Ohio Family Health Survey

Profile of Children with Special Health Care Needs in Ohio

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About the Ohio Family Health Survey

With more than 51,000 households interviewed, the Ohio Family Health Survey is one of the largest and most comprehensive state-level health and insurance surveys conducted in the country. The project was managed by The Ohio State University's Ohio Colleges of Medicine Government Resource Center, and the Health Policy Institute of Ohio and the survey was conducted by Macro International. The Ohio Departments of Insurance, Job and Family Services, Health, and Mental Health, the Cleveland State University, and the Ohio Board of Regents funded the project. This current project is the third in a series of statewide health surveys, following family health surveys in 1998 and 2004.

Ohio Family Health Survey Web site (all sponsored research reports are available for download here):

http://grc.osu.edu/ofhs

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I. ABSTRACT

Children with special health care needs (CSHCN) constitute a vulnerable subpopulation with elevated needs and complicated utilization of health care services. Based on analysis of the 2008 Ohio Family Health Survey (OFHS) an estimated 570,000 children have special health care needs, representing 20.9% of all children aged 0-17 in Ohio. This report addresses three aims in attempting to understand the health care needs and problems CSHCN encounter; the first is to present a profile of who these children are; secondly, what kinds of problems and barriers do they encounter when interacting with the health care system, and finally to determine the magnitude of these problems in comparison to children without special health care needs.

The findings demonstrate that compared to children without special health care needs, CSHCN have difficulty accessing a required level of professional help to align care and referrals among different health care providers and services, have higher unmet needs, and incur more impediments to health care access in general. Families with CSHCN face higher major medical costs than families who do not have a child with special health care needs. Lack of health insurance and poorer health status are associated with greater levels of unmet needs and health care access.

II. INTRODUCTION

The Maternal and Child Health Bureau (MCHB) define children with special health care needs (CSHCN) as "those who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally."[1]

CSHCN encounter numerous health care problems. These include, but are not limited to, lack of professional help aligning care and referrals, unmet needs, high medical costs, and impediments to health care access in general. Families with CSHCN have greater difficulty paying for medical care than families who do not have a child with special health care needs, regardless of health insurance coverage. Using data from the 2008 Ohio Family Health Survey (OFHS) this study profiles CSHCN and presents information on the current health care problems faced by these children across various regions of Ohio. A determination if these problems are being favorably addressed or becoming more exasperated is demonstrated by comparing current results with those from analysis of the 2004 OFHS.

CSHCN access the health care system through a myriad of entry points and treatment often involves an elevated and complex use of services and resources. As such, CSHCN have an increased opportunity to have unmet needs on a more frequent basis. Unmet need for health care is a key indicator of a health care access failure. CSHCN have over twice the prevalence of unmet needs than children who do not have special health care needs.[2] Achieving coordination of care for all CSHCN is one of the core goals of Healthy People 2010. The coordination of care for CSHCN is often challenging but when done well is instrumental for achieving desirable health care outcomes and lowering the incidence of unmet needs. It has also been shown that coordination of care can produce significant cost savings across service and resource use.[3]

Based on a national sample of children aged 0-17 years from the 2000 Medical Expenditure Panel Survey (MEPS) CSHCN accounted for 42.1% of the total health care expenditures in this age category (not including dental costs). Families with CSHCN were two and a half times more likely to have spent more than $1,000 out of pocket in health care expenditures than families who did not have a child requiring special health care needs.[4]

There are a number of factors that predispose (e.g. age, gender, race/ethnicity) and enable (e.g. insurance coverage, usual source of care) access to needed and adequate health care. Along with the nature and severity of the illness or condition, these factors determine what level of health care access a child receives. Much of the academic research studying health care access for CSHCN focuses on the child's level of health care insurance.[5]

Results from the National Survey of Children with Special Health Care Needs (NS-CSHCN) in 2005-06 for Ohio CSHCN shows that the level of severity of the special health care need and insurance coverage are the most important factors in determining

the amount of care required and obtained. Even 32% of those with insurance coverage indicate that the coverage is inadequate with high out-of-pocket costs and benefits that do not meet the needs of the child's health care.[6]

To build upon knowledge of Ohioan CSHCN from the NS-CSHCN and the 2004 OFHS, this study's aims are to produce a current profile of underlying factors, and the problems and barriers to health care this vulnerable population faces. As such, and recognizing that this timely information will enable action-driven policy to benefit health care outcomes for Ohio's CSHCN, three specific aims are addressed:

i) Present 2008 OFHS prevalence rates for CSHCN status by predisposing, need, and enabling factors for health care access, overall and by geographic region.

ii) Present 2008 OFHS prevalence rates for CSHCN focusing on health care problems, including barriers to obtaining professional help to align care and referrals, unmet needs, and access to health care in general, and major medical costs, as well as determine if the prevalence of these issues has changed since 2004, overall and by geographic region.

iii) Determine the extent to which CSHCN encounter the problems presented in Aim 2 differentially compared to children without special health care needs after adjusting for health care insurance status and other health care access predisposing, need, and enabling variables, as well as geographic region.

III. METHODOLOGY

Data Source

Data from the 2008 Ohio Family Health Survey (OFHS) is used to generate findings in this report. OFHS is a statewide, random digit dial telephone survey of over 50,000 Ohio residents. OFHS used a stratified, list-assisted sampling frame that sampled respondents using random digit dialing computer assisted telephone interviewing (CATI) methods. The sample was stratified by county with several additional samples. The six largest metropolitan counties were sub-sampled to ensure greater representation of African Americans. Additional targeted supplemental samples were drawn to ensure good representation of Asian and Hispanic residents. Finally, a separate cell phone sample ensured good representation of younger people more often reached via cell phones. A detailed description of the survey methodology can be found in the 2008 OFHS Methodological Report.[7]

Constructed Variables

Children have been categorized as having a special health care need if they meet one or more of 5 criteria using the CSHCN Screener®. The screener was developed to create a standardized valid measure to identify CSHCN and the criteria for inclusion are summarized in the box below.[8,9]

Not all children who "screen in" have the same level of health care needs and thus are not equally likely to face the same level of problems and barriers obtaining health care. Recently, researchers have developed a way to assign CSHCN by level of complexity, or severity, of health care needs.[10] Figure 1 summarizes the 4 sub-types of CSHCN in order of complexity as those requiring only prescription medications, only elevated utilization of services, requiring both prescription medications and elevated utilization of services, and those with functional limitations.

CSHCN Screener

PART 1:

Question 1: Child needs or uses medication prescribed by a doctor (other than vitamins)?

Question 2: Child needs or uses more medical care, mental health or educational services than typical for most children of the same age?

Question 3: Child experiences functional or activity limitations not typical for others of same age?

Question 4: Child needs or uses specialized therapies (OT, PT, speech, etc.)?

Question 5: Child has on-going emotional, developmental or behavioral problems that require treatment or counseling?

PART 2:

If YES to a Part 1 question, ask the following:

Is this because of ANY medical, behavioral or other health condition?

PART 3:

If YES to a Part 2 question, ask the following:

Is this a condition that has lasted or is expected to last for at least 12 months?

Responses of YES to all three parts of a screener question (or in the case of question 5, just parts 1 and 3) are required for a child to qualify as having special health care needs.

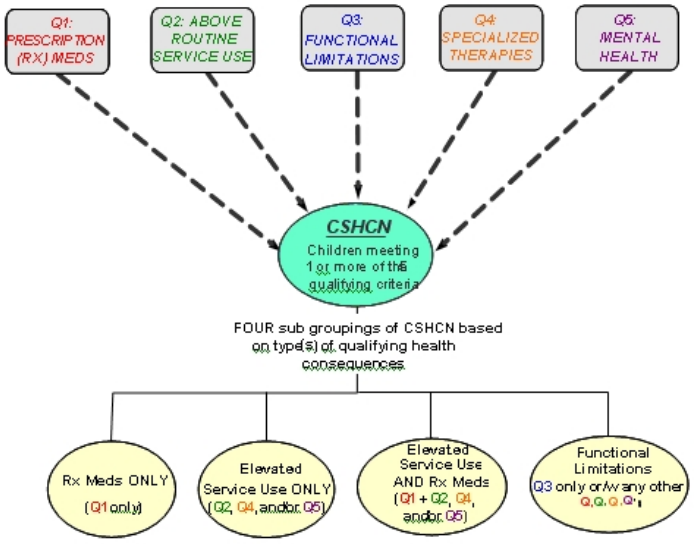

Figure 1: Four mutually exclusive sub-groupings of CSHCN based on types of qualifying CSHCN Screener criteria

This report also incorporates constructed variables for full-year insurance coverage and a usual source of sick care that does not include the emergency room. A complete list of constructed variables along with the algorithms used to create them is contained in Appendix A. Parent's marital status referenced in this report represents respondent's marital status which includes step-parents, grandparents, and other members of the extended family, or legal guardian/foster parent. More than 87% of responses for the child were given by the mother, father, step-mother, or step-father and less than 1% of responses were obtained from a non-family member.

Statistical Analysis

The 2008 and 2004 OFHS data are analyzed using statistical procedures contained in SAS 9.1.3 that account for the population weighting scheme and stratification. All numbers cited in the body of the report that are not in tables or figures can be found in Appendix B. Significant differences between CSHCN and non-CSHCN subpopulations for 2004 and 2008 are made on the basis of a chi-square test of association using a significance level of $\alpha = 0.05$. Differences across survey year are concluded by non-overlapping 95% confidence intervals. Multivariable logistic regression models will be used to determine statistical differences across CSHCN and non-CSHCN subpopulations as well as significant variables associated with problems and barriers to health care for CSHCN.

Comparison of Results with NS-CSHCN

In a recent publication using data from the National Survey of Children with Special Health Care Needs (NS-CSHCN) it was noted that the prevalence of Ohioan CSHCN was 16.2% in 2005-2006.[6] Results from the 2008 OFHS, to be discussed herein, will present a prevalence rate of Ohioan CSHCN at 20.9% in 2008, a small decrease from the 2004 OFHS prevalence rate of 21.7%. Differences between OFHS and NS-CSHCN prevalence rates are due to survey methodology. OFHS and NS-CSHCN subjects are selected from the household differently and the wording of the survey introductions to potential participants (including the varying time to complete the different surveys) is also different. In addition, when there are multiple children in a household, NS-CSHCN asks the screener questions targeting all children in the household and for positive responses, asks which child is affected. Simultaneous screening has been shown to lower the reported prevalence rates for chronic conditions in adults and a similar reason is postulated for CSHCN prevalence to be lower in NS-CSHCN compared to the Nation Survey for Children's Health (NSCH) and the Medical Expenditure Panel Survey, other surveys using the CSHCN screener to determine CSHCN prevalence rate.[11] Even when sample survey design is identical there are other issues to take into account when making individual question comparisons such as where questions are placed in the survey and are the questions worded identically.

IV. FINDINGS

Overview

The conceptual design depicted in Figure 2 outlines the motivation of this study and employs a health behavior model developed by Anderson and Aday to hypothesize differences in predisposing, need, and enabling factors for health services utilization between CSHCN and non-CSHCN. Predisposing factors comprise demographic and social structure characteristics that affect the level of health care utilization. Need factors are determined by a parent's perceived health need for their child, the child's health status, chronic conditions, and limitations in performing activities other children of a similar age can perform. Enabling factors are personal, structural, and physical resources that facilitate health care access. The need for health care and the enabling factors to gain access to health care can also driven by a child's predisposing factors. Altogether, this dynamic system of inter-related factors determines the level of health care that is likely to be required.

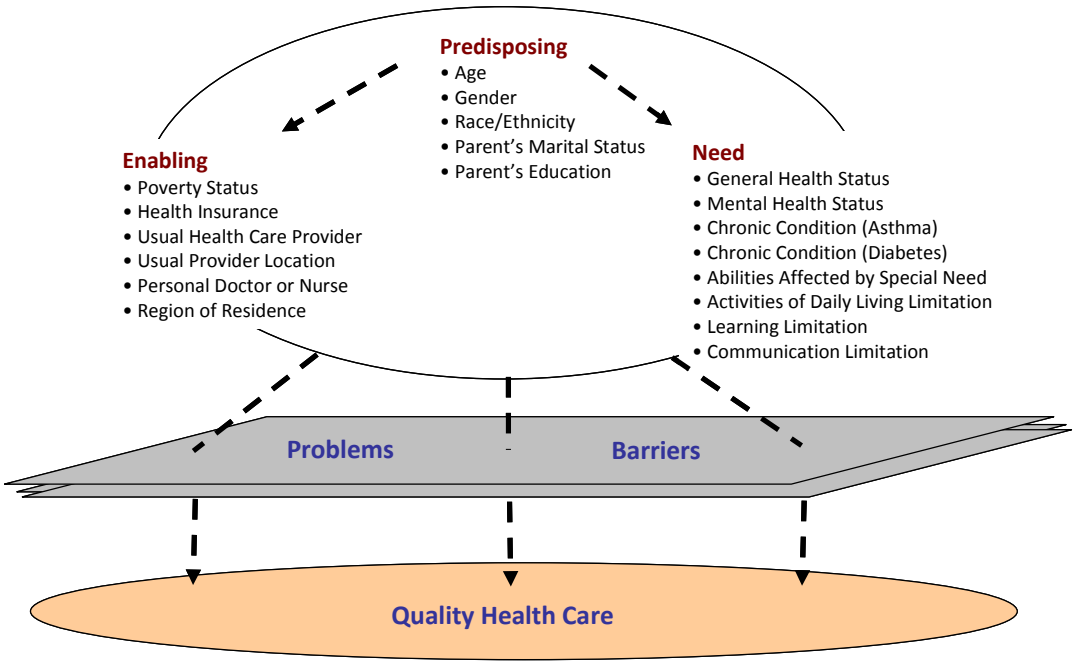

Figure 2. Factors (predisposing, need, enabling) influencing health care need and health care received

Children with the least complex health care needs face fewer opportunities at encountering problems or barriers to getting needed care. For other children with more serious conditions, the breadth and scope of health care services required present numerous layers of opportunity for problems and barriers to impinge on receiving quality health care.

Undoubtedly the need factors for CSHCN are higher than non-CSHCN but to what extent these needs are met are also driven by differences across predisposing and enabling factors.

This section will present a demographic profile (predisposing factors) of CSHCN in Ohio and will be followed by a summary of health status indicators (need factors) and a description of the facilitators (enabling factors) for health care access. When possible (i.e. category cells contain sufficient numbers to present stable prevalence rates) CSHCN will be profiled on the basis of the type of qualifying special need (i.e. level of complexity). Next, problems and barriers to health care for CSHCN will be explored. These will include difficulty obtaining professional help to align care and referrals, unmet needs, and health care access. Finally, multivariable logistic regression statistical models will used to produce adjusted odds ratios to conclude differences in problems and barriers to health care across CSHCN and non-CSHCN. Another series of multivariable models including only CSHCN will determine which predisposing, need, and enabling factors are associated with problems and barriers to health care for this subpopulation.

What do CSHCN look like in Ohio?

An estimated 570,913 Ohioan children (20.9%) under the age of 18 had at least one special health care need in 2008 (71.7% of children did not have a special health care need and the status for 7.5% is unknown). Most children who “screen in” with special needs do so after commencing grade school, hence a disproportionate number of CSHCN are in older age categories (43.5% age 6-12, 39.3% age 13-17) and tend to be more male (58.8%) compared to children without special health care needs. Black children are disproportionately represented as having a special health care need with 16.2% “screening in” compared to non-CSHCN where Black children represent 13.6% of this population (table 1).

CSHCN are more likely to reside in a household with a divorced or separated parent (19.8%) than non-CSHCN (14.1%). More than 60% of all parents surveyed in Ohio have at least some college education and there is no difference if they are caring for a CSHCN or not. However, the level of college education differs as 32.8% of parents who are not caring for a CSHCN have completed a 4-year college degree compared to 27.1% of parents who have a child with SHCN.

Table 1. Predisposing factors for CSHCN and non-CSHCN by category (weighted n, category %)

Predisposing Variable [a]	Category	CSHCN		non-CSHCN	
		570,913 (20.9%)		1,957,952 (71.7%)	
		n	%	n	%
Age	0-5	98,126	17.2	660,158	33.7
	6-12	248,137	43.5	723,707	37.0
	13-17	224,650	39.3	574,088	29.3
Gender	Male	331,737	58.8	951,142	49.1
	Female	232,387	41.2	985,390	50.9
Race / Ethnicity	White	431,716	78.4	1,530,416	80.5
	Black	89,128	16.2	258,938	13.6
	Hispanic	20,883	3.8	69,668	3.7
	Other	8,867	1.6	42,647	2.2
Parent's Martial Status	Single	83,665	14.7	252,239	12.9
	Married	360,488	63.2	1,381,511	70.6
	Divorced/Separated	112,661	19.8	275,633	14.1
	Widowed	13,192	2.3	46,206	2.4
Parent's Highest Level of Educations	Less than High School	47,051	8.2	137,110	7.0
	High School or Equivalent	173,364	30.4	596,392	30.5
	Some College	111,458	19.5	311,403	15.9
	Associates Degree	84,552	14.8	269,896	13.8
	4-year College Degree	154,487	27.1	643,151	32.8

[a] CSHCN and non-CSHCN are statistically different across all categories presented in this table ($p < 0.05$)

Overall, the subpopulation of CSHCN in Ohio is comprised of an increasing gradient of complexity of special need categories where 162,204 (29.5%) require prescription medications only (the least complex category), 87,776 (16.0%) require services only, 147,518 (26.8%) require a combination of prescription medications and services, and 151,949 (27.7%) have functional limitations requiring the most complex level of health care. There is variation in the prevalence of the level of complexity depending on child characteristics (figure 3). Age is a key predisposing factor for health behavior. Children's medical utilization, the types of services required, and more broadly, educational requirements, social networks, and insurance status, are all influenced by age. Older CSHCN require much more prescription drugs and services in combination (30.8%) than younger CSHCN (17.4%). More than 5% fewer CSHCN have functional limitations during the ages of 13–17 as do between 0–5 years of age.

Compared to white CSHCN, 10% more Hispanic children require services only, but 10% fewer qualify as a child with SHCN by receiving both health care services and prescription medications.

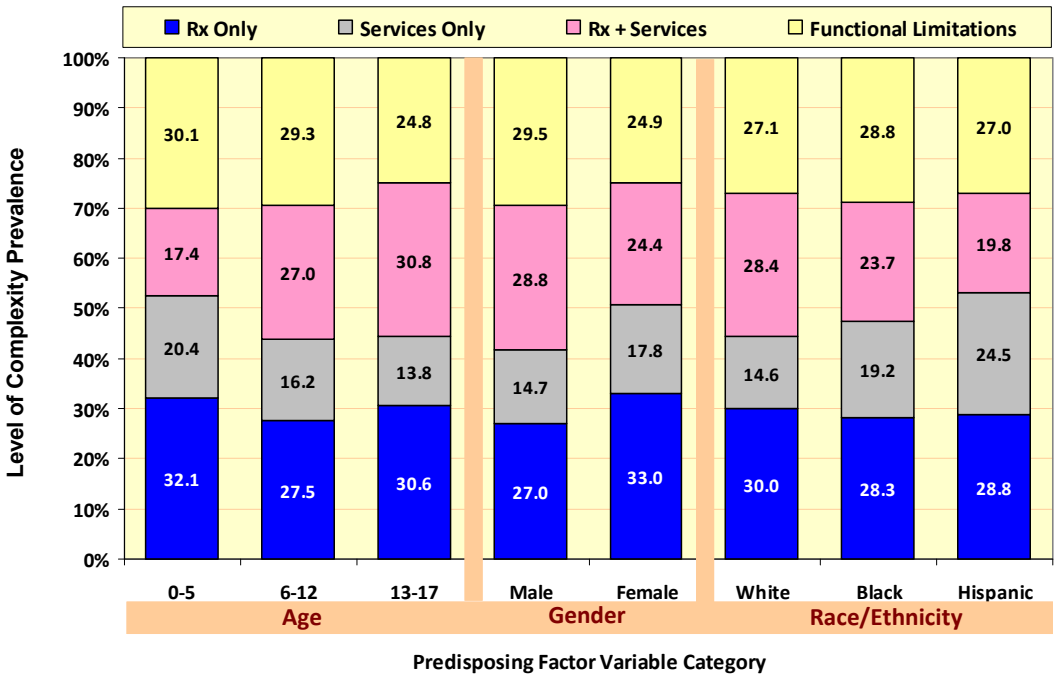

Figure 3. CSHCN predisposing factor categories by level of complexity of special needs (%)

What kind of health care needs do CSHCN have?

CSHCN have poorer health and mental health care status than non-CSHCN (table 2). Only 62.3% of CSHCN have a health status rating of very good or excellent compared to 90.9% for non-CSHCN. Even fewer CSHCN (57.8%) have a very good or excellent mental health status rating compared to non-CSHCN (88.8%). Over one-third of all CSHCN "screen in" as having at least asthma as a chronic condition. Approximately 4 out of 10 who have asthma have a moderate or severe form.

Table 2. Health status and asthma for CSHCN and non-CSHCN (weighted n, category %)

Need Variable [a]	Category	CSHCN 570,913 (20.9%) n	CSHCN %	non-CSHCN 1,957,952 (71.7%) n	non-CSHCN %
General Health Status	Excellent/Very Good	355,155	62.3	1,777,958	90.9
	Good	144,516	25.3	159,974	8.2
	Fair/Poor	70,591	12.4	19,003	1.0
Mental Health Status	Excellent/Very Good	284,794	57.8	1,249,584	88.8
	Good	129,216	26.2	141,971	10.1
	Fair/Poor	78,805	16.0	16,303	1.2
Asthma	No	383,436	67.6	1,862,434	95.6
	Yes	183,396	32.3	86,298	4.4

[a] CSHCN and non-CSHCN are statistically different across all variable categories presented in this table ($p < 0.05$)

Within the subpopulation of CSHCN, the disparity between excellent or very good and fair or poor health status ratings increases as the level of complexity of special need increases. More than 6 out of 10 CSHCN who have a health care status of fair or poor have functional limitations (figure 4). The increase in the proportion of CSHCN with functional limitations also increases as mental health status rating declines.

Approximately 40% of CSHCN with asthma rely on only prescriptions medications for treatment. For CSHCN without asthma there is only a 6% difference in those with a qualifying special need requiring services only (21.3%) and those with functional limitations (27.3%).

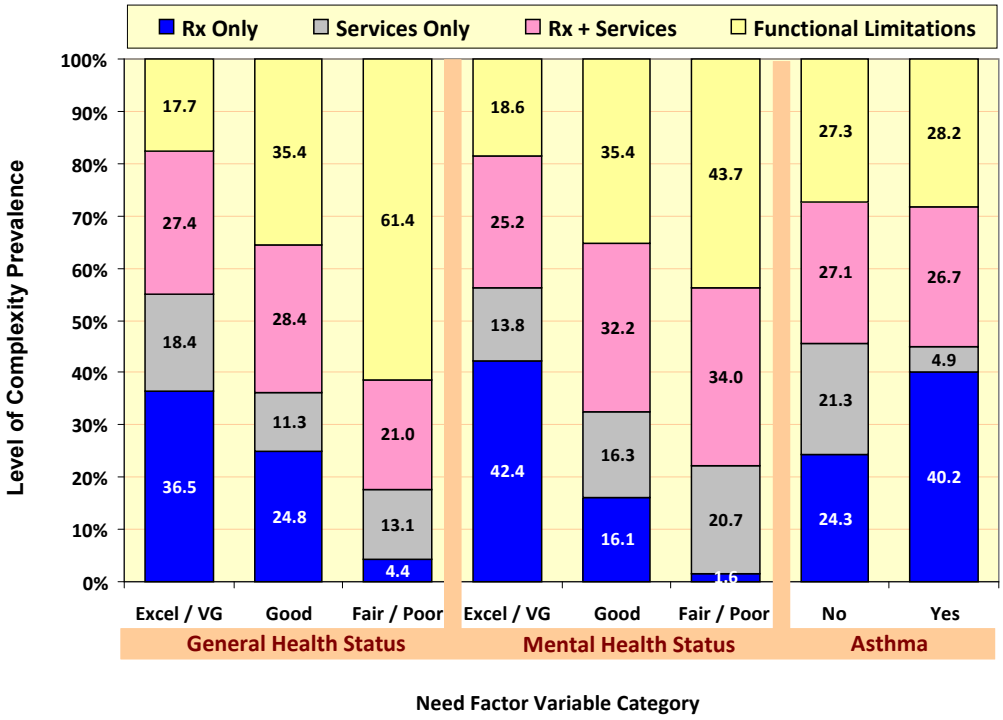

Figure 4. CSHCN need factor categories by level of complexity of special needs (%)

Compared to non-CSHCN of the same age, more than 6 out of 10 CSHCN (61.6%) have special needs that sometimes, usually, or always affect their ability to perform routine activities (table 3). Of these, 61.4% have problems learning, understanding, or paying attention and 31.3% have difficulty speaking, communicating, or being understood. The majority of the CSHCN listing these problems have functional limitations.

Table 3. Abilities affected by special need for CSHCN (weighted n, %) by type of qualifying special need (row %)

				Type of Qualifying Special Need			
		CSHCN		Rx Only	Services Only	Rx and Services	Functional Limitations
		570,913		162,204	87,776	147,518	151,949
		100%		29.5%	16.0%	26.8%	27.7%
Need Variable	**Category**	n	%	%	%	%	%
Special Need Affects Child's Abilities	Never	217,919	38.4	54.2	17.6	26.3	1.8
	At least sometimes	350,229	61.6	14.1	15.0	27.2	43.7
Affected Ability							
Activities of Daily Living *		51,171	16.0	--	--	12.0	75.7
Learning, Understanding *		195,917	61.4	4.7	15.4	28.9	51.0
Communicating, Speaking *		99,595	31.3	--	14.5	17.0	66.3

* Only those with special need that at least sometimes affects abilities responding.

-- Too few in category with type of qualifying special need to produce stable estimate.

What facilitates CSHCN ability to access health care?

The primary factor enabling children to access the health care system is insurance coverage. For CSHCN who need to access the health care system more often and more broadly, using a myriad of different services -- having continuous and adequate insurance coverage is even more important.[5,12,13] What type of insurance a child is likely to be covered by is primarily determined by the income of the household the child lives in. In Ohio, children who reside in households with incomes ≤200% the federal poverty level (FPL -- $36,600 for a family of 3 in 2009) are eligible for Medicaid coverage through a number of programs. In general, children living within households with an income greater than 200% FPL do not have access to public insurance coverage and families must obtain insurance through job-based options or purchase it individually. There are two ways to present insurance coverage, one is the proportion of children uninsured compared to those with Medicaid and job-based insurance coverage at the time of the survey interview, and the other is to construct a full-year coverage variable (table 4).

In general, CSHCN reside in families with lower poverty status than non-CSHCN. More than one-half of CSHCN live in a household earning 200% FPL or less. At the time the survey interview was conducted, 2.9% of CSHCN did not have health insurance coverage compared to CSHCN with Medicaid and job-based insurance coverage. In the 12 months prior to the survey interview 1.4% were uninsured for the whole year and another 4.8% only had insurance coverage for part of the preceding year for a total of 6.2% who were uninsured during some period during the preceding 12 months.

Table 4. Enabling Factors for Health Care Access by Categorizations of Special Need (n, %)

Enabling Variable [a]	Category	CSHCN 570,913 (20.9%) n	CSHCN %	non-CSHCN 1,957,952 (71.7%) n	non-CSHCN %
Poverty (% FPL)	≤ 200	296,373	51.9	832,141	42.5
	200-300	83,717	14.7	361,152	18.4
	> 300	190,823	33.4	764,658	39.1
Insured at time of survey	Uninsured *	16,700	2.9	89,352	4.5
	Medicaid	260,682	45.3	610,097	30.9
	Job-Based	270,173	47.0	1,163,284	59.0
Insured for full-year	Uninsured **	35,173	6.2	156,998	8.0
	Public	251,485	44.2	572,962	29.3
	Private	282854	49.7	1224817	62.7

[a] CSHCN and non-CSHCN are statitically different across all variable categories presented in this table ($p < 0.05$)

* Does not include private-purchased or unknown insurance type categories.

** Uninsured category includes uninsured (≤200% FPL), uninsured (>200% FPL), and insured part of year.

Figure 5 shows that regardless of how insurance status is presented roughly 35% of CSHCN with public insurance coverage have functional limitations. The highest type of qualifying special need representative of CSHCN with private insurance is those with the least complex conditions that are treated with prescriptions medications alone. Approximately 1 in 4 uninsured CSHCN have functional limitations.

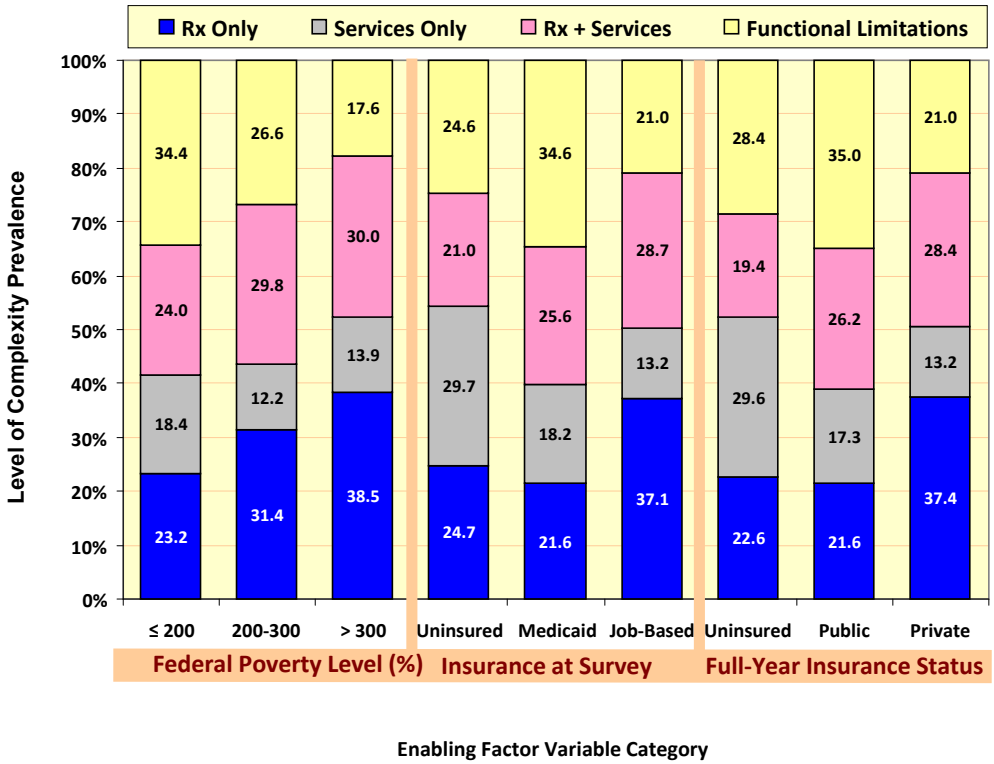

Figure 5. CSHCN enabling factor variable categories by level of complexity of special needs (%)

Another key enabler to be able to access the health care system is having a usual health care provider for sick care. Over 95% of CSHCN seeks health care or advice from a person at a doctor's office, hospital outpatient department, clinic, or health center (table 5). The main reasons cited for not having a usual source of sick care was the child did not have insurance and the child seldom or never gets sick. Almost 93% of CSHCN have one or more persons that can be considered a personal doctor or nurse. The vast majority of CSHCN list the usual provider location as a doctor's office (77.3%). More than half of those who used the emergency room as the usual provider location cited it as the best place to get care for the child's condition or that it was convenient and didn't require an appointment.

Table 5. Usual Source of Care Access by Categorizations of Special Need (n, %)

		CSHCN		non-CSHCN	
Enabling		570,913 (20.9%)		1,957,952 (71.7%)	
Variable	Category	n	%	n	%
Usual Health Care Provider	Yes	532,478	95.2	1,825,765	95.5
	No	26,677	4.8	85,895	4.5
Personal Doctor or Nurse [a]	Yes	517,988	92.9	1,711,033	90.3
	No	39,824	7.1	184,350	9.7
Usual Provider Location [a]	Doctor's Office	426,473	77.3	1,542,906	82.4
	Hospital ER	21,727	3.9	52,583	2.8
	Hospital Outpatient	23,368	4.2	47,104	2.5
	Clinic	76,668	13.9	216,240	11.5
	Other	3,731	0.7	13,446	0.7

[a] CSHCN and non-CSHCN are statitically different across variable categories ($p < 0.05$)

What are the major problems or barriers associated with receiving needed care?

Professional Help Aligning Care and Referrals

Coordination of care involves organizing referrals and access to services, information sharing across health care professional, service providers and the family, and refining the treatment plan to ensure maximized outcome and resource use.[14] Policy makers and experts agree that the provision of coordination of care for CSHCN is important in providing quality health care, especially to those with complex conditions.[3] Due to a combination of factors, CSHCN experience problems with health care access at higher rates than non-CSHCN. These children have a need for care coordination between primary and specialist providers and accessing specialized treatments, therapies and medical equipment. The question posed in the OFHS survey does not encompass the full spectrum of coordination of care and to avoid an unfair apple-to-orange comparison with other CSHCN survey results (e.g. NS-CSHCN) has been designated as requiring professional help aligning care and referrals.

Almost 3 out of 10 CSHCN (28.1%) need professional help aligning care and referrals and 76.0% indicate that they usually or always receive the help (figure 6).

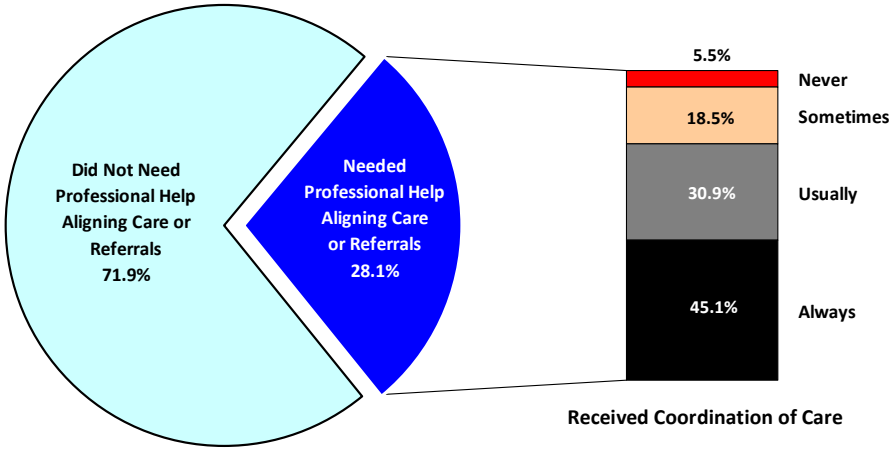

Figure 6. Percentage of CSHCN Receiving Needed Professional Help Aligning Care and Referrals

Only 71.9% of CSHCN with full-year public insurance coverage who need professional help aligning care and referrals usually of always receive it compared to 82.6% if the child had full-year private coverage (table 6). It is expected that the level of problems receiving coordination of care will increase as the level of complexity of special needs increases.

Table 6. Level of Needed Professional Help Received to Align Care and Referrals by Insurance Status and Level of Complexity of Special Need (weighted n, %)

		Needed Professional Help Aligning Care or Referrals		Always or Usually Received Help	
		155,885 (21.8%)		118,112 (76.0%)	
Variable	**Category**	n	%	n	%
Insured for Full-Year	**Uninsured ***	9,609	6.2	5,313	55.3
	Public	72,219	46.6	51,524	71.9
	Private	73,036	47.2	60,340	82.6
Level of Complexity	**Rx Only**	23,684	15.6	18,636	78.7
	Services Only	26,601	17.5	20,343	76.5
	Rx + Services	42,329	27.9	32,666	77.4
	Functional Limitations	59,299	39.0	43,230	73.3

* Uninsured category includes uninsured (≤ 200 FPL), uninsured (> 200% FPL), and insured part of year.

Unmet Needs and Health Care Access Barriers

An unmet need for health care is an undesirable outcome for CSHCN and an indication of health system failure (i.e. lack of insurance, limited access to providers, major

medical costs). Unmet needs also have a negative effect in potentially exacerbating already sensitive chronic conditions.[5] Table 7 presents a comparison of the level of unmet needs and health care access barriers between CSHCN and non-CSHCN.

Table 7. CSHCN and Non-CSHCN Experiencing Unmet Needs and Health Care Access Barriers (weighted n, %)

	CSHCN		non-CSHCN	
	570,913 (20.9%)		1,957,952 (71.7%)	
Unmet Need / Health Care Access Barrier	n	%	n	%
Dental Care	44,229	7.8	69,898	3.6
Prescription Drug	40,416	7.2	36,174	1.9
Medical Exam	9,900	1.8	15,757	0.8
Health Care of Any Kind	36,493	6.5	37,718	2.0
Incurred Major Medical Costs	153,428	26.9	228,504	11.7
Delayed or Avoided Getting Care Due to Cost	46,902	8.2	73,975	3.8
Problems Getting Health Care in General	53,268	9.4	43,759	2.2
Big Problem Seeing a Needed Specialist *	26,240	8.1	17,073	4.4

* Percentage represents those that needed to see a specialist and not overall.

CSHCN have a need for proper dental health care at an early age.[15] Almost 1 out of 10 (7.8%) CSHCN needed dental care but could not get it. The main barriers cited for the inability to access needed dental care include cost (31.2%), lack of insurance (31.0%), and a difficulty getting an appointment (16.8%). More than 3 out of 4 CSHCN (76.6%) had seen a dentist in the previous 12 months.

The inability to acquire necessary prescription drugs due to cost affected 7.2% of the CSHCN population. Fewer than two percent of CSHCN have problems getting needed medical exams, medical supplies, mental health care (including counseling), and eyeglasses or vision care. Overall, 6.5% of CSHCN had an unmet need attempting to obtain at least one aspect of health care or service. The main reasons for the inability to obtain medical care or services include cost (44.8%) and lack of insurance (40.4%).

Another very important problem or barrier obtaining health care is related to cost. More than 1 in 4 families (26.9%) with a CSHCN incurred major medical costs in the 12 months prior to the survey interview. Almost 1 in 10 families (8.2%) indicate that they delayed getting health care for their child due to cost. This is almost the same percentage that indicates having any problems getting health care in general, indicating that cost is likely the major reason for the problem.

Over one-half of all CSHCN (53.3%) need to see a specialist for required medical care. Getting to see a specialist is a big problem for 8.1% and a small problem for another 14.8% of CSHCN (figure 7). The main reasons cited for having a big problem in seeing a specialist was insurance restrictions and the cost or no insurance. Another indicator of health care access is whether CSHCN have access to a well-child preventive check-up. Almost 1 in 4 CSHCN (23.0%) did not have a well-child visit in the previous 12 months.

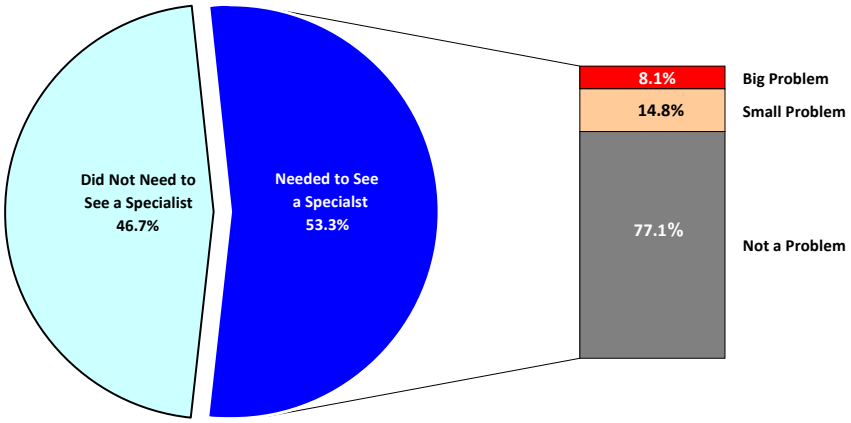

Figure 7. Percentage of CSHCN Receiving Needed Specialist Referral

Unmet need and health care access barrier differences between CSHCN and non-CSHCN could conceivably be due to many of the differences in predisposing, need, and enabling factors presented early in this report. Multivariable logistic regression statistical models are a way to determine true differences between CSHCN and non-CSHCN after adjusting for these background variables. Results from these models are contained in Tables C1 – C17 in Appendix B and confirm that the differences between CSHCN and non-CSHCN are statistically significant and are in the order of magnitude depicted by the percentage differences in Table 7.

Unmet needs are a greater problem in older children and the problem becomes more acute as children transition into young adulthood. CSHCN face new problems at a number of points in their life. One of the major transitions that affect CSHCN occurs when they finish school and transition into young adulthood. As CSHCN transition into adulthood their special needs do not change but access to insurance does.[16]

Adult respondents in the 2008 OFHS answered a very similar series of special needs screener questions that permits a comparison of those with SHCN child and young adult age groups. In particular, unmet health care needs by insurance coverage status. There are an estimated 224,650 CSHCN between 13-17 years of age and 120,365 young adults aged 18-21 with SHCN in Ohio. Even though some of the young adults aged 18-21 are eligible for public and parent-purchased private insurance coverage, there is still an ominous increase in the level of unmet needs in this subpopulation. The proportion of the 13-17 year old population who are uninsured for some period during the 12 months prior to the OFH survey is 6.7% and the for those aged 18-17 the proportion is 28.1% (data not shown). Figure 8 shows that regardless of insurance status young adults with SHCN have a higher level of unmet needs. At least one-half of the approximately 34,000 young adults (28.1%) who are uninsured delayed or avoided getting health care or needed prescription medications due to cost, or needed health care but could not get it.

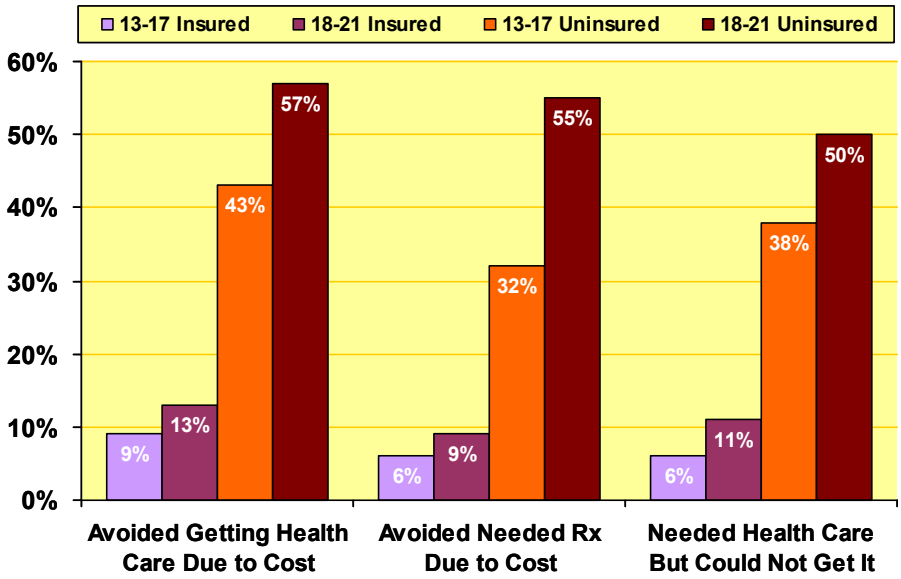

Figure 8. Unmet Needs of Children and Young Adults with Special Health Care Needs by Full-Year Insurance Coverage (% of category with unmet need)

What factors are associated with high levels of unmet needs in CSHCN?

It was noted in the previous section that despite having similar insurance coverage, roughly 1 in 4 families with a CSHCN incur major medical costs. Also, there are a high percentage of families of CSHCN who delay or avoid getting health care due to cost or have problems accessing needed health care in general. Predisposing, need, and enabling factors were included in a series of statistical models to determine to what level, if at all, they were associated with an unmet need for CSHCN. These predictor variables include age, gender, race/ethnicity, parent's marital status, full-year insurance status, health status, and region of residence. The odds ratio for a category is the number of times more likely the category experiences the unmet need being modeled than the reference. There is a statistical difference between the category and the reference when the 95% confidence interval (CI) does not include or overlap 1.0. Table 8 includes the odds ratios and 95% CIs for variables that are tested to be predictors of major medical costs, delayed or avoided getting needed health care, and problems getting health care in general (significant odds ratios are bolded and highlighted).

Compared to CSHCN in the 13-17 age category, those in the 0-5 and 6-12 age categories were only 0.4 and 0.6 times as likely, respectively, to delay or avoid health care due to cost.

Families of CSHCN who were covered under public insurance for the full year were half as likely to have incurred major medical expenditures compared to those covered under private insurance for the full year. Those uninsured at any time in the previous 12 months before the OFHS interview did not experience major medical costs with more

likelihood than those covered full year with private insurance. This would suggest that high deductible insurance coverage and copayments may be a driving factor in major medical costs. It has been shown that families of CSHCN covered with private insurance have out-of-pocket expenditures that are closer to the uninsured than those covered with public insurance. (Goudie et al. 2009)

CSHCN who were uninsured or only had insurance for part of the 12 month period prior to the survey interview were 5.7 times more likely to have delayed or avoided getting health care due to cost and 3.7 times more likely to have problems accessing health care in general than CSHCN who have private insurance coverage.

As expected, the health status of CSHCN is highly associated with cost and access problems. Compared to CSHCN who are in excellent or very good health, those with good, fair, or poor health care status are 2.0 to 2.8 times more likely to incur major medical costs, delayed or avoided getting care, or had problems getting health care.

Table 8. CSHCN Predisposing, Need, and Enabling Variables Testing the Association of Having Major Medical Costs or Access Problems to Health Care (odds ratio and 95% CI)

			CSHCN Cost or Access Problems (odds-ratio and 95% confidence interal)					
Variable	Category	Reference	Major Medical Costs		Delayed or Avoided Getting Needed Care		Problems Getting Health Care in General	
Age	0-5	13-17	1.3	(0.9,1.9)	**0.4**	(0.2,0.7)	0.7	(0.4,1.3)
	6-12		0.7	(0.6,1.0)	**0.6**	(0.4,0.8)	0.9	(0.6,1.3)
Gender	Male	Female	1.2	(0.9,1.5)	0.8	(0.5,1.1)	1.0	(0.7,1.5)
Race / Ethnicity	Black	White	0.9	(0.6,1.5)	1.6	(0.9,3.0)	1.2	(0.7,2.2)
	Hispanic		0.7	(0.4,1.1)	0.5	(0.2,1.4)	1.4	(0.7,2.7)
	Other		1.8	(0.8,4.3)	1.6	(0.4,5.7)	1.4	(0.4,4.6)
Parent's Marital Status	Single	Married	0.9	(0.6,1.3)	1.0	(0.6,1.9)	1.0	(0.6,1.8)
	Divorced/Separated		0.8	(0.5,1.1)	1.4	(0.8,2.2)	0.9	(0.6,1.5)
	Widowed		1.1	(0.6,2.0)	1.3	(0.5,3.7)	0.8	(0.3,1.8)
Insurance Status	Uninsured *	Private	0.9	(0.5,1.6)	**5.7**	(3.2,9.8)	**3.7**	(2.1,6.4)
	Public		**0.5**	(0.4,0.7)	0.6	(0.4,1.1)	1.1	(0.7,1.8)
Health Status	Fair/Poor/Good	VG / Excel	**2.8**	(2.2,3.6)	**2.0**	(1.4,3.0)	**2.4**	(1.6,3.5)
County / Region	Cuyahoga	Hamilton	0.7	(0.4,1.4)	2.0	(0.6,6.2)	1.0	(0.4,2.9)
	Franklin		1.0	(0.5,2.0)	1.9	(0.6,6.2)	1.3	(0.4,4.0)
	Lucas		1.6	(0.7,3.6)	1.4	(0.4,5.9)	2.1	(0.5,8.0)
	Montgomery		1.0	(0.5,2.1)	1.6	(0.4,6.7)	1.4	(0.4,4.9)
	Summit		0.9	(0.4,1.8)	2.0	(0.6,6.4)	1.5	(0.5,4.6)
	Other Metro		1.2	(0.6,2.3)	2.9	(1.0,8.6)	2.4	(0.9,6.3)
	Suburban		1.2	(0.7,2.4)	2.0	(0.7,6.2)	2.2	(0.8,5.8)
	Appalachian		1.0	(0.5,1.9)	2.2	(0.7,6.5)	2.1	(0.8,5.5)
	Rural (Non-App)		1.4	(0.8,2.7)	**3.5**	(1.2,10.2)	**3.1**	(1.2,7.7)

Note: VG / Excel = Very Good / Excellent

* Uninsured category includes uninsured (≤ 200 FPL), uninsured (> 200% FPL), and insured part of year.

CSHCN who were resided in rural non-Appalachian regions of Ohio were 3.5 times more likely to delay or avoid getting care due to cost and 3.1 times more likely to have health care access problems in general compared to CSHCN in Hamilton county.

The impact of cost and health care access problems tie in closely with unmet needs. This next series of analyses will look at the most common unmet needs for CSHCN. As before the results presented in Table 9 demonstrate variables and categories that are associated with CSHCN not getting needs fulfilled for dental care, prescription medications, medical exam, or health care of any kind.

Table 9. CSHCN Predisposing, Need, and Enabling Variables Testing the Association with Unmet Health Care Needs (odds ratio and 95% confidence interval)

			CSHCN Unmet Needs (odds-ratio and 95% confidence interal)							
			Dental Care		Prescription Drug Due to Cost		Medical Exam		Any Health Care	
Variable	**Category**	**Reference**								
Age	**0-5**	**13-17**	**0.2**	(0.1,0.5)	**0.5**	(0.2,0.9)	1.0	(0.3,2.8)	0.5	(0.3,1.0)
	6-12		**0.6**	(0.4,0.9)	0.7	(0.5,1.2)	0.5	(0.2,1.4)	0.7	(0.4,1.1)
Gender	**Male**	**Female**	0.9	(0.6,1.3)	**1.8**	(1.1,2.7)	1.2	(0.6,2.5)	0.9	(0.6,1.4)
Race / Ethnicity	**Black**	**White**	1.1	(0.6,2.0)	1.3	(0.8,2.4)	1.6	(0.5,5.5)	1.8	(0.9,3.5)
	Hispanic		1.4	(0.7,3.0)	0.8	(0.4,1.8)	0.4	(0.1,1.7)	0.8	(0.3,2.2)
	Other		0.8	(0.2,3.5)	--	--	1.5	(0.3,9.0)	0.3	(0.0,2.5)
Parent's Marital Status	**Single**	**Married**	1.8	(1.0,3.0)	1.3	(0.7,2.5)	0.9	(0.2,3.9)	1.2	(0.5,2.6)
	Divorced / Separated		1.4	(0.8,2.4)	1.0	(0.6,1.8)	2.2	(0.8,6.2)	1.6	(0.9,3.0)
	Widowed		0.4	(0.1,1.1)	0.5	(0.2,1.5)	3.5	(0.9,14.5)	0.7	(0.2,2.4)
Insurance Status	**Uninsured ***	**Private**	**11.3**	(5.9,21.5)	**11.2**	(6.2,20.5)	**5.6**	(2.2,14.1)	**6.5**	(3.5,12.1)
	Public		**2.0**	(1.2,3.3)	1.1	(0.7,1.8)	0.3	(0.1,1.0)	0.7	(0.4,1.4)
Health Status	**Fair/Poor/Good**	**VG / Excel**	1.6	(1.0,2.5)	**2.3**	(1.5,3.5)	2.1	(0.9,4.8)	**1.7**	(1.1,2.6)
County / Region	**Cuyahoga**	**Hamilton**	2.3	(0.7,6.9)	2.2	(0.7,6.3)	2.0	(0.3,15.4)	1.2	(0.4,3.8)
	Franklin		1.5	(0.4,4.9)	2.6	(0.9,7.5)	2.5	(0.3,20.3)	1.4	(0.4,4.5)
	Lucas		1.3	(0.3,5.7)	1.8	(0.6,6.1)	5.3	(0.6,48.6)	1.3	(0.4,4.9)
	Montgomery		1.0	(0.3,3.9)	1.9	(0.5,7.6)	3.4	(0.4,29.7)	0.9	(0.2,4.2)
	Summit		1.1	(0.3,4.0)	0.8	(0.2,2.8)	6.4	(0.9,46.2)	1.1	(0.3,4.0)
	Other Metro		1.4	(0.4,4.7)	2.4	(0.9,6.6)	0.5	(0.1,4.7)	0.9	(0.3,2.8)
	Suburban		1.3	(0.4,4.1)	2.0	(0.7,5.7)	2.8	(0.4,17.5)	1.1	(0.3,3.6)
	Appalachian		1.8	(0.6,5.9)	1.8	(0.7,5.0)	1.9	(0.3,12.0)	1.0	(0.3,3.3)
	Rural (Non-App)		2.5	(0.8,7.7)	2.3	(0.8,6.3)	5.5	(1.0,31.2)	2.1	(0.7,6.3)

Note: VG / Excel = Very Good / Excellent

* Uninsured category includes uninsured (≤ 200 FPL), uninsured (> 200% FPL), and insured part of year.

-- Too few in category with unmet need to produce stable estimate.

Compared to CSHCN in the 13-17 age category, those in the 0-5 and 6-12 age categories were only 0.2 and 0.6 times as likely, respectively, to have an unmet need for dental care. CSHCN in the 0-5 age group are only 40% as likely to not get a prescription drug due to cost than CSHCN in the 13-17 age category. Compared to females, CSHCN males were almost twice (1.8 times) as likely to not get a prescription drug due to cost.

Compared to CSHCN who have full-year private insurance coverage, those who are uninsured at any time of the year have over 11 times the likelihood of an unmet need for dental care and prescription drugs and approximately 6 times the likelihood of an unmet need for a medical exam or with one or more health care needs of any kind. CSHCN who have full-year public insurance coverage have twice the unmet need for dental care than CSHCN with full-year private insurance.

Compared to CSHCN who are in excellent or very good health, those with good, fair, or poor health care status are 2.3 times more likely to have an unmet need for prescription drugs and are 1.7 times more likely to have an unmet need of any kind.

V. DISCUSSION

The profile of CSHCN presented in this report demonstrates compelling evidence that this subpopulation of children has a need for increased health care services and face numerous problems and barriers receiving the quantity and quality of care required. The numbers presented in the tables and figures contained in the report take on more meaning when a face of an affected child is brought to mind (e.g. a child who has delayed or forgone getting needed care due to a family's inability to cover the cost).

The impact of a SHCN goes well beyond the child. It was demonstrated in the 2005/06 NS-CSHCN that families caring for CSHCN face enormous problems with cost and caring for a child with SHCN. To the extent possible this issue has been validated by findings from the 2008 OFHS. This survey was fielded during the beginning months of the current economic downturn and many questions about health care access and major medical costs are based on experiences during the preceding 12 months. It is expected that many families have lost access to job-based insurance coverage and face many competing demands on existing incomes and savings. Even with a smooth transition to public insurance coverage if required, do these children have a seamless transfer of health care access and professional help to align care and referrals?

Throughout this report we have demonstrated how important having stable full-year insurance is to CSHCN. CSHCN who are uninsured or only insured for part of the year are more likely to delay or avoid getting health care, forgo needed prescription medications, or have problems accessing health care in general. While the data do not provide a picture of the outcomes of these consequences, we know that in this vulnerable population not getting needed health care services and prescription medications is detrimental.

In this report it was also possible to be able to delineate children with different levels of complexities with special needs to determine if they face differential problems and barriers to quality health care. Many chronic conditions in children can be treated by regular physician check-ups and medication. CSHCN who have higher levels of complex conditions come into contact with the health care system more frequently and are likely to require professional help aligning care and referrals. They are also more

likely to require specialized services from the education, public infrastructure, and transportation systems.

CSHCN covered by Medicaid have higher levels of complexity compared to CSHCN who have private insurance. However, despite the higher level of complexity there is no significant difference in the level of unmet needs for prescription drugs due to cost, accessing a medical exam or obtaining health care in general compared to CSHCN with private insurance. Families of CSHCN with Medicaid report experiencing a more difficult time obtaining dental care for the child and receive professional help aligning health care or referrals at a lower rate compared to CSHCN with private insurance.

There is increased responsibility on the Medicaid program to not let these children fall through the cracks and accrue incidents of unmet need. With the exception of an increased unmet need in the CSHCN Medicaid population for dental care compared to CSHCN with private insurance coverage, CSHCN with Medicaid insurance generally have fewer unmet needs compared to those with private insurance.

VI. POLICY RAMIFICATIONS

Using 2008 OFHS data and the CSHCN Screener this report has identified more than 570,000 CSHCN in Ohio. The population of CSHCN is very different from children without special health care needs and there is also a high level of heterogeneity among those who have “screened in”. These differences highlight challenges and opportunities for policy makers. This section will present policy ramifications stemming from the information contained in the previous sections of this report.

Diagnosing Special Needs at an Early Age

- Children ages 0-5 represent 17.2% of all CSHCN compared to 33.7% of the child population that does not screen in with a special health care need.
- While some chronic conditions that manifest and are diagnosable only at later stages of childhood, many can be detected with early screening. Enhanced early screening can lead to earlier diagnoses and treatment. Then, if care begins at an earlier age, this may forestall more expensive interventions at a later stage.

Cultural Sensitivity

- Hispanic children are screening in with special health care needs at a higher rate than in 2004. Culturally and linguistically appropriate services may be needed to ensure that needed care coordination takes place and that treatment plans are well understood by families.

Alignment of All Service Systems

- The health care system is one of several coordinated systems that have an opportunity to respond to the needs of CSHCN and their families. Schools, for example may provide services to these children (e.g. counseling). The proper delivery of services provided across systems can have a synergistic effect to create greater well-being for the child. Across systems these services include but

are not limited to schools, access to transportation services, and access to recreation facilities and playgrounds.

Transition to Adulthood

- Young adults with special health care needs have higher levels of uninsurance and unmet health care needs. There is need for policy to ensure that CSHCN have coordinated hand-off to adult health care providers and that affordable and adequate health insurance coverage is available to young adults with special health care needs.

Health Care Insurance

- Our study has shown that insurance is the most important factor in determining whether CSHCN get the needed medical care, services, and prescription medications they require. There are 6.2% of all CSHCN who were uninsured for the whole year or had gaps in insurance coverage during the year prior to the survey interview.
- There is a dichotomy in the level of complexity of the CSHCN across those covered with public and private insurance. Medicaid serves a higher percentage of CSHCN with functional limitations. It is necessary to ensure that children who have the greatest health care problems have timely access to specialized provider resources.

Family Impact

- More than one-half of all CSHCN live in households earning 200% of the FPL or less, and almost one-half of these are single-parent households. A child's special health care needs have an impact on the whole family.
- More than one-quarter of all families of CSHCN report having incurred major medical costs. Most of these families are covered by private insurance and it has been demonstrated in other studies that these major medical expenditures are due to high out of pocket costs.

CSHCN and their families are likely to be affected by more than one of these policy ramifications. Quality of life, work productivity, and cost-effectiveness can be dynamically linked outcomes from aligning the health care and other service systems to provide necessary, comprehensive, and dignified care to CSHCN.

VII. LIMITATIONS AND FURTHER RESEARCH NEEDS

The OFHS has surpassed the California Health Interview Survey as the largest in-state survey devoted to studying the health of the population and how the population interacts with the health care system. Children are not the sole focus of the survey. As such, the number of children surveyed and the number of questions devoted to children must face realistic trade-offs with the larger scope of the survey. This report has a special focus on less than 25% of the overall number of children surveyed. Therefore the level of multi-dimensional profiling is limited due to subpopulations becoming too small to ensure

valid point estimates. For example, it is difficult to sub-profile CSHCN who are uninsured.

For certain variables (e.g. coordination of care and usual source of care) it is not possible to use NS-CSHCN results as a benchmark for current OFHS results because questions are not identical.

The medical home concept is gaining enormous traction among experts as the best manner to provide CSHCN with quality access to care. Family impact and cost of care are also important CSHCN thematic areas of research. Asking standardized medical home component, family impact, and cost of care questions would offer insight into potential areas of improvement to support policy initiatives.

There is also a need for mixed methods research to study the characteristics of treatment plans for CSHCN in various private insurance and Medicaid managed care plans.

VIII. CONCLUSION

More than 570,000 children 0-17 years of age in Ohio are categorized as having a special health care need. Most of these children are in the older age range and male. There is a disproportionate number of CSHCN who are Black and the percentage of Hispanic CSHCN has increased since 2004.

Not all CSHCN are alike. Approximately 30% of the CSHCN population requires only prescription medications to treat their condition (e.g. asthma). Slightly more than 1 in 4 CSHCN are categorized as having functional limitations, the most complex type of SHCN. This group requires considerably more health services to effectively treat their conditions and thus have a higher probability to have unmet needs. Insurance coverage and health status are major factors determining the level of probability of having unmet health care needs. CSHCN transitioning into young adulthood face problems maintaining insurance coverage and as a consequence incur unmet needs in high proportion.

Even after taking into account their demographic, socio-economic, insurance, and health status backgrounds, CSHCN still face a number of health care problems and barriers compared to non-CSHCN. Families of CSHCN incur a higher level of major medical costs, delay or avoid getting care for their child due to cost, and have problems getting needed care for their child in general. Lack of insurance coverage and lower health status are major factors for this disparity. Compared to non-CSHCN, CSHCN also have higher levels of other unmet needs such as dental care, prescription medications, medical exams, and health care of any kind. Insurance coverage, health status, and living in a rural (non-Appalachian) region are factors associated with these CSHCN unmet needs.

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Appendix A
Guide to Tables and Constructed Variables

Guide to Tables

Appendix B – Tables A1 to A9

These are tables that summarize 2008 and 2004 (when available) OFHS data on CSHCN and non-CSHCN across predisposing, need, and enabling factors for health behavior.

Predisposing, Need, and Enabling Factors

Factors and Variables	Categories
Predisposing Factors	
Age [a]	<3, 0-5, 6-12, 13-17, 18-21
Sex	Male, Female
Race	White, Black, Hispanic, Other
Parent's Marital Status	Single, Married/Cohabitate, Divorced/Separated, Widowed
Parent Education Status	< High School, High School or GED, Some College, Associate Degree, College Degree
Need Factors	
General Health	Excellent, Very Good, Good, Fair, Poor
Mental Health	Excellent, Very Good, Good, Fair, Poor
Chronic condition (asthma)	No, Mild, Moderate, Severe
Chronic condition (diabetes)	No, Mild, Moderate, Severe
Special Need Affect Child's Abilities	Never, Sometimes, Usually, Always
ADL Limitation	Yes, No
Learning Limitation	Yes, No
Communication Limitation	Yes, No
Enabling Factors	
Poverty Status (as % of FPL)	<100%, 101-<200%, 201-300%, >300%
Time of Survey Health Insurance	Uninsured, Medicaid, Job-Based
Full Year Health Insurance *	Uninsured full year (≤200% FPL), Uninsured full year (>200% FPL), Insured part of year, Public insurance full year, Private insurance full year
Usual Health Care Provider for Sick Care *	Yes, No
Usual Provider Location	Doctor's Office, Hospital ER, Hospital Outpatient, Clinic, Other
Personal Doctor or Nurse	No, One or More
Region of Residence [b]	1. Each of 6 Largest Metropolitan Counties, Other Metropolitan, Appalachian, Rural (Non-Appalachian), Suburban
Managed Care Region	10 Medicaid Managed Regions 2. Metropolitan or Non-Metropolitan

FPL = Federal Poverty Level, ADL = Activities of Daily Living

Note: [a] Prevalence of CSHCN will be presented for age category of <3 but this non-mutually exclusive category will not be included in a test of association between CSHCN status and age category.
[b] Prevalence of CSHCN will be presented for the 10 mutually exclusive regions listed. Prevalence will also be included for a constructed dichotomous regional variable representing Urban/Rural.

* Constructed variable.

Appendix B – Tables B1 to B8

These are tables that summarize 2008 and 2004 (when available) OFHS data on CSHCN and non-CSHCN for problems and barriers with unmet needs and access to health care.

Problems and Barriers to Health Care

Problems/Barriers and Variable	Categories
Professional Help Aligning Care and Referrals	
Needed Professional Help Aligning Care and Referrals	Yes, No
Received Professional Help (when needed)	Never, Sometimes, Usually, Always
Unmet Health Care Needs	
Need Dental Care But Could Not Get It	Yes, No
Main Barrier for Not Getting Dental Care	Top 3 Reasons from Those Responding 'Yes'
Needed Prescription Drug But Could Not Get It Due to Cost	Yes, No
Needed Medical Exam But Could Not Get It	Yes, No (compiled)
Needed Medical Supplies But Could Not Get Them	Yes, No (compiled)
Needed Mental Health Care But Could Not Get It	Yes, No (compiled)
Needed Eyeglasses But Could Not Get It	Yes, No (compiled)
Main Reason Child Could Not Get One Or More of Medical Exam, Medical Supplies, Mental Health Care, or Eyeglasses	Top 3 Reasons from Those Responding 'Yes' to Either
Did Not Get Wanted Health Care	Yes, No
Delayed Getting Health Care Due to Cost	Yes, No
Child or Family Had Problems Getting Care in General	Yes, No
Health Care Costs	
Major Medical Costs	Yes, No
Health Care Access	
Main Reason for Hospital ER as Usual Provider Location	Top 3 Reasons
Main Reason for Not Having a Usual Source of Care	Top 3 Reasons
Needed to See Specialist	Yes, No
Difficulty Seeing Needed Specialist	Big Problem, Small Problem, Not a Problem
Reason for 'Big Problem' Response to Seeing Specialist	Top 4 Reasons
Last Time Child Saw a non-ER Health Care Professional (categorize)	≤6 Months, >6 months and ≤1 Year, >1 Year and ≤2 Years, >2 Years and ≤5 Years, >5 Years, Never
Obtained Preventative Medicine Check-Up	Yes, No
Number of Overnight Hospital Visits	0, 1-2, 3+
Number of Visits to Emergency Rooms	0, 1-5, 5+
Last Time Child Saw a Dentist	≤6 Months, >6 months and ≤1 Year, >1 Year and ≤3 Years, >5 Years, Never

In tables A1-A9 and B1-B8, significant differences between CSHCN and non-CSHCN subpopulations for 2004 and 2008 are made on the basis of a chi-square test of association using a significance level of $\alpha = 0.05$. Differences across survey year are concluded by non-overlapping 95% confidence intervals.

Appendix B – Tables C1 to C17

These are tables that present 2008 and 2004 (when available) OFHS data multivariable logistic regression model results. The dependent variables are problems and barriers to health care (tables B1 –B7). The main predictor variable is CSHCN status and is adjusted for age, gender, race/ethnicity, parent's marital status, full year insurance status, health status, and county/region.

Multivariable Logistic Regression Models

Multivariable Logistic Regression Dependent Variable and Model (#)	Dichotomous Categories	Primary Predictor	Adjusting Variables
Professional Help Aligning Care and Referrals		CSHCN, Non-CSHCN	Health Insurance Status: Uninsured full year (≤200% FPL), Uninsured full year (>200% FPL), Insured part of year, Public insurance full year, ***Private insurance full year***
(1) Needed Professional Help Aligning Care and Referrals	Yes, No		
(2) Received Professional Help (when needed)	Never/Sometimes, Usually/Always		
Unmet Health Care Needs			Age: 0-5, 6-12, ***13-17***
(3) Could Not Get Needed Dental Care	Yes, No		
(4) Could Not Get Needed Prescription Drug Due to Cost	Yes, No		Sex: Male, ***Female***
(5) Could Not Get Needed Medical Exam	Yes, No		
(6)Could Not Get Needed Medical Supplies	Yes, No		Race: Black, Hispanic, Other, ***White***
(7)Could Not Get Needed Mental Health Care	Yes, No		
(8)Could Not Get Needed Eyeglasses	Yes, No		Parent's Marital Status: Single, Divorced/Separated, Widowed, ***Married/Cohabitate***
(9)Did Not Get Wanted Health Care	Yes, No		
(10) Delayed Getting Health Care Due to Cost	Yes, No		General Health Status: Poor/Fair, Good, ***Excellent/Very Good***
(11) Child or Family Had Problems Getting Care in General	Yes, No		
Health Care Costs			Mental Health Status: Poor/Fair, Good, ***Excellent/Very Good***
(12) Major Medical Costs	Yes, No		
Health Care Access			
(13) Usual Source of Sick Care	Yes, No		Geographic Region: 5 Largest Metropolitan Counties (Other than Hamilton), Other Metropolitan, Appalachian, Rural (Non-Appalachian), Suburban Regions, **Hamilton County**
(14) Personal Doctor or Nurse	No, One or More		
(15) Needed to See Specialist	Yes, No		
(16) Difficulty Seeing Needed Specialist	Big Problem, Not a Big Problem		
(17) Obtained Preventative Medicine Check-Up	Yes, No		

Note: For adjusting variables, the referent category is depicted in bold italics.

Tables C1-C17 contain odds ratios and 95% confidence intervals for odds ratios. A significant odds ratio is highlighted in bold with a shaded background.

Constructed Variables

Full Year Insurance 5 Categories

Insurecat=1 Uninsured and ≤200% FPL for 12 months prior to survey
Insurecat=2 Uninsured and >200% FPL for 12 months prior to survey
Insurecat=3 Uninsured for part of 12 months prior to survey
Insurecat=4 Insured for full year with public coverage
Insurecat=5 Insured for full year with private coverage

SAS Code:

```
if insrd_c=2 and k96=2 and poverty in(1,2,3) then insurecat=1; else
if insrd_c=2 and k96=2 and poverty in(4,5) then insurecat=2; else
if (insrd_c=1 and j120=1) or (insrd_c=2 and k96=1) then insurecat=3; else
if insrd_c=1 and i_type_c in(1,2,3) then insurecat=4; else
if insrd_c=1 and i_type_c in(4,5,6,7) then insurecat=5;
```

Full Year Insurance 3 Categories

Insurecat2=1 Uninsured at any time during 12 months prior to survey
Insurecat2=2 Insured for full year with public coverage
Insurecat2=3 Insured for full year with private coverage

SAS Code:

```
if insurecat in(1,2,3) then insurecat2=1; else
if insurecat=4 then insurecat2=2; else
if insurecat=5 then insurecat2=3;
```

Usual Source of Sick Care

Usual Source of Sick Care=1	Care received in Doctor's Office or HMO, Hospital Outpatient Department, or Clinic or Health Center.
Usual Source of Sick Care=2	Care received in Hospital ER, School, Family Member or Friend, Some Other Place, Urgent Care, No Regular Place, Don't Know.

SAS Code:

```
if (n137=1 and n137a1 in(1,3,4)) or (n137=3 and n137a2 in(1,3,4)) or
   (n137=2 and n137chek=2 and n137a2 in(1,3,4)) then usualprov=1; else
if (n137=1 and n137a1=2) or (n137=3 and n137a2=2) or
   (n137=2 and n137chek=1) or (n137=1 and n137chek=2 and n137a2=2) then
usualprov=2;
```

Appendix B

2004 and 2008 CSHCN vs. Non-CSHCN Summary Frequency Descriptives and Multivariable Logistic Regression Model Results

Table A1. Predisposing Factors by CSHCN Status (N, %, 95% CI), OFHS 2004 and 2008

Predisposing Factors	2004 CSHCN Number of Children	2004 CSHCN Percent of Children 95% CI	2004 Non-CSHCN Number of Children	2004 Non-CSHCN Percent of Children 95% CI	2008 CSHCN Number of Children	2008 CSHCN Percent of Children 95% CI	2008 Non-CSHCN Number of Children	2008 Non-CSHCN Percent of Children 95% CI
Children Aged 0-17 Years	624,634	21.7%	2,157,814	74.9%	570,913	20.9%	1,957,952	71.7%
Age Category [4,8]								
0-5 Years	135,362	21.7% 19.8 - 23.6	764,393	35.4% 34.3 - 36.6	98,126	17.2% 15.3 - 19.1	660,158	33.7% 32.4 - 35.0
6-12 Years	278,955	44.7% 42.4 - 46.9	840,208	38.9% 37.7 - 40.2	248,137	43.5% 40.9 - 46.0	723,707	37.0% 35.6 - 38.3
13-17 Years [a]	210,317	33.7% 31.6 - 35.8	553,213	25.6% 24.6 - 26.7	224,650	39.3% 36.9 - 41.8	574,088	29.3% 28.1 - 30.5
18-21 Years					44,657	1.2% 1.9 - 4.1	185,183	5.7% 7.1 - 10.3
< 3 Years [a]	53,132	8.5% 7.2 - 9.8	394,234	18.3% 17.4 - 19.2	34,877	6.1% 4.9 - 7.4	339,825	82.6% 81.6 - 83.7
Gender [4,8]								
Male	363,757	58.3% 56.1 - 60.6	1,044,041	48.5% 56.1 - 60.6	331,737	58.8% 56.3 - 61.3	951,142	49.1% 47.8 - 50.5
Female	259,932	41.7% 39.4 - 43.9	1,110,567	51.5% 39.4 - 43.9	232,387	41.2% 38.7 - 43.7	985,390	50.9% 49.5 - 52.3
Race and Ethnicity [4,8]								
White (Only, Not Hispanic)	489,409	79.6% 77.7 - 81.5	1,753,257	82.5% 81.6 - 83.4	431,716	78.4% 76.3 - 80.5	1,530,416	80.5% 79.5 - 81.5
African American (Only, Not Hispanic)	100,263	16.3% 14.5 - 18.1	281,936	13.3% 12.4 - 14.1	89,128	16.2% 14.2 - 18.1	258,938	13.6% 12.7 - 14.5
Hipsanic (Any Race) [a]	13,927	2.3% 1.8 - 2.7	52,850	2.5% 2.3 - 2.7	20,883	3.8% 3.1 - 4.5	69,668	3.7% 3.4 - 4.0
Other (Includes Multiracial, Not Hispanic)	11,337	1.8% 1.3 - 2.4	37,895	1.8% 1.5 - 2.0	8,867	1.6% 0.9 - 2.3	42,647	2.2% 1.8 - 2.7

[4] p<0.05 for 2004 difference between CSHCN status and predisposing factor; [8] p<0.05 for 2008 difference between CSHCN status and predisposing factor

[a] p<0.05 for difference across prevalence for CSHCN between 2004 and 2008.

Table A2. Predisposing Factors by CSHCN Status (N, %, 95% CI), OFHS 2004 and 2008

Predisposing Factors	2004 CSHCN Number of Children	2004 CSHCN Percent of Children 95% CI	2004 Non-CSHCN Number of Children	2004 Non-CSHCN Percent of Children 95% CI	2008 CSHCN Number of Children	2008 CSHCN Percent of Children 95% CI	2008 Non-CSHCN Number of Children	2008 Non-CSHCN Percent of Children 95% CI
Children Aged 0-17 Years	624,634	21.7%	2,157,814	74.9%	570,913	20.9%	1,957,952	71.7%
Marital Status [4,8]								
Single	96,513	15.5% 13.8 - 17.1	277,705	12.9% 12.1 - 13.7	83,665	14.7% 12.9 - 16.5	252,239	12.9% 12.0 - 13.8
Married	389,052	62.4% 60.2 - 64.5	1,534,433	71.1% 70.0 - 72.2	360,488	63.2% 60.8 - 65.7	1,381,511	70.6% 69.4 - 71.9
Divorced/Separated	128,584	20.6% 18.8 - 22.4	314,700	14.6% 13.7 - 15.5	112,661	19.8% 17.7 - 21.8	275,633	14.1% 13.1 - 15.1
Widowed	9,818	1.6% 1.1 - 2.1	30,221	1.4% 1.1 - 1.7	13,192	2.3% 1.7 - 3.0	46,206	2.4% 2.0 - 2.8
Highest Level of Education of Parent [4,8]								
Less than High School	67,589	10.9% 9.4 - 12.3	173,867	8.1% 7.4 - 8.7	47,051	8.2% 6.8 - 9.7	137,110	7.0% 6.3 - 7.7
High School or equivalent	237,462	38.1% 35.9 - 40.3	817,951	38.0% 36.8 - 39.1	173,364	30.4% 28.0 - 32.7	596,392	30.5% 29.2 - 31.7
Some College	104,281	16.7% 15.1 - 18.4	308,537	14.3% 13.5 - 15.2	111,458	19.5% 17.5 - 21.6	311,403	15.9% 14.9 - 16.9
Associates Degree	79,940	12.8% 11.3 - 14.4	265,487	12.3% 11.5 - 13.1	84,552	14.8% 13.0 - 16.6	269,896	13.8% 12.9 - 14.7
4-year College Degree	133,431	21.4% 19.6 - 23.3	588,380	27.3% 26.2 - 28.4	154,487	27.1% 24.8 - 29.3	643,151	32.8% 31.6 - 34.1

[4] p<0.05 for 2004 difference between CSHCN status and predisposing factor; [8] p<0.05 for 2008 difference between CSHCN status and predisposing factor

Table A3. Need Factors by CSHCN Status (N, %, 95% CI), OFHS 2004 and 2008

Need Factors	2004 CSHCN Number of Children	2004 CSHCN Percent of Children 95% CI	2004 Non-CSHCN Number of Children	2004 Non-CSHCN Percent of Children 95% CI	2008 CSHCN Number of Children	2008 CSHCN Percent of Children 95% CI	2008 Non-CSHCN Number of Children	2008 Non-CSHCN Percent of Children 95% CI
Children Aged 0-17 Years	624,634	21.7%	2,157,814	74.9%	570,913	20.9%	1,957,952	71.7%
General Health [4,8]								
Excellent	175,595	28.1% 26.1 - 30.2	1,432,195	66.4% 65.2 - 67.5	156,045	27.5% 25.2 - 29.8	1,265,419	64.7% 63.4 - 66.0
Very Good	210,870	33.8% 31.6 - 35.9	546,897	25.3% 24.3 - 26.4	197,715	34.8% 32.4 - 37.3	510,552	26.1% 24.9 - 27.3
Good	160,834	25.8% 23.8 - 27.8	160,430	7.4% 6.8 - 8.1	143,854	25.3% 23.1 - 27.6	159,787	8.2% 7.4 - 8.9
Fair	65,549	10.5% 9.1 - 11.9	17,069	0.8% 0.6 - 1.0	65,263	11.5% 9.8 - 13.2	17,830	0.9% 0.7 - 1.2
Poor	11,319	1.8% 1.2 - 2.4	1,177	0.1% 0.0 - 0.1	5,086	0.9% 0.5 - 1.3	990 *	0.1% 0.0 - 0.1
Mental Health [8]								
Excellent					169,697	34.4% 31.8 - 37.0	942,878	67.0% 65.5 - 68.5
Very Good					115,097	23.4% 21.0 - 25.7	306,707	21.8% 20.5 - 23.1
Good					129,216	26.2% 23.8 - 28.6	141,971	10.1% 9.1 - 11.1
Fair					61,013	12.4% 10.6 - 14.2	15,651	1.1% 0.8 - 1.5
Poor					17,791	3.6% 2.5 - 4.7	653 *	0.0% 0.0 - 0.1

[8] p<0.05 for 2008 difference between CSHCN status and predisposing factor

* Survey number for weighted estimate < 25

Table A4. Need Factors by CSHCN Status (N, %, 95% CI), OFHS 2004 and 2008

Need Factors	2004 CSHCN Number of Children	2004 CSHCN Percent of Children 95% CI	2004 Non-CSHCN Number of Children	2004 Non-CSHCN Percent of Children 95% CI	2008 CSHCN Number of Children	2008 CSHCN Percent of Children 95% CI	2008 Non-CSHCN Number of Children	2008 Non-CSHCN Percent of Children 95% CI
Children Aged 0-17 Years	624,634	21.7%	2,157,814	74.9%	570,913	20.9%	1,957,952	71.7%
Chronic Condition (Asthma) [4,8]								
No [1]	385,104	61.9% 59.7 - 64.1	2,023,217	93.9% 93.3 - 94.5	383,436	67.6% 65.2 - 70.0	1,862,436	95.6% 95.0 - 96.2
Mild					108,537	19.1% 17.1 - 21.2	71,597	3.7% 3.1 - 4.2
Moderate					57,822	10.2% 8.7 - 11.7	12,372	0.6% 0.4 - 0.9
Severe					17,037	3.0% 2.1 - 4.0	1,416 *	0.1% 0.0 - 0.2
Chronic Condition (Diabetes) [8]								
No					558,836	98.3% 97.6 - 99.0	1,955,117	100.0% 100.0 - 100.0
Mild, Moderate, or Severe					9,361	1.7% 1.0 - 2.9	478 *	0.0% 0.0 - 0.0

[1] Question wording: 2004: Doctor ever told child has asthma?; 2008: Does the child have asthma, and severity level?

[4] p<0.05 for 2004 difference between CSHCN status and predisposing factor; [8] p<0.05 for 2008 difference between CSHCN status and predisposing factor

* Survey number for weighted estimate < 25

Table A5. Need Factors by CSHCN Status (N, %, 95% CI), OFHS 2004 and 2008

Need Factors	2004 CSHCN Number of Children	2004 CSHCN Percent of Children 95% CI	2004 Non-CSHCN Number of Children	2004 Non-CSHCN Percent of Children 95% CI	2008 CSHCN Number of Children	2008 CSHCN Percent of Children 95% CI	2008 Non-CSHCN Number of Children	2008 Non-CSHCN Percent of Children 95% CI
Children Aged 0-17 Years	624,634	21.7%	2,157,814	74.9%	570,913	20.9%	1,957,952	71.7%
Special Need Affects Child's Abilities								
Never					217,919	38.4% 35.9 - 40.8		
Sometimes					245,995	43.3% 40.7 - 45.9		
Usually					49,272	8.7% 7.2 - 10.1		
Always					54,961	9.7% 8.1 - 11.2		
ADL Limitation								
Yes					51,171	16.0% 13.5 - 18.6		
No					267,840	84.0% 81.4 - 86.5		
Learning Limitation								
Yes					195,917	61.4% 58.0 - 64.8		
No					123,233	38.6% 35.2 - 42.0		
Communication Limitation								
Yes					99,595	31.3% 28.1 - 34.6		
No					218,287	68.7% 65.4 - 71.9		

Note: Question only asked to those with CSHCN.

Table A6. Enabling Factors by CSHCN Status (N, %, 95% CI), OFHS 2004 and 2008

Enabling Factors	2004 CSHCN Number of Children	2004 CSHCN Percent of Children 95% CI	2004 Non-CSHCN Number of Children	2004 Non-CSHCN Percent of Children 95% CI	2008 CSHCN Number of Children	2008 CSHCN Percent of Children 95% CI	2008 Non-CSHCN Number of Children	2008 Non-CSHCN Percent of Children 95% CI
Children Aged 0-17 Years	624,634	21.7%	2,157,814	74.9%	570,913	20.9%	1,957,952	71.7%
Poverty Status (as % of FPL) [4,8]								
< 100%	168,866	27.0% 24.9 - 29.1	411,728	19.1% 18.1 - 20.1	166,747	29.2% 26.8 - 31.6	419,694	21.4% 20.3 - 22.6
101% - 200%	147,823	23.7% 21.7 - 25.6	484,195	22.4% 21.4 - 23.5	129,626	22.7% 20.6 - 24.9	412,448	21.1% 20.0 - 22.2
201% - 300%	103,008	16.5% 14.8 - 18.1	421,245	19.5% 18.6 - 20.5	83,717	14.7% 12.9 - 16.4	361,152	18.4% 17.4 - 19.5
> 300%	204,937	32.8% 30.7 - 34.9	840,646	39.0% 37.8 - 40.1	190,823	33.4% 31.1 - 26.8	764,658	39.1% 37.8 - 40.3
Health Insurance (at time of survey)* [4,8]								
Uninsured	27,381	4.4% 3.5 - 5.3	123,394	5.7% 5.2 - 6.3	16,700	2.9% 2.1 - 3.7	89,352	4.5% 4.0 - 5.0
Medicaid [a]	239,706	38.4% 36.1 - 40.6	522,509	24.2% 23.2 - 25.3	260,682	45.3% 42.8 - 47.8	610,097	30.9% 29.7 - 32.2
Job-Based Coverage [a]	325,283	52.1% 49.8 - 54.3	1,364,458	63.2% 62.1 - 64.4	270,173	47.0% 44.4 - 49.5	1,163,284	59.0% 57.7 - 60.3
Health Insurance (full-year constructed) [4,8]								
Uninsured Full Year (< 200% FPL)	12,018	1.9% 1.3 - 2.5	45,656	2.1% 1.8 - 2.4	5,450	1.0% 0.5 - 1.4	38,027	1.9% 1.6 - 2.3
Uninsured Full Year (≥ 200% FPL)	4,205	0.7% 0.2 - 1.1	21,783	1.0% 0.8 - 1.2	2,243 *	0.4% 0.2 - 0.6	16,029	0.8% 0.6 - 1.0
Insured Part of Year	35,169	5.6% 4.6 - 6.7	146,917	6.8% 6.2 - 7.4	27,480	4.8% 3.7 - 6.0	102,942	5.3% 4.7 - 5.9
Public Insurance Full Year [a]	228,228	36.6% 34.4 - 38.8	493,274	22.9% 21.8 - 23.9	251,482	44.2% 41.6 - 46.7	572,962	29.3% 28.0 - 30.6
Private Insurance Full Year [a]	344,230	55.2% 52.9 - 57.4	1,448,398	67.2% 66.0 - 68.3	282,854	49.7% 47.1 - 52.2	1,224,817	62.7% 61.3 - 64.0

* numbers and percentages for directly purchased, medicare (no Medicaid), insured type unknown, and other response not included in this table.

[4] p<0.05 for 2004 difference between CSHCN status and predisposing factor; [8] p<0.05 for 2008 difference between CSHCN status and predisposing factor

[a] p<0.05 for difference across prevalence for CSHCN between 2004 and 2008.

Table A7. Enabling Factors by CSHCN Status (N, %, 95% CI), OFHS 2004 and 2008

Enabling Factors	2004 CSHCN Number of Children	2004 CSHCN Percent of Children 95% CI	2004 Non-CSHCN Number of Children	2004 Non-CSHCN Percent of Children 95% CI	2008 CSHCN Number of Children	2008 CSHCN Percent of Children 95% CI	2008 Non-CSHCN Number of Children	2008 Non-CSHCN Percent of Children 95% CI
Children Aged 0-17 Years	624,634	21.7%	2,157,814	74.9%	570,913	20.9%	1,957,952	71.7%
Usual Health Care Provider for Sick Care **								
Yes	598,886	96.2% 95.3 - 97.1	2,084,543	96.9% 96.5 - 97.3	532,478	95.2% 94.2 - 96.3	1,825,765	95.5% 94.9 - 96.1
No	23,687	3.8% 2.9 - 4.7	66,524	3.1% 2.7 - 3.5	26,677	4.8% 3.7 - 5.8	85,895	4.5% 3.9 - 5.1
Usual Provider Location								
Doctor's Office	483,233	78.3% 76.5 - 80.2	1,736,200	81.7% 80.8 - 82.7	426,473	77.3% 75.1 - 79.4	1,542,906	82.4% 81.4 - 83.5
Hospital ER [a]	10,294	1.7% 1.1 - 2.2	26,264	1.2% 1.0 - 1.5	21,727	3.9% 3.0 - 4.9	52,583	2.8% 2.3 - 3.3
Hospital Outpatient	18,694	3.0% 2.3 - 3.8	49,089	2.3% 1.9 - 2.7	23,368	4.2% 3.2 - 5.3	47,104	2.5% 2.1 - 2.9
Clinic	96,959	15.7% 14.1 - 17.4	300,712	14.2% 13.3 - 15.0	76,668	13.9% 12.1 - 15.7	216,240	11.5% 10.7 - 12.4
Other	7,598	1.2% 0.7 - 1.8	12,399	0.6% 0.4 - 0.8	3,731	0.7% 0.3 - 1.1	13,446	0.7% 0.5 - 1.0
Personal Doctor or Nurse [1]								
One or More	525,659	88.8% 87.2 - 90.3	1,825,850	88.4% 87.6 - 89.2	517,988	92.9% 91.5 - 94.2	1,711,033	90.3% 89.5 - 91.1
No	66,406	11.2% 9.7 - 12.8	240,001	11.6% 10.8 - 12.4	39,824	7.1% 5.8 - 8.5	184,350	9.7% 8.9 - 10.5

** Does the child usually seek health care or advice from a person at a doctor's office, hospital outpatient department, clinic or health center?

[1] 2004: Does the child see the same doctor? 2008: Do you have one or more persons you think of as the child's personal nurse or doctor?

[a] p<0.05 for difference across prevalence for CSHCN between 2004 and 2008.

Table A8. Enabling Factors by CSHCN Status (N, %, 95% CI), OFHS 2004 and 2008

Enabling Factors	2004 CSHCN Number of Children	2004 CSHCN Percent of Children 95% CI	2004 Non-CSHCN Number of Children	2004 Non-CSHCN Percent of Children 95% CI	2008 CSHCN Number of Children	2008 CSHCN Percent of Children 95% CI	2008 Non-CSHCN Number of Children	2008 Non-CSHCN Percent of Children 95% CI
Children Aged 0-17 Years	624,634	21.7%	2,157,814	74.9%	570,913	20.9%	1,957,952	71.7%
Region of Residence								
Cuyahoga	76,664	12.3% 10.8 - 13.7	244,796	11.3% 10.8 - 1.9	58,655	10.3% 8.7 - 11.8	222,515	11.4% 10.7 - 12.0
Franklin	60,126	9.6% 8.4 - 10.9	206,342	9.6% 9.0 - 10.1	54,880	9.6% 8.1 - 11.2	201,320	10.3% 9.6 - 11.0
Hamilton	55,477	8.9% 7.5 - 10.3	145,979	6.8% 6.3 - 7.2	42,584	7.5% 6.1 - 8.8	138,711	7.1% 6.5 - 7.7
Lucas	29,577	4.7% 4.0 - 5.5	81,774	3.8% 3.5 - 4.1	25,571	4.5% 3.5 - 5.5	72,851	3.7% 3.3 - 4.1
Montgomery	31,286	5.0% 4.1 - 5.9	98,309	4.6% 4.2 - 4.9	28,790	5.0% 3.9 - 6.2	84,727	4.3% 3.9 - 4.8
Summit	28,704	4.6% 3.9 - 5.3	101,145	4.7% 4.4 - 5.0	31,878	5.6% 4.5 - 6.6	90,800	4.6% 4.2 - 5.1
Other Metropolitan	77,594	12.4% 11.1 - 13.7	287,473	13.3% 12.8 - 13.9	73,500	12.9% 11.4 - 14.3	265,245	13.5% 12.8 - 14.3
Suburban	103,189	16.5% 14.8 - 18.3	392,613	18.2% 17.5 - 18.9	104,640	18.3% 16.3 - 20.3	348,262	17.8% 16.9 - 18.7
Appalacian	79,893	12.8% 11.6 - 13.9	274,340	12.7% 12.3 - 13.2	69,353	12.1% 10.8 - 13.5	245,846	12.6% 12.0 - 13.1
Rural (Non-Appalacian)	82,123	13.1% 11.9 - 14.4	325,042	15.1% 14.6 - 15.6	81,062	14.2% 12.7 - 15.7	287,675	14.7% 14.0 - 15.4
Metropolitan Region Classification [4]								
Metropolitan	359,428	57.5% 55.5 - 59.6	1,165,819	54.0% 53.2 - 54.9	315,858	55.3% 52.9 - 57.7	1,076,169	55.0% 53.9 - 56.0
Non-Metropolitan	265,205	42.5% 40.4 - 44.5	991,995	46.0% 45.1 - 46.8	255,055	44.7% 42.3 - 47.1	881,783	45.0% 44.0 - 46.1

[4] p<0.05 for 2004 difference between CSHCN status and predisposing factor

Table A9. Enabling Factors by CSHCN Status (N, %, 95% CI), OFHS 2004 and 2008

Enabling Factors	2004 CSHCN Number of Children	2004 CSHCN Percent of Children 95% CI	2004 Non-CSHCN Number of Children	2004 Non-CSHCN Percent of Children 95% CI	2008 CSHCN Number of Children	2008 CSHCN Percent of Children 95% CI	2008 Non-CSHCN Number of Children	2008 Non-CSHCN Percent of Children 95% CI
Children Aged 0-17 Years	624,634	21.7%	2,157,814	74.9%	570,913	20.9%	1,957,952	71.7%
Managed Care Region								
Central	120,093	19.2% 17.6 - 20.9	412,212	19.1% 18.4 - 19.8	112,789	19.8% 17.9 - 21.7	393,513	20.1% 19.3 - 20.9
Northeast	121,310	19.4% 17.7 - 21.2	452,186	21.0% 20.3 - 21.7	117,477	20.6% 18.6 - 22.6	403,672	20.6% 19.8 - 21.4
Northwest	72,435	11.6% 10.5 - 12.7	250,922	11.6% 11.2 - 12.1	62,200	10.9% 9.6 - 12.2	221,894	11.3% 10.7 - 11.9
Southeast	40,539	6.5% 5.6 - 7.3	108,076	5.0% 4.7 - 5.3	31,676	5.5% 4.6 - 6.5	90,372	4.6% 4.3 - 5.0
Southwest	100,659	16.1% 14.5 - 17.7	322,422	14.9% 14.4 - 15.5	88,355	15.5% 13.8 - 17.2	310,681	15.9% 15.1 - 16.6
West Central	64,145	10.3% 9.0 - 11.6	208,126	9.6% 9.2 - 10.1	57,892	10.1% 8.6 - 11.7	183,244	9.4% 8.7 - 10.0
East Central	73,395	11.8% 10.4 - 13.1	301,209	14.0% 13.4 - 14.5	76,389	13.4% 11.8 - 14.9	263,943	13.5% 12.8 - 14.2
Northeast Central	32,057	5.1% 4.2 - 6.0	102,662	4.8% 4.4 - 5.1	24,133	4.2% 3.3 - 5.2	90,634	4.6% 4.2 - 5.1

Table B1. Problems or Barriers to Health Care by CSHCN Status (N, %, 95% CI), OFHS 2004 and 2008

Help Aligning (Coordinating) Health Care by CSHCN Status	2004 CSHCN Number of Children	2004 CSHCN Percent of Children 95% CI	2004 Non-CSHCN Number of Children	2004 Non-CSHCN Percent of Children 95% CI	2008 CSHCN Number of Children	2008 CSHCN Percent of Children 95% CI	2008 Non-CSHCN Number of Children	2008 Non-CSHCN Percent of Children 95% CI
Children Aged 0-17 Years	624,634	21.7%	2,157,814	74.9%	570,913	20.9%	1,957,952	71.7%
Needed Help Aligning Care								
Yes [a]	132,188	22.4% 20.4 - 24.3			155,885	28.1% 25.8 - 30.4		
No [a]	459,035	77.6% 75.7 - 79.6			399,033	71.9% 69.6 - 74.2		
Received Help Aligning Care (when needed)*								
Never	8,470	6.5% 4.2 - 8.8			8,507	5.5% 3.5 - 7.5		
Sometimes	58,889	45.2% 40.1 - 50.2			28,746	18.5% 14.7 - 22.3		
Usually	19,744	15.1% 11.6 - 18.7			48,075	30.9% 26.2 - 35.7		
Always	43,240	33.2% 28.3 - 38.0			70,037	45.1% 40.3 - 49.9		

* Questions on 2004 and 2008 survey instruments differ and therefore comparison across years is not possible.

[a] p<0.05 for difference across prevalence for CSHCN between 2004 and 2008.

Table B2. Problems or Barriers to Health Care by CSHCN Status (N, %, 95% CI), OFHS 2004 and 2008

Unmet Health Care Needs	2004 CSHCN Number of Children	2004 CSHCN Percent of Children 95% CI	2004 Non-CSHCN Number of Children	2004 Non-CSHCN Percent of Children 95% CI	2008 CSHCN Number of Children	2008 CSHCN Percent of Children 95% CI	2008 Non-CSHCN Number of Children	2008 Non-CSHCN Percent of Children 95% CI
Children Aged 0-17 Years	624,634	21.7%	2,157,814	74.9%	570,913	20.9%	1,957,952	71.7%
Needed Dental Care But Could Not Get It [4,8]								
Yes	44,145	7.9% 6.6 - 9.2	82,948	4.1% 3.6 - 4.6	44,229	7.8% 6.5 - 9.2	69,898	3.6% 3.1 - 4.1
No	516,894	92.1% 90.8 - 93.4	1,953,155	95.9% 95.4 - 96.4	519,798	92.2% 90.8 - 93.5	1,863,262	96.4% 95.9 - 96.9
Main Barriers to Not Getting Dental Care (2008) [4,8]								
Cost	15,539	39.0% 30.4 - 47.6	35,337	46.3% 39.6 - 52.9	13,807	31.2% 22.6 - 39.8	29,794	42.7% 35.9 - 49.5
No Insurance	13,964	35.0% 26.7 - 43.3	26,647	34.9% 28.3 - 41.4	13,695	31.0% 22.5 - 39.4	22,894	32.8% 26.0 - 39.6
Difficulty Getting an Appointment	7,344	18.4% 10.7 - 26.1	8,188	10.7% 6.4 - 15.1	8,297	16.8% 8.5 - 29.0	10,904	15.6% 8.1 - 23.1
Needed Prescription Drug But Did Not Get It Due to Cost [4,8]								
Yes	45,604	8.4% 7.1 - 9.8	32,927	1.6% 1.3 - 2.0	40,416	7.2% 5.9 - 8.5	36,174	1.9% 1.5 - 2.2
No	495,733	91.6% 90.2 - 92.9	1,970,015	98.4% 98.0 - 98.7	522,560	92.8% 91.5 - 94.1	1,896,425	98.1% 97.8 - 98.5

[4] p<0.05 for 2004 difference between CSHCN status and predisposing factor; [8] p<0.05 for 2008 difference between CSHCN status and predisposing factor

Table B3. Problems or Barriers to Health Care by CSHCN Status (N, %, 95% CI), OFHS 2004 and 2008

Unmet Health Care Needs by CSHCN Status	2004 CSHCN Number of Children	2004 CSHCN Percent of Children 95% CI	2004 Non-CSHCN Number of Children	2004 Non-CSHCN Percent of Children 95% CI	2008 CSHCN Number of Children	2008 CSHCN Percent of Children 95% CI	2008 Non-CSHCN Number of Children	2008 Non-CSHCN Percent of Children 95% CI
Children Aged 0-17 Years	624,634	21.7%	2,157,814	74.9%	570,913	20.9%	1,957,952	71.7%
Needed Medical Exam** But Could Not Get It [4,8]								
Yes	8,371	1.3% 0.9 - 1.8	6,488	0.3% 0.2 - 0.4	9,900	1.8% 1.1 - 2.4	15,757	0.8% 0.6 - 1.0
No	613,053	98.7% 98.2 - 99.1	2,145,638	99.7% 99.6 - 99.8	553,443	98.2% 97.6 - 98.9	1,916,308	99.2% 99.0 - 99.4
Need Medical Supplies But Could Not Get Them								
Yes [a]	784 *	0.1% 0.0 - 0.3	49 *	0.0% 0.0 - 0.0	4,509 *	0.8% 0.4 - 1.2	310 *	0.0% 0.0 - 0.0
No [a]	620,640	99.9% 99.7 - 100.0	2,152,078	100.0% 100.0 - 100.0	558,834	99.2% 98.8 - 99.6	1,931,755	100.0% 100.0 - 100.0
Need Mental Health Care But Could Not Get It								
Yes [a]	2,529 *	0.4% 0.1 - 0.7	0 *	0.0%	8,012	1.4% 0.8 - 2.0	571 *	0.0% 0.0 - 0.1
No [a]	618,895	99.6% 99.3 - 99.9	2,152,126	100.0%	555,331	98.6% 98.0 - 99.2	1,931,494	100.0% 99.9 - 100.0
Needed Eyeglasses (Vision Care) But Could Not Get Them [4,8]								
Yes	6,892	1.1% 0.7 - 1.5	12,281	0.6% 0.4 - 0.8	10,586	1.9% 1.2 - 2.6	18,204	0.9% 0.7 - 1.2
No	614,532	99.9% 98.5 - 99.3	2,139,846	99.4% 99.2 - 99.6	552,757	98.1% 97.4 - 98.8	1,913,861	99.1% 98.8 - 99.3
Needed Health Care of Any Kind But Could Not Get It [4,8]								
Yes	36,849	5.9% 4.8 - 7.0	49,738	2.3% 1.9 - 2.7	36,493	6.5% 5.3 - 7.7	37,718	2.0% 1.6 - 2.3
No	584,477	94.1% 93.0 - 95.2	2,102,168	97.7% 97.3 - 98.1	526,850	93.5% 92.3 - 94.7	1,894,346	98.0% 97.7 - 98.4

* Survey number for weighted estimate < 25

** Medical exam including doctor visit, checkup, appointment or referral to a specialist, other medical treatment, and care for an ailment or body part.

[4] p<0.05 for 2004 difference between CSHCN status and predisposing factor; [8] p<0.05 for 2008 difference between CSHCN status and predisposing factor

[a] p<0.05 for difference across prevalence for CSHCN between 2004 and 2008.

Table B4. Problems or Barriers to Health Care by CSHCN Status (N, %, 95% CI), OFHS 2004 and 2008

Unmet Health Care Needs	2004 CSHCN Number of Children	2004 CSHCN Percent of Children 95% CI	2004 Non-CSHCN Number of Children	2004 Non-CSHCN Percent of Children 95% CI	2008 CSHCN Number of Children	2008 CSHCN Percent of Children 95% CI	2008 Non-CSHCN Number of Children	2008 Non-CSHCN Percent of Children 95% CI
Children Aged 0-17 Years	624,634	21.7%	2,157,814	74.9%	570,913	20.9%	1,957,952	71.7%
Main Reasons Child Could Not Get Needed Health Care								
Cost	11,292	65.3% 53.9 - 76.6	12,954	62.1% 49.3 - 74.9	16,336	44.8% 35.1 - 54.4	20,811	55.2% 45.5 - 64.9
No Insurance	5,460	31.6% 20.5 - 42.6	7,358	35.3% 22.7 - 47.9	14,757	40.4% 30.7 - 50.2	12,896	34.2% 24.9 - 43.5
Difficulty Getting Appointment	150 *	0.9% 0.0 - 2.6	0 *	-- --	2,085 *	5.7% 1.8 - 9.6	1,106 *	2.9% 0.0 - 5.9
Major Medical Costs ** [4,8]								
Yes	148,934	23.9% 21.9 - 25.8	178,864	8.3% 7.7 - 9.0	153,428	26.9% 24.7 - 29.2	228,504	11.7% 10.8 - 12.6
No	474,681	76.1% 74.2 - 78.1	1,974,139	91.7% 91.0 - 92.3	415,915	73.1% 70.8 - 75.3	1,725,377	88.3% 87.4 - 89.2
Delayed Getting Health Care Due to Cost ** [4,8]								
Yes	59,713	9.6% 8.2 - 10.9	84,402	3.9% 3.4 - 4.4	46,902	8.2% 6.9 - 9.6	73,975	3.8% 3.3 - 4.3
No	564,555	90.4% 89.1 - 91.8	2,068,810	96.1% 95.6 - 96.6	522,547	91.8% 90.4 - 93.1	1,879,352	96.2% 95.7 - 96.7
Child or Family Had Problems Getting Health Care in General ** [4,8]								
Yes	45,722	7.3% 6.1 - 8.5	41,252	1.9% 1.6 - 2.3	53,268	9.4% 7.9 - 10.8	43,759	2.2% 1.8 - 2.6
No	577,798	92.7% 91.5 - 93.9	2,112,482	98.1% 97.7 - 98.4	516,362	90.6% 89.2 - 92.1	1,911,035	97.8% 97.4 - 98.2

* Survey number for weighted estimate < 25

** For the currently uninsured, responses only reflect hardship while they were uninsured

Table B5. Problems or Barriers to Health Care by CSHCN Status (N, %, 95% CI), OFHS 2004 and 2008

Health Care Access	2004 CSHCN Number of Children	2004 CSHCN Percent of Children 95% CI	2004 Non-CSHCN Number of Children	2004 Non-CSHCN Percent of Children 95% CI	2008 CSHCN Number of Children	2008 CSHCN Percent of Children 95% CI	2008 Non-CSHCN Number of Children	2008 Non-CSHCN Percent of Children 95% CI
Children Aged 0-17 Years	624,634	21.7%	2,157,814	74.9%	570,913	20.9%	1,957,952	71.7%
Main Reasons for Using Hospital ER as Usual Provider Location								
Best Place to Get Care for Condition	3,615 *	38.2% 21.2 - 55.1	5,454	25.8% 14.9 - 36.7	4,711	54.2% 36.0 - 72.4	16,010	35.6% 26.7 - 44.5
Convenience / Don't Need an Appointment	4,037 *	42.6% 24.7 - 60.5	7,842	37.1% 24.5 - 49.6	2,213 *	25.5% 12.0 - 38.9	12,966	28.8% 20.7 - 36.9
No Regular Doctor	397 *	4.2% 0.0 - 10.2	5,170 *	24.4% 14.1 - 34.8	165 *	1.9% 0.0 - 4.6	4,252 *	9.4% 4.2 - 14.7
Main Reasons for Not Having a Usual Source of Care								
Seldom or Never Get Sick	573 *	20.6% 1.6 - 39.5	7,582	44.0% 31.4 - 56.7	617 *	12.3% 0.0 - 33.1	12,755	39.9% 29.5 - 50.2
No Insurance	1,605 *	57.7% 25.9 - 89.5	2,908 *	16.9% 7.4 - 26.4	1,159 *	23.1% 0.3 - 45.9	4,810	15.0% 7.5 - 22.6
Cost / Too Expensive	49 *	1.7% 0.0 - 5.3	656 *	3.8% 0.0 - 8.4	494 *	9.9% 0.0 - 23.1	2,920	9.1% 2.9 - 15.4

* Survey number for weighted estimate < 25

Table B6. Problems or Barriers to Health Care by CSHCN Status (N, %, 95% CI), OFHS 2004 and 2008

Health Care Access	2004 CSHCN Number of Children	2004 CSHCN Percent of Children 95% CI	2004 Non-CSHCN Number of Children	2004 Non-CSHCN Percent of Children 95% CI	2008 CSHCN Number of Children	2008 CSHCN Percent of Children 95% CI	2008 Non-CSHCN Number of Children	2008 Non-CSHCN Percent of Children 95% CI
Children Aged 0-17 Years	624,634	21.7%	2,157,814	74.9%	570,913	20.9%	1,957,952	71.7%
Needed to See Specialist [4,8]								
Yes	344,164	55.2% 52.9 - 57..4	360,026	16.7% 15.8 - 17.6	300,370	53.3% 50.7 - 55.8	340,060	17.6% 16.6 - 18.6
No	279,873	44.8% 42.6 - 47.1	1,792,296	83.3% 82.4 - 84.2	263,467	46.7% 44.2 - 49.3	1,592,740	82.4% 81.4 - 83.4
Difficulty Seeing Needed Specialist [4,8]								
Big Problem	26,555	8.0% 6.4 - 9.6	11,749	3.7% 2.3 - 4.4	26,420	8.1% 6.2 - 10.0	17,073	4.4% 3.1 - 5.8
Small Problem	42,764	12.8% 10.8 - 14.9	36,027	10.3% 8.5 - 12.1	48,226	14.8% 12.4 - 17.1	42,289	10.9% 9.0 - 12.8
Not a Problem	263,484	79.2% 76.7 - 81.7	301,691	86.3% 84.3 - 88.4	251,971	77.1% 74.3 - 80.0	327,322	84.6% 82.4 - 86.9
Reason for "Big Problem" Seeing Needed Specialist								
Cost / No Insurance					6,272	24.4% 13.5 - 35.3	6,863	40.6% 25.0 - 56.2
Insurance Restrictions					9,095	35.4% 23.7 - 47.1	3,747 *	22.1% 9.1 - 35.2
No Convenient Appointments					4,529 *	17.6% 7.8 - 27.5	2,492	14.7% 3.0 - 26.4
No Specialist Nearby					3,765 *	14.6% 7.1 - 22.2	953 *	5.6% 0.0 - 12.3

* Survey number for weighted estimate < 25

[4] p<0.05 for 2004 difference between CSHCN status and predisposing factor; [8] p<0.05 for 2008 difference between CSHCN status and predisposing factor

Table B7. Problems or Barriers to Health Care by CSHCN Status (N, %, 95% CI), OFHS 2004 and 2008

Health Care Access	2004 CSHCN Number of Children	2004 CSHCN Percent of Children 95% CI	2004 Non-CSHCN Number of Children	2004 Non-CSHCN Percent of Children 95% CI	2008 CSHCN Number of Children	2008 CSHCN Percent of Children 95% CI	2008 Non-CSHCN Number of Children	2008 Non-CSHCN Percent of Children 95% CI
Children Aged 0-17 Years	624,634	21.7%	2,157,814	74.9%	570,913	20.9%	1,957,952	71.7%
Last Time a Child Saw a Non-ER Health Care Professional [4,8]								
≤ 6 months	533,324	85.8% 84.1 - 87.4	1,533,009	71.5% 70.4 - 72.6	490,460	88.5% 86.9 - 90.1	1,334,232	74.4% 73.1 - 75.6
> 6 months and ≤ 1 year [a]	67,121	10.8% 9.3 - 12.2	410,066	19.1% 18.2 - 20.1	25,883	4.7% 3.6 - 5.7	182,832	10.2% 9.3 - 11.1
> 1 year and ≤ 2 years [a]	14,843	2.4% 1.7 - 3.1	142,774	6.7% 6.0 - 7.3	27,876	5.0% 3.9 - 6.2	189,783	10.6% 9.7 - 11.4
> 2 years and ≤ 5 years	4,667	0.8% 0.4 - 1.1	39,118	1.8% 1.5 - 2.1	7,585	1.4% 0.7 - 2.0	65,024	3.6% 3.1 - 4.1
> 5 years	1,204	0.2% 0.0 - 0.4	10,892	0.5% 0.3 - 0.7	1,250 *	0.2% 0.0 - 0.4	12,412	0.7% 0.5 - 0.9
Never	749	0.1% 0.0 - 0.3	7,258	0.3% 0.2 - 0.5	882 *	0.2% 0.0 - 0.3	9,680	0.5% 0.3 - 0.7
Obtained Preventive Medicine Check-Up [4]								
Yes	484,109	78.3% 76.5 - 80.1	1,592,457	75.5% 73.4 - 75.5	435,817	77.0% 74.8 - 79.1	1,526,636	78.7% 77.7 - 79.8
No	134,146	21.7% 19.9 - 23.5	545,914	25.5% 24.5 - 26.6	130,365	23.0% 20.9 - 25.2	412,264	21.3% 20.2 - 22.3
Number of Overnight Hospital Visits [4,8]								
0	540,742	86.8% 85.2 - 88.3	2,023,865	94.0% 93.4 - 94.5	502,452	88.4% 86.8 - 90.0	1,854,884	95.2% 94.6 - 95.8
1 - 2	63,129	10.1% 8.8 - 11.5	120,790	5.6% 5.1 - 6.1	55,137	9.7% 8.2 - 11.2	88,977	4.6% 4.0 - 5.1
≥ 3	19,251	3.1% 2.2 - 3.9	9,147	0.4% 0.3 - 0.6	10,683	1.9% 1.2 - 2.5	4,385 *	0.2% 0.1 - 0.4

[4] p<0.05 for 2004 difference between CSHCN status and predisposing factor; [8] p<0.05 for 2008 difference between CSHCN status and predisposing factor

[a] p<0.05 for difference across prevalence for CSHCN between 2004 and 2008.

Table B8. Problems or Barriers to Health Care by CSHCN Status (N, %, 95% CI), OFHS 2004 and 2008

Health Care Access	2004 CSHCN Number of Children	2004 CSHCN Percent of Children 95% CI	2004 Non-CSHCN Number of Children	2004 Non-CSHCN Percent of Children 95% CI	2008 CSHCN Number of Children	2008 CSHCN Percent of Children 95% CI	2008 Non-CSHCN Number of Children	2008 Non-CSHCN Percent of Children 95% CI
Children Aged 0-17 Years	624,634	21.7%	2,157,814	74.9%	570,913	20.9%	1,957,952	71.7%
Number of Visits to Emergency Rooms [4,8]								
0	403,994	65.0% 62.8 - 67.2	1,744,686	81.1% 80.1 - 82.0	389,609	68.8% 66.4-71.1	1,628,897	83.6% 82.6-84.7
1 - 5	196,720	31.6% 29.5 - 33.8	397,259	18.5% 17.5 - 19.4	160,375	28.3% 26.0-30.6	311,088	16.0% 15.0-17.0
≥ 5	21,160	3.4% 2.5 - 4.3	9,931	0.5% 0.3 - 0.6	16,708	2.9% 2.1-3.8	7,491	0.4% 0.2-0.5
Last Time Child Saw a Dentist [4,8]								
≤ 6 months [a]	387,417	63.5% 61.3 - 65.7	1,235,240	61.2% 60.0 - 62.5	396,697	71.0% 68.6 - 73.3	1,205,046	66.3% 65.0 - 67.6
> 6 months and ≤ 1 year [a]	100,143	16.4% 14.7 - 18.1	256,552	12.7% 11.9 - 13.6	31,535	5.6% 4.5 - 6.8	94,263	5.2% 4.5 - 5.8
> 1 year and ≤ 3 years [a]	50,347	8.2% 7.0 - 9.5	141,977	7.0% 6.4 - 7.7	78,291	14.0% 12.2 - 15.8	201,166	11.1% 10.2 - 11.9
> 3 years	12,757	2.1% 1.5 - 2.7	27,836	1.4% 1.1 - 1.7	13,871	2.5% 1.7 - 3.3	31,045	1.7% 1.4 - 2.0
Never [a]	59,705	9.8% 8.4 - 11.1	355,361	17.6% 16.7 - 18.6	38,485	6.9% 5.6 - 8.2	286,105	15.7% 14.7 - 16.8

[4] p<0.05 for 2004 difference between CSHCN status and predisposing factor; [8] p<0.05 for 2008 difference between CSHCN status and predisposing factor

[a] p<0.05 for difference across prevalence for CSHCN between 2004 and 2008.

Table C1. Multivariable Logistic Regression (Odds Ratio, 95% CI), OFHS 2004 and 2008
Dependent Variable is Needed Coordination of Care (Yes is the reference class)

Variable	Category	Reference	2004 Odds	2004 95% CI		2008 Odds	2008 95% CI	
Age	0-5	13-17	***1.58***	1.16	2.17	***1.73***	1.25	2.40
	6-12		1.27	0.96	1.67	1.07	0.81	1.39
Gender	Male	Female	1.12	0.88	1.42	1.01	0.79	1.29
Race/Ethnicity	Black	White	0.89	0.60	1.32	0.66	0.44	1.00
	Hispanic		1.00	0.61	1.66	0.98	0.62	1.56
	Other		1.03	0.48	2.21	1.91	0.80	4.61
Parent's Marital Status	Single	Married	0.85	0.59	1.24	1.06	0.71	1.58
	Divorced/Separated		0.94	0.69	1.28	0.76	0.54	1.07
	Widowed		0.78	0.35	1.73	0.54	0.24	1.24
Child Full-Year Insurance Status	Uninsured (≤ 200% FPL)	Private	0.77	0.32	1.89	1.14	0.41	3.15
	Uninsured (> 200% FPL)		0.68	0.16	2.90	1.21	0.26	5.70
	Insured Part of Year		1.45	0.88	2.38	1.30	0.73	2.28
	Public		1.01	0.77	1.33	***1.33***	1.01	1.76
Health Status	Fair/Poor/Good	Very Good / Excellent	***2.01***	1.60	2.53	***1.60***	1.25	2.05
County/Region	Cuyahoga	Hamilton	1.04	0.56	1.92	1.05	0.54	2.06
	Franklin		1.03	0.55	1.96	1.52	0.78	2.94
	Lucas		1.10	0.57	2.14	0.97	0.44	2.14
	Montgomery		0.69	0.32	1.53	0.75	0.33	1.75
	Summit		1.70	0.89	3.27	0.75	0.37	1.53
	Other Metropolitan		0.97	0.53	1.77	1.15	0.64	2.09
	Suburban		1.06	0.57	1.96	1.16	0.63	2.14
	Appalacian		0.89	0.50	1.59	0.88	0.48	1.61
	Rural (Non-Appalacian)		1.07	0.60	1.92	1.49	0.84	2.65

Odds = adjusted odds ratio (significant difference from reference highlighted in bold, italics, and cell shaded grey); CI = confidence interval
Note: Question only asked to CSHCN

Table C2. Multivariable Logistic Regression (Odds Ratio, 95% CI), OFHS 2004 and 2008
Dependent Variable is Frequency Getting Needed Coordination of Care (Never/Rarely is the reference class)

Variable	Category	Reference	2004 Odds	2004 95% CI		2008 Odds	2008 95% CI	
Age	0-5	13-17	1.03	0.59	1.82	***0.46***	0.24	0.91
	6-12		1.25	0.76	2.07	0.83	0.48	1.44
Gender	Male	Female	0.94	0.62	1.43	0.90	0.55	1.47
Race/Ethnicity	Black	White	1.18	0.60	2.32	1.00	0.42	2.40
	Hispanic		1.85	0.64	5.38	***3.56***	1.64	7.70
	Other		0.94	0.24	3.70	1.30	0.32	5.18
Parent's Marital Status	Single	Married	0.68	0.35	1.30	1.52	0.74	3.11
	Divorced/Separated		0.65	0.38	1.10	1.33	0.70	2.54
	Widowed		1.25	0.35	4.43	0.38	0.09	1.65
Child Full-Year Insurance Status	Uninsured (≤ 200% FPL)	Private	0.90	0.17	4.71	1.98	0.28	14.00
	Uninsured (> 200% FPL)		0.10	0.01	1.31	2.31	0.17	32.31
	Insured Part of Year		0.62	0.27	1.41	***3.86***	1.52	9.83
	Public		1.09	0.66	1.81	***1.76***	1.05	2.95
Health Status	Fair/Poor/Good	Very Good / Excellent	0.86	0.55	1.33	1.35	0.86	2.12
County/Region	Cuyahoga	Hamilton	1.09	0.37	3.24	1.95	0.39	9.64
	Franklin		1.51	0.51	4.48	1.20	0.27	5.33
	Lucas		1.06	0.33	3.43	2.97	0.49	17.81
	Montgomery		0.92	0.21	3.99	3.76	0.72	19.58
	Summit		1.46	0.49	4.40	2.74	0.57	13.15
	Other Metropolitan		1.27	0.46	3.52	2.41	0.63	9.21
	Suburban		0.97	0.34	2.77	1.68	0.41	6.85
	Appalacian		1.45	0.54	3.90	1.53	0.38	6.12
	Rural (Non-Appalacian)		1.52	0.58	3.95	1.80	0.48	6.74

Odds = adjusted odds ratio (significant difference from reference highlighted in bold, italics, and cell shaded grey); CI = confidence interval
Note: Question only asked to CSHCN

Table C3. Multivariable Logistic Regression (Odds Ratio, 95% CI), OFHS 2004 and 2008
Dependent Variable is Needed Dental Care But Could Not Get It At the Time (Yes is the reference class)

Variable	Category	Reference	2004 Odds	2004 95% CI		2008 Odds	2008 95% CI	
CSHCN	Yes	No	***1.41***	1.10	1.82	***1.79***	1.37	2.34
Age	0-5	13-17	***0.39***	0.27	0.55	***0.20***	0.14	0.31
	6-12		1.05	0.82	1.33	***0.72***	0.55	0.93
Gender	Male	Female	0.94	0.75	1.17	0.89	0.70	1.13
Race/Ethnicity	Black	White	1.27	0.90	1.80	0.86	0.59	1.27
	Hispanic		1.29	0.89	1.87	1.29	0.86	1.94
	Other		1.34	0.67	2.69	1.73	0.86	3.49
Parent's Marital Status	Single	Married	1.37	1.00	1.88	***1.99***	1.40	2.83
	Divorced/Separated		***1.59***	1.21	2.10	***1.61***	1.16	2.24
	Widowed		0.96	0.51	1.82	0.94	0.50	1.78
Child Full-Year Insurance Status	Uninsured (≤ 200% FPL)	Private	***8.14***	5.35	12.37	***8.52***	5.33	13.62
	Uninsured (> 200% FPL)		***5.53***	2.91	10.50	***2.40***	1.05	5.52
	Insured Part of Year		***6.05***	4.36	8.42	***7.67***	5.28	11.14
	Public		***1.38***	1.05	1.83	***1.41***	1.02	1.95
Health Status	Fair/Poor/Good	Very Good / Excellent	***2.02***	1.55	2.63	***1.38***	1.02	1.86
County/Region	Cuyahoga	Hamilton	0.93	0.51	1.69	2.21	1.06	4.61
	Franklin		0.66	0.35	1.26	1.74	0.83	3.68
	Lucas		0.97	0.51	1.85	1.40	0.57	3.43
	Montgomery		1.18	0.60	2.34	1.86	0.77	4.53
	Summit		1.21	0.67	2.22	1.86	0.85	4.05
	Other Metropolitan		0.88	0.50	1.55	1.47	0.70	3.10
	Suburban		1.14	0.63	2.04	1.39	0.66	2.90
	Appalacian		1.23	0.71	2.12	***2.29***	1.12	4.68
	Rural (Non-Appalacian)		1.10	0.63	1.93	1.80	0.89	3.64

Odds = adjusted odds ratio (significant difference from reference highlighted in bold, italics, and cell shaded grey); CI = confidence interval

Table C4. Multivariable Logistic Regression (Odds Ratio, 95% CI), OFHS 2004 and 2008
Dependent Variable is Needed Prescription Drug But Could Not Get It Due to Cost (Yes is the reference class)

Variable	Category	Reference	2004 Odds	2004 95% CI		2008 Odds	2008 95% CI	
CSHCN	Yes	No	***4.77***	3.53	6.45	***3.37***	2.46	4.62
Age	0-5	13-17	0.75	0.53	1.06	***0.65***	0.44	0.97
	6-12		0.75	0.55	1.03	0.77	0.55	1.07
Gender	Male	Female	0.95	0.72	1.24	1.07	0.81	1.43
Race/Ethnicity	Black	White	1.00	0.65	1.52	1.38	0.91	2.09
	Hispanic		0.92	0.52	1.64	0.86	0.50	1.50
	Other		1.37	0.62	3.01	0.65	0.17	2.59
Parent's Marital Status	Single	Married	1.11	0.73	1.69	1.40	0.91	2.16
	Divorced/Separated		***1.53***	1.08	2.17	1.37	0.94	2.02
	Widowed		0.49	0.21	1.15	1.67	0.73	3.85
Child Full-Year Insurance Status	Uninsured (≤ 200% FPL)	Private	***4.44***	2.66	7.39	***6.25***	3.13	12.52
	Uninsured (> 200% FPL)		2.45	0.91	6.59	***5.78***	2.57	13.00
	Insured Part of Year		***5.24***	3.64	7.55	***7.04***	4.55	10.88
	Public		***0.54***	0.37	0.77	0.83	0.57	1.23
Health Status	Fair/Poor/Good	Very Good / Excellent	***2.33***	1.74	3.12	***2.36***	1.71	3.26
County/Region	Cuyahoga	Hamilton	1.40	0.62	3.14	2.20	0.95	5.08
	Franklin		1.36	0.62	2.99	***3.18***	1.40	7.19
	Lucas		1.18	0.50	2.80	1.15	0.41	3.18
	Montgomery		1.50	0.62	3.62	***2.71***	1.02	7.16
	Summit		1.12	0.47	2.68	1.44	0.58	3.56
	Other Metropolitan		1.27	0.59	2.71	***2.43***	1.11	5.35
	Suburban		1.87	0.88	3.96	2.04	0.89	4.64
	Appalacian		***2.07***	1.01	4.25	1.79	0.82	3.94
	Rural (Non-Appalacian)		1.18	0.56	2.47	1.78	0.81	3.90

Odds = adjusted odds ratio (significant difference from reference highlighted in bold, italics, and cell shaded grey); CI = confidence interval

Table C5. Multivariable Logistic Regression (Odds Ratio, 95% CI), OFHS 2004 and 2008
Dependent Variable is Needed Medical Exam But Could Not Get It (Yes is the reference class)

Variable	*Category*	*Reference*	*2004 Odds*	*2004 95% CI*		*2008 Odds*	*2008 95% CI*	
CSHCN	Yes	No				***2.45***	1.50	3.99
Age	0-5	13-17				0.95	0.52	1.74
	6-12					0.70	0.40	1.24
Gender	Male	Female				1.22	0.77	1.94
Race/Ethnicity	Black	White				1.64	0.75	3.56
	Hispanic					0.89	0.31	2.53
	Other					1.36	0.46	3.98
Parent's Marital Status	Single	Married				1.20	0.50	2.90
	Divorced/Separated					1.70	0.94	3.07
	Widowed					0.95	0.30	3.02
Child Full-Year Insurance Status	Uninsured (≤ 200% FPL)	Private				***14.32***	6.76	30.33
	Uninsured (> 200% FPL)					***10.89***	4.32	27.47
	Insured Part of Year					***8.18***	4.37	15.30
	Public					0.30	0.12	0.75
Health Status	Fair/Poor/Good	Very Good / Excellent				1.42	0.81	2.49
County/Region	Cuyahoga	Hamilton				0.81	0.25	2.63
	Franklin					2.20	0.71	6.81
	Lucas					1.18	0.27	5.12
	Montgomery					1.54	0.42	5.58
	Summit					***3.04***	1.05	8.77
	Other Metropolitan					0.91	0.26	3.15
	Suburban					1.23	0.43	3.53
	Appalacian					1.92	0.67	5.49
	Rural (Non-Appalacian)					2.09	0.77	5.67

Odds = adjusted odds ratio (significant difference from reference highlighted in bold, italics, and cell shaded grey); CI = confidence interval

Table C6. Multivariable Logistic Regression (Odds Ratio, 95% CI), OFHS 2004 and 2008
Dependent Variable is Needed Medical Supplies But Could Not Get Them (Yes is the reference class)

			2004		2008		
Variable	*Category*	*Reference*	*Odds*	*95% CI*	*Odds*	*95% CI*	
CSHCN	Yes	No			***35.89***	8.10	159.02
Age	0-5	13-17			1.50	0.31	7.27
	6-12				1.20	0.34	4.22
Gender	Male	Female			0.69	0.19	2.45
Race/Ethnicity	Black	White			1.04	0.29	3.80
	Hispanic				1.34	0.29	6.11
	Other				<0.001	<0.001	<0.001
Parent's Marital Status	Single	Married			0.49	0.06	3.90
	Divorced/Separated				0.85	0.13	5.79
	Widowed				0.25	0.02	3.51
Child Full-Year Insurance Status	Uninsured (≤ 200% FPL)	Private			9.92	0.91	108.15
	Uninsured (> 200% FPL)				9.60	0.75	122.66
	Insured Part of Year				1.18	0.17	7.98
	Public				2.74	0.56	13.44
Health Status	Fair/Poor/Good	Very Good / Excellent			***3.65***	1.07	12.38
County/Region	Cuyahoga	Hamilton			0.28	0.02	4.27
	Franklin				1.07	0.12	9.50
	Lucas				<0.001	<0.001	<0.001
	Montgomery				<0.001	<0.001	<0.001
	Summit				0.53	0.04	8.00
	Other Metropolitan				0.44	0.04	5.67
	Suburban				0.86	0.08	9.14
	Appalacian				0.15	0.01	2.03
	Rural (Non-Appalacian)				0.46	0.03	6.10

Odds = adjusted odds ratio (significant difference from reference highlighted in bold, italics, and cell shaded grey); CI = confidence interval

Table C7. Multivariable Logistic Regression (Odds Ratio, 95% CI), OFHS 2004 and 2008
Dependent Variable is Needed Mental Health Care But Could Not Get It (Yes is the reference class)

			2004		2008		
Variable	Category	Reference	Odds	95% CI	Odds	95% CI	
CSHCN	Yes	No			***34.83***	9.62	126.06
Age	0-5	13-17			<0.001	<0.001	<0.001
	6-12				1.25	0.59	2.63
Gender	Male	Female			0.90	0.39	2.08
Race/Ethnicity	Black	White			2.32	0.55	9.73
	Hispanic				0.23	0.03	1.84
	Other				<0.001	<0.001	<0.001
Parent's Marital Status	Single	Married			1.18	0.28	4.94
	Divorced/Separated				2.17	0.84	5.63
	Widowed				<0.001	<0.001	<0.001
Child Full-Year Insurance Status	Uninsured (≤ 200% FPL)	Private			<0.001	<0.001	<0.001
	Uninsured (> 200% FPL)				2.19	0.14	35.13
	Insured Part of Year				1.54	0.51	4.60
	Public				0.30	0.08	1.17
Health Status	Fair/Poor/Good	Very Good / Excellent			2.24	0.97	5.17
County/Region	Cuyahoga	Hamilton			0.54	0.04	7.18
	Franklin				1.80	0.34	9.60
	Lucas				1.98	0.31	12.78
	Montgomery				1.91	0.21	17.78
	Summit				1.36	0.18	10.52
	Other Metropolitan				0.92	0.16	5.19
	Suburban				0.56	0.06	5.22
	Appalacian				0.92	0.17	5.00
	Rural (Non-Appalacian)				1.66	0.32	8.60

Odds = adjusted odds ratio (significant difference from reference highlighted in bold, italics, and cell shaded grey); CI = confidence interval

Table C8. Multivariable Logistic Regression (Odds Ratio, 95% CI), OFHS 2004 and 2008
Dependent Variable is Needed Vision Care / Eyeglasses But Could Not Get It (Yes is the reference class)

			2004		2008		
Variable	*Category*	*Reference*	*Odds*	*95% CI*	*Odds*	*95% CI*	
CSHCN	Yes	No			1.53	0.87	2.69
Age	0-5	13-17			***0.11***	0.05	0.26
	6-12				***0.58***	0.36	0.94
Gender	Male	Female			0.65	0.40	1.07
Race/Ethnicity	Black	White			***2.50***	1.21	5.14
	Hispanic				0.79	0.29	2.14
	Other				***0.01***	0.00	0.08
Parent's Marital Status	Single	Married			0.94	0.40	2.24
	Divorced/Separated				1.36	0.72	2.57
	Widowed				0.45	0.14	1.47
Child Full-Year Insurance Status	Uninsured (≤ 200% FPL)	Private			***9.18***	3.38	24.96
	Uninsured (> 200% FPL)				***14.05***	3.42	57.67
	Insured Part of Year				***7.63***	3.57	16.32
	Public				0.74	0.35	1.59
Health Status	Fair/Poor/Good	Very Good / Excellent			1.41	0.77	2.57
County/Region	Cuyahoga	Hamilton			1.27	0.35	4.64
	Franklin				1.89	0.56	6.45
	Lucas				0.38	0.07	1.98
	Montgomery				0.57	0.14	2.28
	Summit				0.72	0.13	3.91
	Other Metropolitan				1.18	0.34	4.08
	Suburban				2.09	0.64	6.86
	Appalacian				1.19	0.35	4.08
	Rural (Non-Appalacian)				0.72	0.21	2.41

Odds = adjusted odds ratio (significant difference from reference highlighted in bold, italics, and cell shaded grey); CI = confidence interval

Table C9. Multivariable Logistic Regression (Odds Ratio, 95% CI), OFHS 2004 and 2008
Dependent Variable is Needed Health Care of Any Kind But Could Not Get It (Yes is the reference class)

			2004		2008		
Variable	*Category*	*Reference*	*Odds*	*95% CI*	*Odds*	*95% CI*	
CSHCN	Yes	No			***3.32***	2.41	4.56
Age	0-5	13-17			***0.44***	0.29	0.68
	6-12				***0.72***	0.52	0.99
Gender	Male	Female			0.85	0.63	1.14
Race/Ethnicity	Black	White			***2.05***	1.29	3.25
	Hispanic				0.91	0.48	1.69
	Other				0.44	0.15	1.30
Parent's Marital Status	Single	Married			1.06	0.61	1.85
	Divorced/Separated				***1.77***	1.20	2.60
	Widowed				0.47	0.20	1.12
Child Full-Year Insurance Status	Uninsured (≤ 200% FPL)	Private			***10.03***	5.89	17.07
	Uninsured (> 200% FPL)				***13.36***	5.61	31.86
	Insured Part of Year				***7.94***	5.12	12.31
	Public				0.64	0.40	1.03
Health Status	Fair/Poor/Good	Very Good / Excellent			***1.65***	1.15	2.36
County/Region	Cuyahoga	Hamilton			1.46	0.63	3.40
	Franklin				***2.35***	1.04	5.29
	Lucas				0.94	0.35	2.54
	Montgomery				1.00	0.35	2.86
	Summit				1.53	0.63	3.74
	Other Metropolitan				1.29	0.57	2.95
	Suburban				1.64	0.72	3.70
	Appalacian				1.40	0.62	3.18
	Rural (Non-Appalacian)				1.79	0.81	3.95

Odds = adjusted odds ratio (significant difference from reference highlighted in bold, italics, and cell shaded grey); CI = confidence interval

Table C10. Multivariable Logistic Regression (Odds Ratio, 95% CI), OFHS 2008
Dependent Variable is Delay or Avoid Getting Health Care Due to Cost in Past 12 Months (Yes is the reference class)

			2004			2008		
Variable	*Category*	*Reference*	*Odds*	*95% CI*		*Odds*	*95% CI*	
CSHCN	Yes	No	***2.02***	1.60	2.55	***1.97***	1.51	2.56
Age	0-5	13-17	***0.54***	0.41	0.72	***0.48***	0.34	0.66
	6-12		0.89	0.70	1.13	***0.60***	0.46	0.78
Gender	Male	Female	1.00	0.81	1.23	0.89	0.71	1.13
Race/Ethnicity	Black	White	1.01	0.70	1.44	***1.62***	1.10	2.38
	Hispanic		1.09	0.72	1.64	0.91	0.57	1.46
	Other		***2.04***	1.12	3.70	0.86	0.40	1.85
Parent's Marital Status	Single	Married	0.94	0.67	1.33	1.18	0.78	1.78
	Divorced/Separated		***1.50***	1.15	1.97	***1.69***	1.23	2.30
	Widowed		0.76	0.39	1.50	0.90	0.43	1.88
Child Full-Year Insurance Status	Uninsured (≤ 200% FPL)	Private	***4.96***	3.38	7.27	***9.22***	5.81	14.63
	Uninsured (> 200% FPL)		***2.65***	1.26	5.56	***8.91***	4.62	17.18
	Insured Part of Year		***8.08***	6.10	10.71	***7.02***	5.01	9.83
	Public		***0.60***	0.44	0.82	***0.60***	0.42	0.86
Health Status	Fair/Poor/Good	Very Good / Excellent	***2.79***	2.21	3.54	***2.01***	1.50	2.69
County/Region	Cuyahoga	Hamilton	0.91	0.50	1.67	1.36	0.68	2.73
	Franklin		1.26	0.71	2.25	1.62	0.81	3.25
	Lucas		1.33	0.71	2.50	0.74	0.29	1.86
	Montgomery		0.89	0.42	1.88	1.33	0.59	3.00
	Summit		1.16	0.62	2.18	1.45	0.70	2.97
	Other Metropolitan		1.06	0.59	1.88	***2.06***	1.08	3.93
	Suburban		1.08	0.59	1.96	1.68	0.88	3.21
	Appalacian		1.18	0.67	2.07	1.52	0.80	2.90
	Rural (Non-Appalacian)		1.24	0.70	2.17	***2.07***	1.10	3.88

Odds = adjusted odds ratio (significant difference from reference highlighted in bold, italics, and cell shaded grey); CI = confidence interval

Table C11. Multivariable Logistic Regression (Odds Ratio, 95% CI), OFHS 2008
Dependent Variable is Problems Getting Needed Health Care in Past 12 Months (Yes is the reference class)

			2004			2008		
Variable	**Category**	**Reference**	**Odds**	**95% CI**		**Odds**	**95% CI**	
CSHCN	Yes	No	***3.06***	2.27	4.11	***3.51***	2.63	4.69
Age	0-5	13-17	0.87	0.62	1.22	0.76	0.53	1.09
	6-12		1.04	0.76	1.42	0.79	0.59	1.08
Gender	Male	Female	1.12	0.86	1.47	1.02	0.78	1.34
Race/Ethnicity	Black	White	0.85	0.55	1.30	1.36	0.86	2.14
	Hispanic		0.71	0.45	1.13	1.40	0.87	2.26
	Other		***2.76***	1.39	5.49	1.31	0.51	3.39
Parent's Marital Status	Single	Married	0.94	0.61	1.44	0.88	0.56	1.38
	Divorced/Separated		1.35	0.98	1.88	1.22	0.86	1.74
	Widowed		1.42	0.75	2.69	1.07	0.54	2.16
Child Full-Year Insurance Status	Uninsured (≤ 200% FPL)	Private	***4.62***	2.77	7.69	***6.80***	3.79	12.22
	Uninsured (> 200% FPL)		2.73	0.92	8.05	***8.36***	2.99	23.33
	Insured Part of Year		***6.71***	4.64	9.71	***6.54***	4.44	9.66
	Public		1.17	0.83	1.65	1.39	0.99	1.97
Health Status	Fair/Poor/Good	Very Good / Excellent	***2.21***	1.64	2.98	***2.17***	1.58	2.98
County/Region	Cuyahoga	Hamilton	0.67	0.36	1.27	0.88	0.39	2.01
	Franklin		0.78	0.42	1.48	1.28	0.58	2.82
	Lucas		0.84	0.43	1.66	1.86	0.71	4.86
	Montgomery		0.88	0.42	1.85	1.62	0.64	4.10
	Summit		0.53	0.26	1.07	1.41	0.61	3.23
	Other Metropolitan		0.63	0.34	1.16	1.65	0.80	3.38
	Suburban		0.62	0.32	1.19	1.38	0.65	2.93
	Appalacian		0.71	0.40	1.28	1.48	0.71	3.08
	Rural (Non-Appalacian)		0.50	0.27	0.92	2.01	0.98	4.14

Odds = adjusted odds ratio (significant difference from reference highlighted in bold, italics, and cell shaded grey); CI = confidence interval

Table C12. Multivariable Logistic Regression (Odds Ratio, 95% CI), OFHS 2008
Dependent Variable is Incurred Major Medical Costs in Past 12 Months (Yes is the reference class)

			2004			2008		
Variable	Category	Reference	Odds	95% CI		Odds	95% CI	
CSHCN	Yes	No	***3.23***	2.77	3.76	***2.55***	2.17	3.00
Age	0-5	13-17	***1.53***	1.29	1.82	***1.23***	1.03	1.47
	6-12		0.86	0.73	1.02	***0.69***	0.58	0.81
Gender	Male	Female	1.01	0.88	1.16	1.09	0.94	1.25
Race/Ethnicity	Black	White	***0.60***	0.46	0.78	***0.64***	0.49	0.85
	Hispanic		0.77	0.58	1.03	***0.63***	0.47	0.83
	Other		0.85	0.52	1.39	0.92	0.57	1.47
Parent's Marital Status	Single	Married	0.85	0.68	1.07	0.97	0.74	1.27
	Divorced/Separated		0.92	0.76	1.13	0.88	0.70	1.10
	Widowed		0.76	0.44	1.30	1.30	0.84	2.02
Child Full-Year Insurance Status	Uninsured (≤ 200% FPL)	Private	***2.06***	1.49	2.84	***1.95***	1.24	3.05
	Uninsured (> 200% FPL)		***2.68***	1.58	4.54	1.43	0.78	2.60
	Insured Part of Year		1.01	0.76	1.35	0.81	0.59	1.12
	Public		***0.65***	0.54	0.79	***0.65***	0.54	0.79
Health Status	Fair/Poor/Good	Very Good / Excellent	***2.27***	1.92	2.69	***2.25***	1.88	2.70
County/Region	Cuyahoga	Hamilton	1.24	0.84	1.83	0.69	0.46	1.03
	Franklin		1.14	0.77	1.70	1.15	0.78	1.71
	Lucas		1.27	0.82	1.98	1.06	0.66	1.69
	Montgomery		1.43	0.90	2.25	1.07	0.67	1.70
	Summit		1.28	0.86	1.91	0.84	0.55	1.30
	Other Metropolitan		1.24	0.86	1.79	0.93	0.65	1.34
	Suburban		1.21	0.83	1.75	0.99	0.69	1.42
	Appalacian		1.10	0.77	1.57	0.90	0.63	1.28
	Rural (Non-Appalacian)		1.20	0.84	1.70	1.05	0.74	1.48

Odds = adjusted odds ratio (significant difference from reference highlighted in bold, italics, and cell shaded grey); CI = confidence interval

Table C13. Multivariable Logistic Regression (Odds Ratio, 95% CI), OFHS 2008
Dependent Variable is Usual Source of Sick Care (No is the reference class)

			2004			2008		
Variable	Category	Reference	Odds	95% CI		Odds	95% CI	
CSHCN	Yes	No	0.91	0.67	1.23	0.92	0.68	1.25
Age	0-5	13-17	***0.43***	0.31	0.60	0.70	0.51	0.97
	6-12		0.77	0.58	1.02	0.94	0.71	1.25
Gender	Male	Female	1.02	0.79	1.32	0.94	0.74	1.20
Race/Ethnicity	Black	White	1.17	0.74	1.84	1.01	0.67	1.51
	Hispanic		1.53	0.98	2.38	1.39	0.94	2.06
	Other		***2.48***	1.30	4.73	1.57	0.65	3.77
Parent's Marital Status	Single	Married	1.05	0.68	1.60	***1.81***	1.22	2.68
	Divorced/Separated		1.18	0.84	1.65	***1.83***	1.32	2.56
	Widowed		0.92	0.35	2.41	***2.01***	1.10	3.69
Child Full-Year Insurance Status	Uninsured (≤ 200% FPL)	Private	***13.93***	9.15	21.21	***6.98***	4.32	11.27
	Uninsured (> 200% FPL)		***5.93***	2.92	12.02	***4.44***	2.28	8.62
	Insured Part of Year		***5.00***	3.37	7.40	***2.88***	1.88	4.40
	Public		***2.43***	1.71	3.45	***1.64***	1.20	2.23
Health Status	Fair/Poor/Good	Very Good / Excellent	***1.56***	1.12	2.17	1.24	0.91	1.70
County/Region	Cuyahoga	Hamilton	1.23	0.62	2.43	0.66	0.34	1.29
	Franklin		0.62	0.30	1.29	0.65	0.34	1.24
	Lucas		0.82	0.37	1.82	0.49	0.21	1.13
	Montgomery		0.83	0.35	1.95	1.12	0.54	2.32
	Summit		1.07	0.50	2.33	0.38	0.16	0.93
	Other Metropolitan		1.29	0.65	2.55	0.95	0.53	1.70
	Suburban		1.17	0.59	2.33	0.82	0.46	1.48
	Appalacian		0.96	0.49	1.90	0.99	0.56	1.77
	Rural (Non-Appalacian)		0.96	0.49	1.91	0.70	0.40	1.24

Odds = adjusted odds ratio (significant difference from reference highlighted in bold, italics, and cell shaded grey); CI = confidence interval

Table C14. Multivariable Logistic Regression (Odds Ratio, 95% CI), OFHS 2008
Dependent Variable is Have Personal Doctor or Nurse (No is the reference class)

Variable	Category	Reference	2004 Odds	2004 95% CI		2008 Odds	2008 95% CI	
CSHCN	Yes	No				***0.61***	0.48	0.78
Age	0-5	13-17				***0.73***	0.58	0.92
	6-12					0.91	0.74	1.11
Gender	Male	Female				1.07	0.89	1.27
Race/Ethnicity	Black	White				***1.57***	1.18	2.10
	Hispanic					1.17	0.83	1.66
	Other					1.24	0.66	2.35
Parent's Marital Status	Single	Married				***1.41***	1.07	1.86
	Divorced/Separated					1.21	0.93	1.56
	Widowed					1.16	0.70	1.93
Child Full-Year Insurance Status	Uninsured (≤ 200% FPL)	Private				***5.58***	3.41	9.12
	Uninsured (> 200% FPL)					***2.47***	1.24	4.89
	Insured Part of Year					1.45	0.96	2.20
	Public					***2.18***	1.76	2.69
Health Status	Fair/Poor/Good	Very Good / Excellent				0.96	0.73	1.24
County/Region	Cuyahoga	Hamilton				0.63	0.40	1.01
	Franklin					0.94	0.60	1.47
	Lucas					0.94	0.55	1.63
	Montgomery					0.75	0.42	1.32
	Summit					0.90	0.55	1.46
	Other Metropolitan					0.93	0.61	1.42
	Suburban					0.73	0.47	1.13
	Appalacian					0.90	0.60	1.36
	Rural (Non-Appalacian)					0.84	0.56	1.27

Odds = adjusted odds ratio (significant difference from reference highlighted in bold, italics, and cell shaded grey); CI = confidence interval

Table C15. Multivariable Logistic Regression (Odds Ratio, 95% CI), OFHS 2008
Dependent Variable is Needed to See a Specialist (Yes is the reference class)

Variable	Category	Reference	2004 Odds	2004 95% CI		2008 Odds	2008 95% CI	
CSHCN	Yes	No	***5.46***	4.83	6.18	***5.32***	4.63	6.12
Age	0-5	13-17	0.92	0.80	1.06	1.04	0.89	1.21
	6-12		***0.73***	0.64	0.83	***0.76***	0.66	0.88
Gender	Male	Female	1.12	1.00	1.24	1.01	0.89	1.14
Race/Ethnicity	Black	White	***0.63***	0.51	0.76	***0.74***	0.59	0.92
	Hispanic		0.85	0.67	1.07	0.82	0.64	1.05
	Other		0.91	0.63	1.33	0.89	0.57	1.40
Parent's Marital Status	Single	Married	0.88	0.73	1.06	0.83	0.67	1.03
	Divorced/Separated		1.01	0.86	1.18	0.84	0.69	1.01
	Widowed		0.67	0.44	1.04	0.83	0.55	1.26
Child Full-Year Insurance Status	Uninsured (≤ 200% FPL)	Private	***0.28***	0.18	0.43	***0.32***	0.18	0.58
	Uninsured (> 200% FPL)		***0.26***	0.12	0.56	***0.28***	0.13	0.56
	Insured Part of Year		0.81	0.64	1.03	***0.62***	0.46	0.83
	Public		***0.81***	0.70	0.93	***0.73***	0.62	0.85
Health Status	Fair/Poor/Good	Very Good / Excellent	***1.97***	1.70	2.27	***1.54***	1.30	1.82
County/Region	Cuyahoga	Hamilton	0.99	0.74	1.33	0.85	0.61	1.17
	Franklin		0.78	0.58	1.05	0.97	0.69	1.35
	Lucas		0.78	0.56	1.10	0.71	0.47	1.07
	Montgomery		0.88	0.61	1.26	0.87	0.59	1.29
	Summit		0.94	0.69	1.28	***0.62***	0.43	0.89
	Other Metropolitan		0.96	0.73	1.28	0.74	0.55	1.00
	Suburban		0.83	0.62	1.10	0.81	0.60	1.09
	Appalacian		***0.71***	0.54	0.94	***0.66***	0.49	0.89
	Rural (Non-Appalacian)		0.78	0.59	1.03	***0.71***	0.53	0.95

Odds = adjusted odds ratio (significant difference from reference highlighted in bold, italics, and cell shaded grey); CI = confidence interval

Table C16. Multivariable Logistic Regression (Odds Ratio, 95% CI), OFHS 2008
Dependent Variable is Difficulty Seeing Needed Specialist (Big Problem is the reference class)

Variable	Category	Reference	2004 Odds	2004 95% CI		2008 Odds	2008 95% CI	
CSHCN	Yes	No	***1.85***	1.22	2.81	1.33	0.82	2.14
Age	0-5	13-17	1.27	0.81	1.99	***0.33***	0.17	0.65
	6-12		1.25	0.82	1.90	0.74	0.47	1.15
Gender	Male	Female	0.89	0.62	1.26	0.89	0.57	1.37
Race/Ethnicity	Black	White	0.74	0.42	1.30	1.50	0.74	3.03
	Hispanic		1.18	0.56	2.48	1.97	0.99	3.96
	Other		***4.41***	1.80	10.79	2.10	0.63	7.00
Parent's Marital Status	Single	Married	1.37	0.80	2.35	1.33	0.72	2.47
	Divorced/Separated		***1.79***	1.09	2.95	1.22	0.68	2.19
	Widowed		1.68	0.48	5.87	1.16	0.42	3.19
Child Full-Year Insurance Status	Uninsured (≤ 200% FPL)	Private	***11.52***	4.72	28.10	***17.29***	6.48	46.10
	Uninsured (> 200% FPL)		0.55	0.10	3.11	***16.47***	2.97	91.45
	Insured Part of Year		***2.62***	1.42	4.81	***9.20***	4.65	18.20
	Public		1.18	0.72	1.94	***2.48***	1.46	4.22
Health Status	Fair/Poor/Good	Very Good / Excellent	1.44	0.93	2.22	1.22	0.73	2.02
County/Region	Cuyahoga	Hamilton	0.94	0.36	2.43	1.08	0.33	3.59
	Franklin		1.24	0.46	3.36	0.73	0.21	2.56
	Lucas		1.11	0.39	3.14	0.70	0.15	3.32
	Montgomery		1.71	0.60	4.87	0.81	0.20	3.37
	Summit		0.71	0.25	2.02	1.34	0.42	4.30
	Other Metropolitan		1.42	0.56	3.60	1.46	0.51	4.20
	Suburban		0.89	0.33	2.37	0.60	0.18	1.96
	Appalacian		1.31	0.51	3.32	1.14	0.42	3.11
	Rural (Non-Appalacian)		0.99	0.39	2.54	1.83	0.66	5.07

Odds = adjusted odds ratio (significant difference from reference highlighted in bold, italics, and cell shaded grey); CI = confidence interval

Table C17. Multivariable Logistic Regression (Odds Ratio, 95% CI), OFHS 2008
Dependent Variable is Obtained Preventive Medical Check-Up in Past 12 Months (No is the reference class)

Variable	Category	Reference	2004 Odds	2004 95% CI		2008 Odds	2008 95% CI	
CSHCN	Yes	No	***0.65***	0.57	0.75	0.86	0.74	1.00
Age	0-5	13-17	***0.23***	0.20	0.26	***0.19***	0.16	0.23
	6-12		***0.81***	0.72	0.90	***0.82***	0.72	0.94
Gender	Male	Female	0.95	0.86	1.06	0.97	0.86	1.10
Race/Ethnicity	Black	White	1.13	0.93	1.38	1.07	0.85	1.33
	Hispanic		1.12	0.90	1.40	***1.53***	1.19	1.97
	Other		1.15	0.83	1.59	0.89	0.53	1.50
Parent's Marital Status	Single	Married	1.15	0.96	1.37	***1.40***	1.13	1.74
	Divorced/Separated		1.15	0.99	1.33	***1.30***	1.10	1.54
	Widowed		1.07	0.70	1.63	1.16	0.79	1.71
Child Full-Year Insurance Status	Uninsured (≤ 200% FPL)	Private	***6.17***	4.47	8.52	***4.94***	3.31	7.38
	Uninsured (> 200% FPL)		***3.70***	2.18	6.26	***5.41***	2.99	9.80
	Insured Part of Year		***1.96***	1.59	2.41	***2.16***	1.66	2.81
	Public		0.98	0.85	1.13	***1.20***	1.02	1.40
Health Status	Fair/Poor/Good	Very Good / Excellent	***1.22***	1.04	1.43	1.16	0.97	1.38
County/Region	Cuyahoga	Hamilton	0.93	0.67	1.27	0.91	0.62	1.33
	Franklin		0.96	0.69	1.32	0.85	0.58	1.26
	Lucas		1.17	0.81	1.68	1.05	0.67	1.65
	Montgomery		***1.50***	1.03	2.16	1.32	0.85	2.05
	Summit		1.27	0.92	1.77	1.33	0.89	2.00
	Other Metropolitan		***1.82***	1.36	2.45	***1.52***	1.08	2.14
	Suburban		***1.62***	1.20	2.18	***1.53***	1.08	2.16
	Appalacian		***2.03***	1.53	2.70	***1.76***	1.26	2.46
	Rural (Non-Appalacian)		***2.57***	1.94	3.41	***2.39***	1.71	3.32

Odds = adjusted odds ratio (significant difference from reference highlighted in bold, italics, and cell shaded grey); CI = confidence interval