0	.	.	1
SCALE	1	0.72596134	0.023913			Extreme value scale p

Equation 7. Health Care Incidences in last Year by DHCP Child – Prescriptions

Lifereg Procedure

Data Set =WORK.MERG4
 Dependent Variable=Log(LOWER2)
 Dependent Variable=Log(PRESCRIP) # prescriptions filled
 Noncensored Values= 385 Right Censored Values= 2
 Left Censored Values= 0 Interval Censored Values= 0
 Observations with Missing Values= 185
 Observations with Zero or Negative Response= 284

Log Likelihood for WEIBULL -497.0550068

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
INTERCPT	1	3.1395966	1.473644	4.539026	0.0331	Intercept
MALE	1			0.019172	0.8899	
	1	-0.0123167	0.088952	0.019172	0.8899	0
	0	0	0	.	.	1
WHITE	1			2.23192	0.1352	
	1	-0.2947753	0.197311	2.23192	0.1352	0
	0	0	0	.	.	1
BLACK	1			0.054661	0.8151	
	1	-0.0497118	0.212629	0.054661	0.8151	0
	0	0	0	.	.	1
HISPANIC	1			0.167345	0.6825	
	1	-0.1107138	0.270642	0.167345	0.6825	0
	0	0	0	.	.	1
AGE	1	0.02698416	0.009776	7.619112	0.0058	
CHILD	1	-0.1225797	0.054312	5.09387	0.0240	number of children
KENTREST	1			0.347512	0.5555	Kent rural
	1	0.10050812	0.170497	0.347512	0.5555	0
	0	0	0	.	.	1
SUSREST	1			0.145176	0.7032	Sussex rural
	1	0.06233688	0.163606	0.145176	0.7032	0
	0	0	0	.	.	1
NEWARK	1			0.154202	0.6946	
	1	0.08810032	0.224354	0.154202	0.6946	0
	0	0	0	.	.	1
ELSEMERE	1			0.026878	0.8698	
	1	0.03458814	0.210972	0.026878	0.8698	0
	0	0	0	.	.	1
WILM	1			0.430085	0.5119	
	1	-0.1425136	0.21731	0.430085	0.5119	0
	0	0	0	.	.	1
DOVER	1			0.289515	0.5905	
	1	0.11164925	0.207501	0.289515	0.5905	0
	0	0	0	.	.	1
SMYRNA	1			0.826185	0.3634	
	1	-0.2773992	0.305187	0.826185	0.3634	0

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
GEORGE	1			0.854624	0.3552	
	1	0.23887763	0.258397	0.854624	0.3552	0
	0	0	0	.	.	1
NCCCTY	1			2.293056	0.1300	New Castle City
	1	-0.33649	0.222211	2.293056	0.1300	0
	0	0	0	.	.	1
CAT1	1			0.469783	0.4931	100-133 FPL
	1	-0.0888815	0.129677	0.469783	0.4931	0
	0	0	0	.	.	1
CAT2	1			2.154481	0.1422	134-166 FPL
	1	-0.1691629	0.115248	2.154481	0.1422	0
	0	0	0	.	.	1
PRIVINS	1			7.483373	0.0062	private insurance last year
	1	-0.4113637	0.150376	7.483373	0.0062	0
	0	0	0	.	.	1
MEDINS	1			4.400513	0.0359	medicaid insurance last year
	1	-0.309085	0.147342	4.400513	0.0359	0
	0	0	0	.	.	1
MEDLINK	1			0.071562	0.7891	medicaid linkage
	1	0.02843204	0.106284	0.071562	0.7891	0
	0	0	0	.	.	1
CHRONIC1	1			29.90772	0.0001	one chronic disease
	1	-0.6843674	0.12514	29.90772	0.0001	0
	0	0	0	.	.	1
CHRONIC2	1			16.96101	0.0001	two chronic disease
	1	-0.8202107	0.199159	16.96101	0.0001	0
	0	0	0	.	.	1
INTER4	1			0.115083	0.7344	chronic1*privins
	1	-0.0921694	0.271695	0.115083	0.7344	0
	0	0	0	.	.	1
INTER5	1			1.611813	0.2042	chronic2*privins
	1	0.48785841	0.38427	1.611813	0.2042	0
	0	0	0	.	.	1
INTER6	1			2.865395	0.0905	chronic1*medins
	1	-0.4691825	0.277172	2.865395	0.0905	0
	0	0	0	.	.	1
INTER7	1			4.208098	0.0402	chronic2*medins
	1	0.84592043	0.41237	4.208098	0.0402	0
	0	0	0	.	.	1
SCALE	1	0.79119653	0.029897			Extreme value scale

Equation 8. Health Care Incidences in last Year by DHCP Child – Emergency Room

Lifereg Procedure

Data Set =WORK.MERG8
 Dependent Variable=Log(LOWER3)
 Dependent Variable=Log(EMERROOM) # emergency room visits(outpatient)
 Noncensored Values= 161 Right Censored Values= 2
 Left Censored Values= 0 Interval Censored Values= 0
 Observations with Missing Values= 184
 Observations with Zero or Negative Response= 509

Log Likelihood for WEIBULL -141.8460501

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
INTERCPT	1	2.78715765	1.589499	3.0747	0.0795	Intercept
MALE	1			6.222627	0.0126	
	1	0.24325374	0.097515	6.222627	0.0126	0
	0	0	0	.	.	1
WHITE	1			0.031651	0.8588	
	1	0.04567885	0.256758	0.031651	0.8588	0
	0	0	0	.	.	1
BLACK	1			0.010546	0.9182	
	1	-0.0272802	0.265651	0.010546	0.9182	0
	0	0	0	.	.	1
HISPANIC	1			0.73879	0.3900	
	1	-0.2793491	0.325002	0.73879	0.3900	0
	0	0	0	.	.	1
AGE	1	-0.0030857	0.009643	0.102407	0.7490	
CHILD	1	0.07624929	0.071036	1.152163	0.2831	number of children
KENTREST	1			0.462256	0.4966	Kent rural
	1	-0.1439714	0.211756	0.462256	0.4966	0
	0	0	0	.	.	1
SUSREST	1			0.765062	0.3817	Sussex rural
	1	-0.1668572	0.190764	0.765062	0.3817	0
	0	0	0	.	.	1
NEWARK	1			1.613961	0.2039	
	1	0.32427631	0.255252	1.613961	0.2039	0
	0	0	0	.	.	1
ELSEMERE	1			0.183855	0.6681	
	1	-0.0913617	0.213072	0.183855	0.6681	0
	0	0	0	.	.	1
WILM	1			2.416012	0.1201	
	1	-0.3482468	0.224046	2.416012	0.1201	0
	0	0	0	.	.	1
DOVER	1			0.537629	0.4634	
	1	0.16081593	0.219325	0.537629	0.4634	0
	0	0	0	.	.	1

SMYRNA	1			0.700139	0.4027	
	1	-0.2734996	0.326862	0.700139	0.4027	0
	0	0	0	.	.	1
Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
GEORGE	1			1.166804	0.2801	
	1	0.39132378	0.362274	1.166804	0.2801	0
	0	0	0	.	.	1
NCCCTY	1			7.600982	0.0058	New Castle City
	1	-0.6490163	0.235408	7.600982	0.0058	0
	0	0	0	.	.	1
CAT1	1			5.737696	0.0166	100-133 FPL
	1	-0.3453631	0.144181	5.737696	0.0166	0
	0	0	0	.	.	1
CAT2	1			16.92914	0.0001	134-166 FPL
	1	-0.4995918	0.121422	16.92914	0.0001	0
	0	0	0	.	.	1
PRIVINS	1			0.009864	0.9209	Private insurance last year
	1	-0.0147111	0.148124	0.009864	0.9209	0
	0	0	0	.	.	1
MEDINS	1			0.310895	0.5771	Medicaid last year
	1	-0.0703206	0.126118	0.310895	0.5771	0
	0	0	0	.	.	1
CHRONIC1	1			13.91095	0.0002	one chronic disease
	1	-0.3746162	0.10044	13.91095	0.0002	0
	0	0	0	.	.	1
CHRONIC2	1			16.81872	0.0001	two chronic disease
	1	-0.6926274	0.16889	16.81872	0.0001	0
	0	0	0	.	.	1
INTER4	0			0	0.0001	chronic1*privins
	0	0	0	.	.	0
INTER5	0			0	0.0001	chronic2*privins
	0	0	0	.	.	0
INTER6	0			0	0.0001	chronic1*medins
	0	0	0	.	.	1
INTER7	0			0	0.0001	chronic2*medins
	0	0	0	.	.	0
SCALE	1	0.52145785	0.030465			Extreme value scale p

Equation 9. Health Care Incidences in last Year by DHCP Child – Hospital

Data Set =WORK.MERG8
 Dependent Variable =Log(LOWER4)
 Dependent Variable =Log(HOSPITAL) # hospital stays (inpatient)
 Noncensored Values = 35 Right Censored Values = 0
 Left Censored Values = 0 Interval Censored Values = 0
 Observations with Missing Values = 184
 Observations with Zero or Negative Response = 637

Log Likelihood for WEIBULL 3.5064145296

Lifereg Procedure

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
INTERCPT	1	-0.3507155	2.039734	0.029564	0.8635	Intercept
MALE	1			0.067757	0.7946	
	1	0.03379564	0.129832	0.067757	0.7946	0
	0	0	0	.	.	1
WHITE	1			0.229204	0.6321	
	1	0.16867527	0.352323	0.229204	0.6321	0
	0	0	0	.	.	1
BLACK	1			2.019639	0.1553	
	1	0.54035032	0.380223	2.019639	0.1553	0
	0	0	0	.	.	1
AGE	1	0.05239166	0.016207	10.45042	0.0012	
HISPANIC	0			0	0.0001	
	0	0	0	.	.	0
	0	0	0	.	.	1
CHILD	1	-0.2032763	0.109886	3.422099	0.0643	number of children
KENTREST	1			2.400496	0.1213	Kent rural
	1	0.48615109	0.313777	2.400496	0.1213	0
	0	0	0	.	.	1
SUSREST	1			0.405298	0.5244	Sussex rural
	1	-0.207186	0.325442	0.405298	0.5244	0
	0	0	0	.	.	1
NEWARK	1			2.097961	0.1475	
	1	0.54951938	0.379389	2.097961	0.1475	0
	0	0	0	.	.	1
ELSEMERE	1			0.52032	0.4707	
	1	-0.4011892	0.556178	0.52032	0.4707	0
	0	0	0	.	.	1
WILM	1			5.896273	0.0152	
	1	-0.7144038	0.294208	5.896273	0.0152	0
	0	0	0	.	.	1
DOVER	0			0	0.0001	
	0	0	0	.	.	0
	0	0	0	.	.	1
SMYRNA	1			0.297044	0.5857	
	1	0.1489818	0.273352	0.297044	0.5857	0

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
		0	0	0	.	1
NCCCTY	1			1.999802	0.1573	New Castle City
	1	-0.4511942	0.319058	1.999802	0.1573	0
	0	0	0	.	.	1
CAT1	1			17.95896	0.0001	100-133 FPL
	1	0.81373225	0.192018	17.95896	0.0001	0
	0	0	0	.	.	1
CAT2	1			4.418891	0.0355	134-166 FPL
	1	0.3123856	0.148605	4.418891	0.0355	0
	0	0	0	.	.	1
PRIVINS	1			0.703944	0.4015	Private insurance last year
	1	-0.1686836	0.20105	0.703944	0.4015	0
	0	0	0	.	.	1
MEDINS	1			1.524306	0.2170	Medicaid last year
	1	-0.2617508	0.212008	1.524306	0.2170	0
	0	0	0	.	.	1
MEDLINK	1			10.45241	0.0012	medicaid linkage
	1	0.43551421	0.134708	10.45241	0.0012	0
	0	0	0	.	.	1
CHRONIC1	1			0.049962	0.8231	one chronic disease
	1	0.03050541	0.136476	0.049962	0.8231	0
	0	0	0	.	.	1
CHRONIC2	1			0.02355	0.8780	two chronic disease
	1	-0.0561908	0.366158	0.02355	0.8780	0
	0	0	0	.	.	1
INTER4	1	0.49452783	0.33071	2.236083	0.1348	chronic1*noinsur
INTER5	0	0	0	.	.	chronic2*noinsur
INTER6	1	0.79126453	0.261645	9.14573	0.0025	chronic1*medins
INTER7	1	0.0657831	0.521114	0.015935	0.8995	chronic2*medins
SCALE	1	0.17052786	0.025464			Extreme value scale p

Equation 10. Health Care Incidences in last Year by DHCP Child – Dental Visits

Lifereg Procedure

Data Set =WORK.MERG9
 Dependent Variable=Log(LOWER1)
 Dependent Variable=Log(DENTISTV) # of dentist visits
 Noncensored Values= 238 Right Censored Values= 1
 Left Censored Values= 0 Interval Censored Values= 0
 Observations with Missing Values= 185
 Observations with Zero or Negative Response= 432

Log Likelihood for WEIBULL -241.6585271

Lifereg Procedure

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
INTERCPT	1	0.0967187	1.488909	0.00422	0.9482	Intercept
MALE	1			7.237741	0.0071	
	1	0.24991958	0.092896	7.237741	0.0071	0
	0	0	0	.	.	1
WHITE	1			4.685256	0.0304	
	1	0.55998453	0.258708	4.685256	0.0304	0
	0	0	0	.	.	1
BLACK	1			8.354987	0.0038	
	1	0.77367697	0.267662	8.354987	0.0038	0
	0	0	0	.	.	1
HISPANIC	1			4.253167	0.0392	
	1	0.62144022	0.301331	4.253167	0.0392	0
	0	0	0	.	.	1
AGE	1	0.01760194	0.011428	2.372177	0.1235	
CHILD	1	0.00759372	0.058909	0.016617	0.8974	number of children
KENTREST	1			4.994851	0.0254	Kent rural
	1	-0.3571349	0.159798	4.994851	0.0254	0
	0	0	0	.	.	1
SUSREST	1			0.135108	0.7132	Sussex rural
	1	-0.0536338	0.145915	0.135108	0.7132	0
	0	0	0	.	.	1
NEWARK	1			0.067495	0.7950	
	1	-0.0542617	0.20886	0.067495	0.7950	0
	0	0	0	.	.	1
ELSEMERE	1			5.610689	0.0179	
	1	-0.5166213	0.218104	5.610689	0.0179	0
	0	0	0	.	.	1
WILM	1			0.230054	0.6315	
	1	0.10962941	0.228566	0.230054	0.6315	0
	0	0	0	.	.	1
DOVER	1			0.854876	0.3552	
	1	0.17550302	0.189816	0.854876	0.3552	0
	0	0	0	.	.	1

Variable	DF	Estimate	Std Err	ChiSquare	Pr>Chi	Label/Value
SMYRNA	1			0.225449	0.6349	
	1	-0.3107878	0.654546	0.225449	0.6349	0
	0	0	0	.	.	1
GEORGE	1			1.871812	0.1713	
	1	0.38627392	0.282335	1.871812	0.1713	0
	0	0	0	.	.	1
NCCCTY	1			3.756072	0.0526	New Castle City
	1	-0.4518376	0.233139	3.756072	0.0526	0
	0	0	0	.	.	1
CAT1	1			0.127988	0.7205	100-133 FPL
	1	-0.0443076	0.123849	0.127988	0.7205	0
	0	0	0	.	.	1
CAT2	1			0.053602	0.8169	134-166 FPL
	1	-0.0287214	0.124056	0.053602	0.8169	0
	0	0	0	.	.	1
PRIVINS	1			0.694661	0.4046	private insurance last year
	1	-0.125684	0.150797	0.694661	0.4046	0
	0	0	0	.	.	1
MEDINS	1			1.605642	0.2051	medicaid insurance last year
	1	0.18706879	0.147631	1.605642	0.2051	0
	0	0	0	.	.	1
MEDLINK	1			0.245828	0.6200	medicaid linkage
	1	0.0524099	0.105705	0.245828	0.6200	0
	0	0	0	.	.	1
CHRONIC1	1			5.351567	0.0207	one chronic disease
	1	-0.3266919	0.141221	5.351567	0.0207	0
	0	0	0	.	.	1
CHRONIC2	1			1.174066	0.2786	two chronic disease
	1	0.2951262	0.272371	1.174066	0.2786	0
	0	0	0	.	.	1
INTER4	1	-0.6661868	0.299641	4.942976	0.0262	chronic1*noinsur
INTER5	1	-0.428632	0.485562	0.779255	0.3774	chronic2*noinsur
INTER6	1	-0.2090319	0.312681	0.446912	0.5038	chronic1*medins
INTER7	1	-0.1143358	0.480947	0.056516	0.8121	chronic2*medins
SCALE	1	0.62325453	0.028745			Extreme value scale p

Equation 11. Immunization Status

The LOGISTIC Procedure

Data Set: WORK.MERG8
 Response Variable: IMMCHILD immunization
 Response Levels: 2
 Number of Observations: 585
 Link Function: Logit

Response Profile

Ordered	Value	IMMCHILD	Count
1	0	62	
2	1	523	

WARNING: 271 observation(s) were deleted due to missing values for the response or explanatory variables.

Model Fitting Information and Testing Global Null Hypothesis BETA=0

Criterion	Intercept Only	Intercept and Covariates	Chi-Square for Covariates
AIC	397.499	381.319	.
SC	401.871	473.123	.
-2 LOG L Score	395.499	339.319	56.180 with 20 DF (p=0.0001)
	.	.	53.260 with 20 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Standardized Estimate
INTERCPT	1	-4.8478	1.2581	14.8484	0.0001	.
MALE	1	0.0654	0.2960	0.0488	0.8251	0.018036
WHITE	1	2.5285	1.0453	5.8507	0.0156	0.666400
BLACK	1	1.8796	1.0818	3.0192	0.0823	0.444681
AGE	1	0.000434	0.0363	0.0001	0.9905	0.001090
CHILD	1	0.3105	0.1606	3.7367	0.0532	0.152470
KENTREST	1	-1.1937	0.5275	5.1217	0.0236	-0.245985
SUSALL	1	-1.6244	0.4834	11.2936	0.0008	-0.410429
NEWARK	1	-0.0540	0.6216	0.0076	0.9307	-0.007070
ELSEMERE	1	-0.5326	0.6165	0.7464	0.3876	-0.080656
WILM	1	-0.9918	0.6373	2.4216	0.1197	-0.159725
DOVER	1	-0.1906	0.5092	0.1401	0.7081	-0.031194
SMYRNA	1	0.1539	0.7575	0.0413	0.8390	0.013850
NCCCCTY	1	-0.0855	0.5858	0.0213	0.8840	-0.011482
CAT1	1	1.2356	0.4491	7.5703	0.0059	0.324549
CAT2	1	0.2783	0.4531	0.3773	0.5391	0.075346
PRIVINS	1	-0.0136	0.4273	0.0010	0.9747	-0.002798
MEDINS	1	-1.0627	0.5718	3.4535	0.0631	-0.212529
MEDLINK	1	-0.0737	0.3213	0.0526	0.8186	-0.019508
CHRONIC1	1	-0.00837	0.3843	0.0005	0.9826	-0.001866
CHRONIC2	1	0.2922	0.6036	0.2343	0.6284	0.038236

Analysis of Maximum Likelihood Estimates

Variable	Odds Ratio	Variable Label
INTERCPT	.	Intercept
MALE	1.068	
WHITE	12.534	
BLACK	6.551	
AGE	1.000	
CHILD	1.364	number of children
KENTREST	0.303	Kent rural
SUSALL	0.197	Sussex
NEWARK	0.947	
ELSEMERE	0.587	
WILM	0.371	
DOVER	0.826	
SMYRNA	1.166	
NCCCTY	0.918	New Castle City
CAT1	3.440	100-133 FPL
CAT2	1.321	134-166 FPL
PRIVINS	0.987	private insurance within last year
MEDINS	0.346	medicaid within last year
MEDLINK	0.929	medicaid linkage
CHRONIC1	0.992	one chronic disease
CHRONIC2	1.339	two chronic disease

Association of Predicted Probabilities and Observed Responses

Concordant = 75.3%	Somers' D = 0.513
Discordant = 24.0%	Gamma = 0.516
Tied = 0.7%	Tau-a = 0.097
(32426 pairs)	c = 0.757

Equation 12. Health Care Costs

The LOGISTIC Procedure

Data Set: WORK.MERG8
 Response Variable: MEDCOST1
 Response Levels: 4
 Number of Observations: 679
 Link Function: Logit

Response Profile

Ordered	Value	MEDCOST1	Count
	1	1	165
	2	2	241
	3	3	167
	4	4	106

WARNING: 177 observation(s) were deleted due to missing values for the response or explanatory variables.

Score Test for the Proportional Odds Assumption

Chi-Square = 88.4999 with 52 DF (p=0.0012)

Model Fitting Information and Testing Global Null Hypothesis BETA=0

Criterion	Intercept Only	Intercept and Covariates	Chi-Square for Covariates
AIC	1834.310	1738.456	.
SC	1847.872	1869.554	.
-2 LOG L	1828.310	1680.456	147.854 with 26 DF (p=0.0001)
Score	.	.	132.373 with 26 DF (p=0.0001)

Analysis of Maximum Likelihood Estimates

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Standardized Estimate
INTERCP1	1	-1.5671	0.4867	10.3677	0.0013	.
INTERCP2	1	0.2411	0.4830	0.2492	0.6176	.
INTERCP3	1	1.6930	0.4890	11.9890	0.0005	.
MALE	1	0.1994	0.1450	1.8894	0.1693	0.054979
WHITE	1	-0.7758	0.3502	4.9057	0.0268	-0.203618
BLACK	1	-0.5089	0.3751	1.8411	0.1748	-0.118644
HISPANIC	1	-0.9423	0.4439	4.5057	0.0338	-0.129324
AGE	1	0.0264	0.0170	2.4179	0.1200	0.066629
CHILD	1	0.3932	0.0882	19.8697	0.0001	0.195281
KENTREST	1	-1.0853	0.2882	14.1810	0.0002	-0.223027
SUSREST	1	-0.4753	0.2649	3.2187	0.0728	-0.116749
NEWARK	1	-0.6467	0.3674	3.0984	0.0784	-0.085947
ELSEMERE	1	-0.8341	0.3528	5.5887	0.0181	-0.120194
WILM	1	-0.7895	0.3250	5.8995	0.0151	-0.130756
DOVER	1	-0.4784	0.3123	2.3461	0.1256	-0.083690
SMYRNA	1	0.1820	0.5356	0.1154	0.7340	0.014758
GEORGE	1	-1.0199	0.4495	5.1480	0.0233	-0.101796
NCCCTY	1	-0.4855	0.3855	1.5863	0.2079	-0.060023
CAT1	1	0.2095	0.1980	1.1195	0.2900	0.055467
CAT2	1	-0.0405	0.1875	0.0468	0.8288	-0.010942
MEDINS	1	0.9156	0.2530	13.0909	0.0003	0.190123

PRIVINS	1	-0.3688	0.2506	2.1656	0.1411	-0.074423
MEDLINK	1	0.7328	0.1757	17.4011	0.0001	0.191746
CHRONIC1	1	-0.6786	0.2181	9.6787	0.0019	-0.153447

Variable	DF	Parameter Estimate	Standard Error	Wald Chi-Square	Pr > Chi-Square	Standardized Estimate
CHRONIC2	1	-1.5114	0.4079	13.7307	0.0002	-0.191671
INTER4	1	-0.0344	0.5000	0.0047	0.9451	-0.003363
INTER5	1	2.6681	0.7821	11.6368	0.0006	0.168352
INTER6	1	-0.3218	0.4726	0.4636	0.4959	-0.034691
INTER7	1	-0.2018	0.8848	0.0520	0.8196	-0.010418

Analysis of Maximum Likelihood Estimates

Variable	Odds Ratio	Variable Label
INTERCP1	.	Intercept 0
INTERCP2	.	Intercept 1
INTERCP3	.	Intercept 2
MALE	1.221	
WHITE	0.460	
BLACK	0.601	
HISPANIC	0.390	
AGE	1.027	
CHILD	1.482	number of children
KENTREST	0.338	Kent rural
SUSREST	0.622	Sussex rural
NEWARK	0.524	
ELSEMERE	0.434	
WILM	0.454	
DOVER	0.620	
SMYRNA	1.200	
GEORGE	0.361	
NCCCTY	0.615	New Castle City
CAT1	1.233	100-133 FPL
CAT2	0.960	134-166 FPL
MEDINS	2.498	medicaid within last year
PRIVINS	0.692	private insurance within last year
MEDLINK	2.081	medicaid linkage
CHRONIC1	0.507	one chronic disease
CHRONIC2	0.221	two chronic disease
INTER4	0.966	chronic1*privins
INTER5	14.412	chronic2*privins
INTER6	0.725	chronic1*medins
INTER7	0.817	chronic2*medins

Association of Predicted Probabilities and Observed Responses

Concordant = 69.0%	Somers' D = 0.385
Discordant = 30.6%	Gamma = 0.386
Tied = 0.4%	Tau-a = 0.281
(168305 pairs)	c = 0.692

Equation 13. Premium That Would Cause Participant to Drop Out of Program

Model: MODEL1

Dependent Variable: PREM1

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Prob>F
Model	23	12216.44133	531.14962	2.902	0.0001
Error	346	63322.47759	183.01294		
C Total	369	75538.91892			

Root MSE	13.52823	R-square	0.1617
Dep Mean	36.05405	Adj R-sq	0.1060
C.V.	37.52207		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	T for H0: Parameter=0	Prob > T
INTERCEP	1	25.089965	16.04266452	1.564	0.1187
MALE	1	-1.309743	2.12702142	-0.616	0.5385
AGEOLD	1	-0.685829	0.28672064	-2.392	0.0173
WHITE	1	7.539750	8.64237829	0.872	0.3836
BLACK	1	6.007118	10.25898547	0.586	0.5586
HISPANIC	1	-2.633164	11.08435585	-0.238	0.8124
CHILD	1	5.347202	1.26749549	4.219	0.0001
KENTREST	1	0.992820	7.35662638	0.135	0.8927
SUSREST	1	4.098114	8.12855632	0.504	0.6145
NEWARK	1	5.881131	8.90136337	0.661	0.5092
ELSEMERE	1	7.540565	12.10026713	0.623	0.5336
WILM	1	3.467772	10.54175155	0.329	0.7424
DOVER	1	4.323451	5.71157038	0.757	0.4496
SMYRNA	1	0.320411	6.42510633	0.050	0.9603
GEORGE	1	11.594862	6.05990604	1.913	0.0565
NCCCTY	1	1.326915	5.67384334	0.234	0.8152
CHRONIC1	1	-1.309438	1.84321032	-0.710	0.4779
CHRONIC2	1	0.050884	2.93204926	0.017	0.9862
PRIVLNK	1	1.987667	5.21075577	0.381	0.7031
MEDLNK3	1	-1.875209	10.49921830	-0.179	0.8584
MEDLNK2	1	-0.148256	3.77712187	-0.039	0.9687
MAIL1	1	0.067253	67.59058658	0.001	0.9992
CAT2	1	-0.334838	1.73985628	-0.192	0.8475
CAT3	1	3.955702	1.97938941	1.998	0.0465

<u>Variable</u>	<u>DF</u>	<u>Variable Label</u>
INTERCEP	1	Intercept
MALE	1	
AGEOLD	1	age of oldest child
WHITE	1	
BLACK	1	
HISPANIC	1	
CHILD	1	number of children
KENTREST	1	Kent rural
SUSREST	1	Sussex rural
NEWARK	1	
ELSEMERE	1	
WILM	1	
DOVER	1	
SMYRNA	1	
GEORGE	1	
NCCCTY	1	New Castle City
CHRONIC1	1	one chronic disease
CHRONIC2	1	two chronic disease
PRIVLNK	1	person in family had priv ins within last year
MEDLNK3	1	person in family had medicaid within last year
MEDLNK2	1	person in fam had med in past
MAIL1	1	Estimated Probability
CAT2	1	134-166 FPL
CAT3	1	167-200 FPL

BIBLIOGRAPHY

- Alan W. 1997. "The New children's health insurance program: Should states expand Medicaid", *New Federalism: Issues and Options for States*, The Urban Institute, Series A, No. A-13, October, pp. 1-8.
- American Academy of Pediatrics. 1998. *SCHIP (State Children's Health Insurance Program) evaluation tool*.
- Anderson, D., Sweeney, D., and Williams, T. 1994. Introduction to Statistics Concepts and Applications. Minnesota: West Publishing Co.
- Bashshur, R., Homan, R., and Smith, D. 1994. Beyond the Uninsured: Problems in Access to Care. *Medical Care* 32(5):409-419.
- Bruen, B., and Ullman F. 1998. "Children's health insurance programs: Where States are, where they are headed." *New Federalism: Issues and Options for States*, The Urban Institute, Series A, No. A-20, pp. 1-10.
- Buchanan, J. and Cretin, S. 1986. Risk Selection of Families electing HMO Membership. *Medical Care* 24(1):39-51.
- Curtis, R., Merlis, M., and Page, A. 1997. "Finding practical solutions to 'crowding out' ", *Health Affairs*, 16 (1), January/February, pp. 201-205.
- Cutler, D. and Gruber, J. 1995. Does Public Insurance Crowd Out Private Insurance? National Bureau of Economic Research Working Paper No. 5082, *Quarterly Journal of Economics*.
- Cutler, D. and Gruber, J. 1996. "The effect of Medicaid expansions on public insurance, private insurance, and redistribution ", *Journal of Health Economics*, 86 (2), May, pp. 378-383.
- Cutler, D. and Gruber, J. 1997. "Medicaid and private insurance: evidence and implications ", *Health Affairs*, 16 (1), January/February, pp. 193-200.
- Dubay, L. and Kenney, G. 1996. "The effects of Medicaid expansions on insurance coverage for children ", *The Future of Children*, 6 (1), pp. 152-161.
- Dubay, L. and Kenney, G. 1997. "Did Medicaid expansions for pregnant women crowd out private coverage? ", *Health Affairs*, 16 (1), January/February, pp. 185-193.
- Fallieras, A., O'Brien, M., Ginsburg, S., and Westfahl, A. 1997. "Examining Substitution: State strategies to limit "Crowd Out" in the era of children's health insurance expansions", Washington, D.C., U.S. Department of Health and Human Services.

- Feldstein, P. 1999. *Healthcare Economics*. New York. Wiley.
- Flint, S. 1997. "Insuring children: The next steps", *Health Affairs*, 16 (4), July/August, pp. 79-81.
- Friedman, G. 1994. Primer of Epidemiology. New York: McGraw-Hill, Inc.
- Gravelly, A. 1998. Your Guide to Survey Research Using the SAS System. SAS Institute, Inc.
- Grazier, K., Richardson, W., Martin, D., and Diehr, P. 1986. Factors Affecting Choice of Health Care Plans. *Health Services Research* 20(60):659-682.
- Holahan, J. 1997. "Crowding out: How big a problem?" *Health Affairs*, 16 (1), January/February, pp. 204-206.
- Juba, D., Lave, D. and Shaddy, J. 1980. An Analysis of the Choice of Health Benefits Plans. *Inquire* 17:62-71.
- Levy, P. and Lemeshow, S. 1991. Sampling of Populations: Methods and Applications. New York: John Wiley and Sons, Inc.
- Markus, A., Rosenblum, S., and Roby, D. 1998. *CHIP, health insurance premiums and cost sharing: Lessons from the literature*, The George Washington University Medical Center, Washington, D.C.
- McGuire, T. 1981. Price and Membership in a Prepaid Group Medical Practice. *Medical Care* 19(2):172-183.
- Murray, J. 1972. Empirical Utility and Functions and Insurance Consumption Decisions. *Journal of Risk and Insurance* 39(1):31-41.
- Neipp, J. and Zeckhauser, R. 1985. Persistence in the Choice of Health Plans. *Advances in Health Economics and Health Services Research* 6:47-72.
- Newacheck, Paul W. and Stoddard, Jeffrey J. 1994. *The Journal of Pediatrics*, January, 124(1) pp. 40-48.
- Riley, T. 1999. "How will we know if CHIP is working", *Health Affairs*, 18 (2), March/April, pp. 64-66.
- Robert Wood Johnson Foundation. 1998. "Providing family coverage through Title XXI: A few states are trying to include parents of uninsured children in new programs", *State Initiatives in Health Care Reform*, May, No. 26, 1-3, 12.

- Rovner, J. 1997. "Expanding health insurance for children: Congress passes bucks to states, *Advances: The quarterly Newsletter of The Robert Wood Johnson Foundation*, Issue 4.
- Schuttinga, J., Falik, M., and Steinwald, B. 1985. Health Plan Selection in the Federal Employees Health Benefits Program. *Journal of Health Politics, Policy and Law* 10(1):119-139.
- Selden, T., Banthin, J., and Cohen, J. 1999. "Waiting in the wing: Eligibility and enrollment in the state children's health insurance program" *Health Affairs*, March, 18(2), pp. 126-133.
- Shenkman, E. and Wegner, D. 1998. "The Florida Healthy Kids Program: Are there indications of crowd out? An update", Institute for Child Health Policy, January 15.
- Swartz, K. 1996. "Medicaid crowd out and the inverse Truman blind", *Inquiry*, 33 (Spring), pp. 5-8.
- Thomas, K. 1994-95. Are Subsidies Enough to Encourage the Uninsured to Purchase Health Insurance? An Analysis of Underlying Behavior. *Inquiry* 31(4):415-424.
- Thorpe, K. 1997. "Incremental approaches to covering uninsured children: Design and policy issues", *Health Affairs*, 16 (4), July/August pp. 64-78.
- Weinick, R. and Monheit, A. 1999. "Children's health insurance Coverage and family structure, 1977-1996", *Medical Care Research and Review*, 56 (1), March, pp.55-73.
- Welch, W. and Frank, R. 1986. The Predictions of HMO Enrollee Populations: Results from a National Sample. *Inquiry* 23:16-22.
- Wheatley, B., and Sherman, M. 1998. "State children's coverage programs: existing structures and proposed expansions", *State Initiatives in Health Care Reform*, No. 12, March, 1-18.
- Yazic I., and Kaestner, R. 1998. "Medicaid Expansions and the Crowding Out of Private Insurance", National Bureau of Economic Research, Working Paper 6527, April.
- Carolyn W. Madden, Allen Cheadle, Paula Diehr, Diane P. Martin, Donald L. Patrick, and Susan M. Skillman, Voluntary Public Health Insurance for Low-Income Families: The Decision To Enroll, *Journal of Health Politics, Policy, and Law*, vol 20, no. 4 Winter 1995, p. 955-972

Present and Future research

1. need survey of individuals at and under 200% to determine insurance and ask jobs and how long no insurance, etc. how many children, how coverage changes during the year.
2. Examine the New entrants for Medicaid history. Watch interaction and divorce
3. Better data from DCIS.
4. Two surveys with a year to evaluate target

¹ A complete listing of the state requirements are in Section 2107: Strategic Objectives and Performance Goals; Plan Administration of Public Law 105-33. As part of the provisions of Public Law 105-33, each state with an approved Child Health Plan must submit a program evaluation to the HCFA secretary by March 31, 2000. As per provision 2, Section 2018 Annual Reports; Evaluations, the state must report on:

- The effectiveness in increasing the number with creditable coverage.
- The effectiveness of other element d of the State’s plan to include the characteristics of the children served, quality of services, amount of and level of assistance, service area, time limits coverage and other sources of non-Federal funding.
- The effectiveness of other public and private programs in increasing the availability of affordable quality healthcare coverage.
- The State’s coordination between other public and private programs for children.
- An analysis of the changes and the trends that affect affordable, accessible coverage for children.
- The State’s plans for improving the availability of children’s coverage.
- Recommendations for improving the State’s program.
- Other matters the State and Secretary deem appropriate.

² An additional \$4 billion was allocated for other specific Medicaid initiatives.

³ The FPL for a family of four with two children is approximately \$32,552 in annual income.

⁴ This encompasses EPSDT—Early Periodic Screening, Diagnosis, and Treatment which includes comprehensive preventive and well-child care and all treatment that are medically necessary as follow-up to the care, and the full complement of long-term care services to the small portion of children who need them.

⁵ One major implication of this perspective is that research is needed to determine how and the extent to which economic and financial forces influence the family and child insurance coverage. In this way the impact of DHCP on the reduction of private insurance can be appropriately assessed and how well the DHCP achieve its target can be judged.

⁶ For a description of chi-square statistic and interdependency of two or more variables, see Anderson, Sweeney and Williams (1994).

⁷ Differences and reasons for enrollment and non-enrollment among eligible clients was another issue to be examined, but the follow-up survey yielded insufficient cases required for analysis.

⁸ American Academy of Pediatrics, *State Children’s Health Insurance Program Evaluation Tool*, October 1998

⁹ Agency for Healthcare Research and Quality, (until 2000 formerly known as Agency for Health Care Policy and Research), *Consumer Assessment Of Health Plans CAHPS*, Rockville, MD, 1998.

¹⁰ The formula for sample size is from Anderson, Sweeney and Williams, page 775. This formula assume no

difference in the cost of data collection from various strata.

$$n = \frac{H \left(\sum_{h=1}^H N_h P_h (1 - P_h) \right)^2}{N^2 (B^2/4) + \sum_{h=1}^H N_h P_h (1 - P_h)}$$

¹¹ The Formula employed for the sample size of the strata was from Anderson, Sweeney and Williams, page 774.

$$n_h = n \frac{N_h S_h}{$$

$$\left(\sum_{h=1}^H N_h S_h \right)$$

¹² The independent variables employed in the models have been limited by the unavailability of some data from DCIS II and the Medicaid Management Information System.

¹³ The independent variables employed in the models have been limited by the unavailability of some data from DCIS II and the Medicaid Management Information System.

¹⁴ These models are estimated with the maximum likelihood estimator (MLE) since all the units of analysis are individual-level data,--i.e., either individual parent/guardian of a family, or each (child) eligible.

¹⁵ An estimated coefficient initially produces a probability estimate that must be transformed into odds ratio.

¹⁶ This phenomenon is referred to as the moral hazard insurance.

¹⁷ The estimates were \$100 for less than \$200, \$350 for \$200 to \$500, \$750 for \$501 to \$1,000, and \$1,000 for greater than \$1,000.

¹⁸ The types of service utilization proved to be collinear with the chronic illness variables. This result is consistent with findings regarding the determinants of medical care utilization (as a dependent variable) in which chronic illness found to be highly related to the amount of medical care. Therefore the equation was re-estimated without service utilization.

¹⁹ This research approach is referred to as a contingent valuation.

²⁰ The type of survey measured by the variable "MAIL" was placed in the equation and was statistically significant with a positive sign. This finding means that applicants who answered mail questionnaires were willing to pay a higher DHCP premium than applicants who were surveyed on the telephone. The findings is indicative of a "sampling" or "self-selection" bias which could cause some or all of the regression coefficients to be biased. This potential bias was corrected or surveyed by undertaking on instrumental variable technique.

²¹ A very similar result was found for the combined category of school responses with other information sources. Besides age, the number of eligible children in a family was positively associated with these combined information sources. Applicants with more (eligible) children were more likely to have heard about the DHCP through many information sources, which includes school compared to other categories of information sources.

²² A very similar result was found for the combined category of social worker responses with other information sources. Only Medicaid insurance and Medicaid linkage were statistically significant.