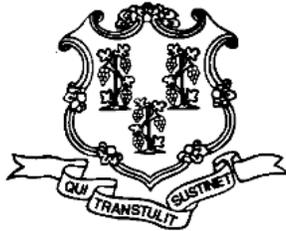


August 30, 2005

Children with Special Health Care  
Needs: Health Care Access and  
Utilization by Children Under the  
Guardianship of the Department of  
Children and Families  
State of Connecticut

**FINAL VERSION**

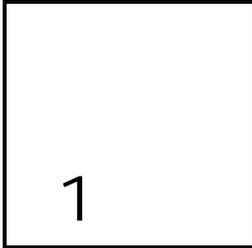


**MERCER**

Government Human Services Consulting

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## Executive Summary

The State of Connecticut (State), Department of Social Services (DSS) and its stakeholders have the concern that Children with Special Health Care Needs (CSHCN) under the Department of Children and Families (DCF) guardianship, particularly those in foster care, may not have adequate access to health care. Nationally, children in foster care have significantly higher rates of all health problems than the general population of children.<sup>1</sup> In addition to the physical problems commonly seen among children in foster care, it is estimated that 30 percent of these children have severe developmental, behavioral, or emotional problems.<sup>2</sup> Despite the identified need for health care services, studies have identified serious gaps between needs and services<sup>3</sup>.

DSS engaged Mercer Government Human Services Consulting (Mercer), its Medicaid External Quality Review Organization (EQRO), to conduct a focused study on CSHCN within the HUSKY A program. DSS and DCF designed the study to obtain a greater understanding of the health care needs and patterns of utilization of CSHCN and a sub-population of these children under DCF guardianship. CSHCN under DCF guardianship typically use foster care and other out-of-home placements. Multiple placements are common for these children and one of the many barriers to accessing health care.

The purpose of this study is to compare utilization of medical services by CSHCN under DCF guardianship to utilization of CSHCN not under guardianship.

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<sup>1</sup> Kools S, Kennedy C. Pediatric Health Status of Children in Foster Care (2003). *Pediatric Nurse* 29(1):39 – 46, Jannetti Publications, Inc.

<sup>2</sup> Foster Care. (2002). American Academy of Child and Adolescent Psychiatry. Facts for Families No. 64.

<sup>3</sup> Simms, MD, Dubowitz, H., & Szilagyi, MA (2000). Health care needs of children in the foster care system. *Pediatrics*, 106(4 Suppl.), 909 – 918.

## Methodology

Mercer analyzed demographic and claims data from DCF and DSS on the total population of CSHCN. We compared CSHCN under DCF guardianship with CSHCN not under DCF guardianship to identify differences pertaining to age, gender, utilization, diagnosis, and service category:

- Recipient demographics;
- Number of services by diagnostic category;
- Service utilization by category of service;
- Emergency department (ED) visit utilization;
- Top 15 diagnoses for inpatient and physician services;
- Inpatient admission and average length of stay (ALOS) statistics;
- Office visits and utilization;
- Use of durable medical equipment (DME);
- Pharmacy usage; and
- Home health services.

All measures were calculated for the reporting period of State Fiscal Year (SFY) 2004 (July 2003 through June 2004).

## Key Findings

There were a total of 19,543 CSHCN who received health care services from DSS and DCF in SFY 2004. About 8,589 or 44 percent of the CSHCN were served by DCF. Slightly more than half of the CSHCN population was males (53 percent for DCF and 59 percent for Non-DCF). The overall distribution of children by age group was very similar between the 2 groups. Approximately 3 out of 10 children served were males greater than 10 years old.

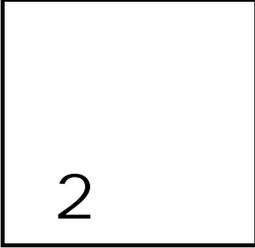
Based on service utilization patterns, the proportion of specific health care needs varied among the children population. Overall, nearly 8 out of 10 CSHCN received pharmacy and/or physician services. About one-half received dental, outpatient, and/or ancillary support. The health care access for pharmacy, physician services, dental, outpatient, and ancillary support appears to be very similar between the 2 groups. Nevertheless, vision care was provided to 1 out of 5 children. Transportation service was provided to approximately 13 percent of the population. Less than 3 percent of the children received home health services.

Further, it appears that DCF children received slightly more behavioral health (BH) services (i.e., 27 percent versus 22 percent) and less inpatient care (7 percent versus 10 percent). More strikingly, 41 percent of all health care visits were related to mental disorders for DCF children, as compared to only 25 percent for Non-DCF children. A higher percentage of DCF children (37.4 percent versus 30.6 percent) utilized psychotropic drugs, including drugs considered by some as “mood altering” or used in BH treatment.

Of particular interest is that 66 percent of the inpatient treatment for DCF children, as compared to 31 percent for Non-DCF children, was related to mental health (MH) and emotional disturbance conditions (e.g., posttraumatic stress disorder, childhood psychoses, attention deficit disorders, mood disorders, and oppositional disorders) and the ALOS for each inpatient admission was 3.26 days longer, as compared to Non-DCF children.

The service utilization, as measured by the average units per child, was about the same for physician services, ED visits, pharmacy, dental, vision care, and outpatient services between DCF and Non-DCF groups. However, there are dissimilarities in the utilization of BH and transportation services between the two groups. There is initial evidence to suggest that DCF children utilized more BH services.

The findings of this study are comparable to findings of the 2001 CSHCN National Survey. This suggests that the State's services for the CSHCN population are comparable to national statistics on utilization.

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## Introduction

### Background

The State, DSS engaged Mercer, its Medicaid EQRO, to conduct a focused study on CSHCN. DSS and DCF designed the study to obtain a greater understanding of the health care needs and utilization patterns of CSHCN and a sub-population of these children under DCF guardianship. Children under DCF guardianship typically use foster care and other out-of-home placements.

DSS and DCF have distinct responsibilities:

- DSS is responsible for meeting the basic needs of food, shelter, economic support, and health care.
- DCF has the responsibility to protect children, improve child and family well-being, and support and preserve families, including arranging foster care and other out-of-home placements.

Together, these agencies provide economic and social support and health care for CSHCN.

The Balanced Budget Act of 1997 (BBA) describes CSHCN as children who receive:

- Supplemental Security Income (SSI);
- Services under Title V of the Social Security Act;
- Federal foster care or adoption assistance under Title IV-E of the Social Security Act;
- Children who are in foster care or out-of-home placements funded from other sources; and
- Children who are living at home, but would be eligible for Medicaid if they were institutionalized.<sup>4</sup>

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<sup>4</sup> These Katie Beckett kids are not covered by HUSKY and their care are not included in this study.

The purpose of this project was to compare utilization of medical services by HUSKY A program CSHCN under DCF guardianship to utilization of HUSKY A program CSHCN not under guardianship.

## Literature Review

The National Survey of CSHCN looked at the prevalence of CSHCN in the US.<sup>5</sup> This survey used parental reports from household contacts to identify CSHCN. There are limitations in the survey because it is based on self reports from a national sample of households (parents or guardians). Nevertheless, it provides some useful comparison information. Findings include:

- Prevalence of CSHCN increases with age, with ages 12 – 17, having the highest prevalence.
- SHCN are more prevalent in boys than girls.
- Prevalence does not vary substantially among income groups.
- Prevalence varies by race and ethnicity and is highest among Native Americans/ Alaskan Native, multiracial, and non-Hispanic white children (14.2 percent). Among non-Hispanic Black children, 13 percent were identified as having SHCN. The lowest prevalence was among Hispanic children (8.6 percent) and non-Hispanic Asian children (4.4 percent).

However, this survey may under-represent racial and ethnic minorities. The National Healthcare Disparities Report, developed by the Agency for Healthcare Research and Quality (AHRQ), highlights the disparity in access to health care and a usual source of care by lower socio-economic groups and racial and ethnic minorities.<sup>6</sup> A recent study completed by the Connecticut Voices of Children found that race/ethnicity is a “strong indicator of sociodemographic and health differences for newly enrolled Medicaid members in Connecticut.”<sup>7</sup>

The National Survey of CSHCN also found that the State’s percentage of CSHCN was 13.9 percent, which is slightly higher than the national average of 12.8 percent.

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<sup>5</sup> US Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. *The National Survey of Children with Special Health Care Needs Chartbook 2001*. Rockville, Maryland: US Department of Health and Human Services, 2004. [mchb.hrsa.gov/cshcn.htm](http://mchb.hrsa.gov/cshcn.htm)

<sup>6</sup> National Healthcare Disparities Report: Summary. February 2004. Agency for Healthcare Research and Quality, Rockville, Maryland. <http://www.ahrq.gov/qual/nhdr03/nhdrsum03.htm>

<sup>7</sup> Lee, MA. Racial/Ethnic Disparities of Health and Healthcare Among Children Enrolled in HUSKY A: A Longitudinal Study. Connecticut Voices for Children (2004), with funding from the Connecticut Health Foundation.

## Literature Review Continued

The overall findings of the report indicate that CSHCN need to “access a wide range of medical and support services to maintain their physical health (PH), MH, and emotional health and development (Introduction).”

These needs include:

- prescription medications (88 percent of CSHCN);
- specialty medical care (51 percent);
- vision care (36 percent);
- MH care (25 percent);
- specialized therapies (24 percent); and
- DME (11 percent).

Home health care, respite care for the family, and genetic counseling are also some of the specialized services used by CSHCN.

While the report indicates health care for CSHCN is adequate and most children receive the services they need, there is “room for improvement,” particularly for the “most vulnerable children, such as those for low-income families and those who receive insurance coverage through public programs” (Introduction). The report suggests that among poor children, 32 percent were not able to obtain needed services compared to 18 percent of all CSHCN.

Nationally, children under State guardianship are categorically considered CSHCN, due to their need for foster care and out-of-home placements. The literature suggests that children in foster care have significantly higher rates of all health problems than the general population of children.<sup>8</sup> In addition to the physical problems commonly seen among children in foster care or out-of-home placement, it is estimated that 30 percent of these children have severe developmental, behavioral, or emotional problems.<sup>9</sup> There is also a higher prevalence of MH disorders for children in foster care often related to trauma from family issues, such as physical and sexual abuse and separation from parents. A review of studies on the use of MH services indicates that children in foster care use 15 – 20 times the volume of MH services than other low income children covered by Medicaid.<sup>10</sup> Despite the identified need for health care services, studies have identified serious gaps between needs and services.<sup>11</sup>

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<sup>8</sup> Kools S, Kennedy C. Pediatric Health Status of Children in Foster Care (2003). *Pediatr Nurs* 29(1):39 – 46, Jannetti Publications, Inc.

<sup>9</sup> Foster Care. (2002). American Academy of Child and Adolescent Psychiatry. Facts for Families No. 64.

<sup>10</sup> Halfon H, Zepeda A, Inkelas M. Mental Health Services for Children in Foster Care. (2002). Policy Brief. Health Services for Children in Foster Care. UCLA Center for Healthier Children, Families and Communities.

<sup>11</sup> Simms, MD, Dubowitz, H., & Szilagyi, MA (2000). Health care needs of children in the foster care system. *Pediatrics*, 106(4 Suppl.), 909-918.

## Literature Review Continued

The State's stakeholders have expressed concern that children under DCF guardianship may be "lost" in the system and not receiving needed services. These concerns are echoed in the literature. Placement in multiple foster homes or other out-of-home placements is common for these children and one of many barriers to accessing health care.

Multiple placements may result in change of health care providers and disruption to continuous care. Limited access to medical records, issues of consent for medical care, and communications with providers during transition periods are barriers to accessing health care services.<sup>12</sup> Length of time in out-of-home placements also correlates to increases in multiple placements.<sup>13</sup> The National Survey of CSHCN also found that access to a "usual" source of health care impacts utilization. Children who have multiple placements and lose their usual source of health care, typically face access challenges.

In summary, the literature supports the need to identify access and utilization among the most vulnerable populations, including CSHCN under DCF guardianship. By identifying baseline utilization and comparing it to national data, DSS and DCF can initiate targeted performance improvement projects (PIPs).

The literature also includes resources to support quality improvement (QI) efforts. The US Department of Health & Human Services, Health Resources & Services Administration (HRSA), Maternal & Child Health Bureau has a number of publications. For example, HRSA funded a study and report on practice guidelines and standards of care for CSHCN<sup>14</sup> and strategies for monitoring quality of care.<sup>15</sup> The National Policy Center for CSHCN at Johns Hopkins University is also a resource for substantive health care issues for CSHCN.<sup>16</sup>

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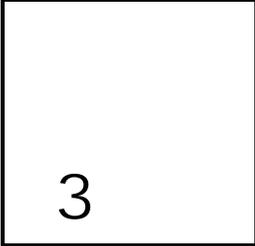
<sup>12</sup> Meeting the Health Care Needs of Children in the Foster Care System. Site Visit Report. (2000) Foster Care Pediatrics, Department of Health, Monroe County, New York. Georgetown University Child Development Center and the US Department of Health and Human Services HRSA.

<sup>13</sup> Kools S, Kennedy C. Pediatric Health Status of Children in Foster Care (2003). *Pediatr Nurs* 29(1):39 – 46, Jannetti Publications, Inc.

<sup>14</sup> Gabor V, Jacquart K, Salit R and Hill I. Practice Guidelines and Standards of Care for CSHCN: Report and Compendium. (1996) Contract # 240-94-0059. US Department of Health and Human Services, HRSA, Maternal and Child Health Bureau. (<http://www.hsrnet.com/pubs/pub09.htm>).

<sup>15</sup> Schwallberg R, Gabor V et al. Managed Care and CSHCN: Strategies for Monitoring the Quality of Care. (1997) US Department of Health and Human Services, HRSA, Maternal and Child Health Bureau. (<http://www.hsrnet.com/pdf/nc-rpt.pdf>).

<sup>16</sup> The National Policy Center for Children With Special Health Care Needs, Johns Hopkins Bloomberg School of Public Health. ([http://www.jhsph.edu/WCHPC\\_/Projects/cshcn.html](http://www.jhsph.edu/WCHPC_/Projects/cshcn.html))

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## Methodology

Mercer analyzed electronic demographic and claims data from DCF and DSS on the total population of CSHCN. We compared CSHCN under DCF guardianship with CSHCN not under DCF guardianship to identify differences pertaining to age, gender, utilization, diagnosis, and service category. Children under DCF guardianship were identified through an electronic file provided by DCF. Mercer compared this file to the DSS encounter data warehouse to match children who were under DCF guardianship and used health care services. This information was filtered to include only those children aged 0 to 17 so as to be comparable in age to the CSHCN file. There was a 92 percent match between the DCF file and the DSS encounter warehouse. Most of the remaining unmatched children had been eligible at some time, but were not eligible during the reporting period.

CSHCN were identified in the encounter warehouse by the following eligibility group codes:

- D01 – Medicaid for IV-E Children;
- D02 – Medicaid for DCF Children; and
- F25 – HUSKY A Children.

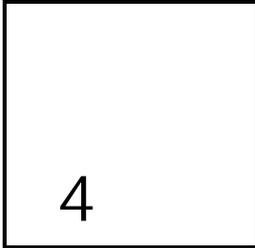
Further, DSS provided Mercer with a file of children identified as SSI or Title V. These were also matched to the encounter warehouse and included in the CSHCN population. For each measure all encounters were extracted by defined criteria and then filtered to DCF or Non-DCF CSHCN populations. The measures include:

- Recipient demographics;
- Number of services by diagnostic category;
- Service utilization by category of service;
- ED visit utilization;
- Top 15 diagnoses for inpatient and physician services;

- Inpatient admission and ALOS statistics;
- Office visits and utilization;
- Use of DME;
- Pharmacy usage; and
- Home health services.

All measures were calculated for the reporting period of SFY 2004 from July 1, 2003 through June 30, 2004. Gender was identified through the eligibility table in the encounter warehouse. Age was determined as of the last day of the reporting period (i.e., June 30, 2004).

Information for this study was handled in accordance with Health Insurance Portability and Accountability Act of 1996 (HIPAA) privacy requirements.



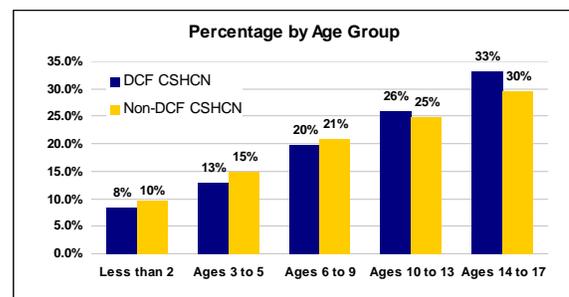
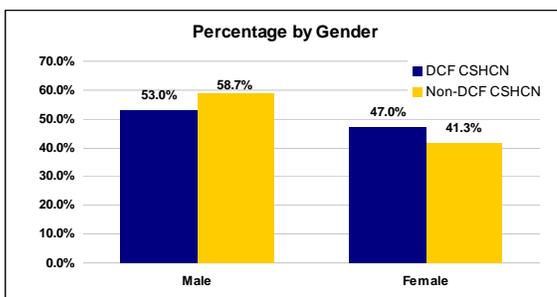
## Results and Discussion

### Recipient Demographics: Age and Gender

A total of 19,543 CSHCN received health care services from DSS and DCF in SFY 2004. Slightly more than half of the all CSHCN were males (56 percent). Nearly 1 out of every 3 children served were 14 to 17 years old (31 percent), and they represented the largest population age group. Preschool children of less than 5 years old accounted for 23 percent of the total population.

Of 19,543 children, about 8,589 or 44 percent were under the guardianship of DCF. Gender distribution was similar between the 2 groups: the DCF group was about 53 percent male, while the Non-DCF group was slightly less than 59 percent male. The overall distribution of CSHCN by age group was also very similar. Both groups served about the same mix of children greater than 10 years old (59 percent for DCF and 55 percent for Non-DCF groups). Further, about 3 out of 10 children served were males between 10 and 17 years old in both groups.

The following graphs show the percentage distribution of CSHCN by gender and age group served by DCF and Non-DCF.



**Number of DCF CSHCN by Age Group and Gender**

Age Group	Male	Female	Unknown	Total
Less than 2	323	281	117	721
Ages 3 to 5	565	523	10	1,098
Ages 6 to 9	876	810	16	1,702
Ages 10 to 13	1,187	1,023	12	2,222
Ages 14 to 17	1,516	1,321	9	2,846
<b>Total</b>	<b>4,467</b>	<b>3,958</b>	<b>164</b>	<b>8,589</b>

**Number of Non-DCF CSHCN by Age Group and Gender**

Age Group	Male	Female	Unknown	Total
Less than 2	447	435	176	1,058
Ages 3 to 5	949	692	4	1,645
Ages 6 to 9	1,384	895	4	2,283
Ages 10 to 13	1,686	1,040	10	2,736
Ages 14 to 17	1,841	1,377	14	3,232
<b>Total</b>	<b>6,307</b>	<b>4,439</b>	<b>208</b>	<b>10,954</b>

## Number of Visits by Diagnostic Group

To examine the extent of the problems that were the focus of treatment for CSHCN between DCF or Non-DCF groups, the diagnostic nature of the service visits, excluding the pharmacy and dental claims, were summarized for SFY 2004. Visits, defined as the unit of measurement, were quantified using the date of service and the rendering provider for each unique recipient in the dataset.

For the purposes of this analysis, the nature of the service visit was categorized and summarized using the ICD-9 classifications, with the exception of HIV/AIDS and Newborn. The HIV/AIDS was separated out from Infectious Disease, in order to match the categories that are used in the quarterly utilization reports provided to DSS by Mercer. Newborn consists of the V codes (30 – 39) for births. The “Other” category includes all V codes except V codes used for pregnancy and newborns and multidisciplinary evaluation. Signs/Symptoms/ Ill-Defined” comprises diagnoses, such as “back pain” or “headache” that are general and have not been clearly diagnosed using a specific classification.

For the purposes of this analysis, multidisciplinary evaluation includes the following specific V codes:

- V62.5 Visit for legal circumstances
- V62.9 Unspecified psychosocial circumstances

Lastly, it is important to note that dental and pharmacy were not isolated in this analysis of visits by diagnostic category. However, the access to care and utilization of care are addressed in other sub-analyses found in this report.

The following graph shows the user count and number of visits by service category for DCF and Non-DCF children.

Diagnostic Category	DCF CSHCN				Non - DCF CSHCN			
	Number of Visits	Percent	Number of Children	Average Visits Per Child	Number of Visits	Percent	Number of Children	Average Visits Per Child
Mental Disorders	46,446	40.9%	3,192	14.55	48,641	24.4%	4,257	11.43
Other (V-Codes <sup>1</sup> )	23,752	20.9%	5,608	4.24	35,368	17.8%	9,454	3.74
Signs/Symptoms/Ill Defined	9,921	8.7%	2,293	4.33	21,398	10.8%	5,094	4.20
Respiratory Disorders	7,220	6.4%	2,679	2.70	17,108	8.6%	5,031	3.40
Nervous System Disorders	5,961	5.3%	2,752	2.17	16,726	8.4%	4,893	3.42
Infectious Diseases	4,821	4.2%	2,322	2.08	7,034	3.5%	3,525	2.00
Injury/Poisoning	4,418	3.9%	1,784	2.48	8,820	4.4%	3,390	2.60
Musculoskeletal Disorders	1,724	1.5%	858	2.01	4,899	2.5%	1,973	2.48
Congenital Anomalies	1,512	1.3%	240	6.30	4,608	2.3%	781	5.90
Skin Disorders	1,463	1.3%	899	1.63	3,079	1.5%	1,722	1.79
Genitourinary Disorders	1,174	1.0%	529	2.22	5,685	2.9%	1,893	3.00
Digestive Disorders	1,041	0.9%	538	1.93	3,754	1.9%	1,474	2.55
Endocrine/Metabolic	713	0.6%	272	2.62	3,069	1.5%	863	3.56
Pregnancy/Childbirth	546	0.5%	73	7.48	7,545	3.8%	839	8.99
Circulatory Disorders	540	0.5%	125	4.32	1,560	0.8%	490	3.18
Blood Diseases	490	0.4%	264	1.86	3,242	1.6%	572	5.67
Multidisciplinary Visits	449	0.4%	389	1.15	607	0.3%	522	1.16
Perinatal Conditions - Prematurity	385	0.3%	27	14.26	1,471	0.7%	95	15.48
Perinatal Conditions - Other	347	0.3%	54	6.43	789	0.4%	132	5.98
Neoplasms	231	0.2%	90	2.57	3,043	1.5%	311	9.78
Newborn	177	0.2%	69	2.57	290	0.1%	120	2.42
HIV/AIDS	147	0.1%	26	5.65	308	0.2%	48	6.42
<b>Total</b>	<b>113,478</b>	<b>100%</b>	<b>NA</b>	<b>NA</b>	<b>199,044</b>	<b>100%</b>	<b>NA</b>	<b>NA</b>

<sup>1</sup> Excludes V codes for pregnancy and newborns as well as multidisciplinary evaluation.

There were a total of 113,478 visits for 8,589 DCF CSHCN and 199,044 visits for 10,954 Non-DCF CSHCN. A large majority of the service visits (82 percent of CSHCN and 70 percent of Non-DCF CSHCN) fall into the Top 5 diagnostic categories. Overall, the Top 5 problems for the service visits were issues relating to both MH and PH conditions. The MH issues include attention, cognitive, behavioral, and emotional problems, as well as other conditions. The PH conditions include back pain, headache, respiratory, and nervous system related problems and circumstances that could affect the children's overall health status.

Although the focus of treatment for the Top 5 diagnostic categories is identical for the DCF and Non-DCF CSHCN groups, it appears that DCF CSHCN had more service visits relating to the MH issues (41 percent) compared to Non-DCF CSHCN (24 percent). Also, the average number of visits per DCF CSHCN (14.55 visits) for MH issues was higher than the average number of visits per Non-DCF CSHCN (11.43).

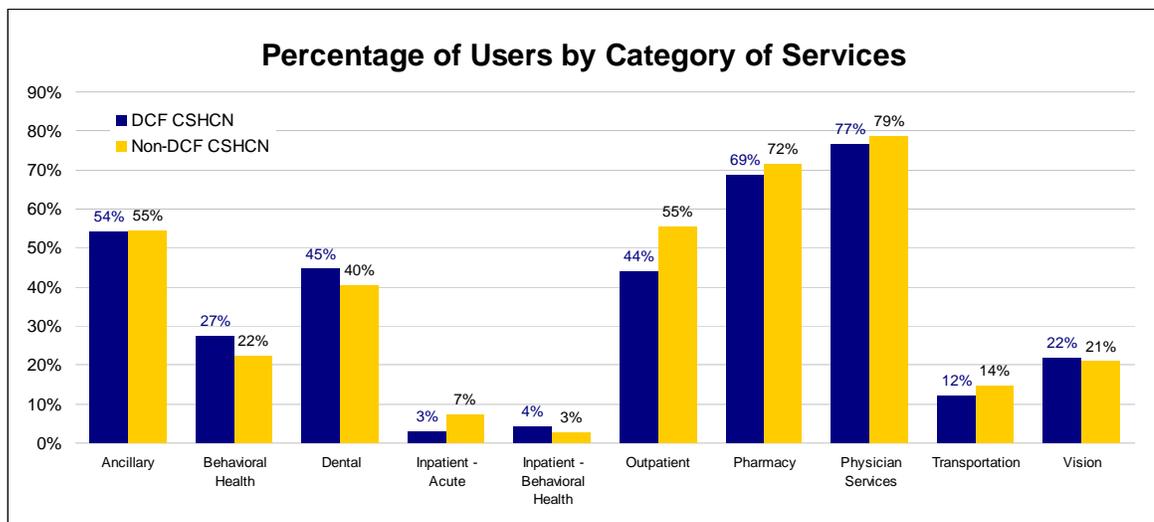
## Service Utilization by Category of Service

Access to appropriate health care, including BH services, is critical for the CSHCN population. To examine health care access, we compared service utilization patterns between DCF and Non-DCF CSHCN groups.

For the purposes of this report, the summaries of the unit of services were based on the categories of service defined in the quarterly reports produced for DSS. Units of measure vary for each of the service categories. A visit for BH, dental, outpatient service, and physician services categories was defined by the unique member ID, begin date of service, and rendering provider ID. A day is defined and measured for a patient who was admitted to a hospital, excluding the day of discharge. A claim is the unit used to determine the utilization of services in pharmacy, ancillary, vision, and transportation categories. A listing of service definition can be found in Appendix A.

The table and chart below present the number of users and service utilization by category of service between the DCF and Non-DCF children.

Category of Service	DCF CSHCN				Non-DCF CSHCN			
	Number of Children	Units of Service	Percent of Users	Average Units Per Child	Number of Children	Units of Service	Percent of Users	Average Units Per Child
Ancillary	4,649	30,980	54%	6.66	5,981	49,051	55%	8.20
Behavioral Health	2,354	32,629	27%	13.86	2,451	27,089	22%	11.05
Dental	3,826	8,347	45%	2.18	4,419	8,943	40%	2.02
Inpatient - Acute	258	2,047	3%	7.93	772	9,121	7%	11.81
Inpatient - Behavioral Health	364	24,507	4%	67.33	305	14,832	3%	48.63
Outpatient	3,771	15,246	44%	4.04	6,062	29,083	55%	4.80
Pharmacy	5,909	82,469	69%	13.96	7,837	100,078	72%	12.77
Physician Services	6,571	41,600	77%	6.33	8,609	64,440	79%	7.49
Transportation	1,029	10,912	12%	10.60	1,587	10,850	14%	6.84
Vision	1,862	4,795	22%	2.58	2,304	5,891	21%	2.56



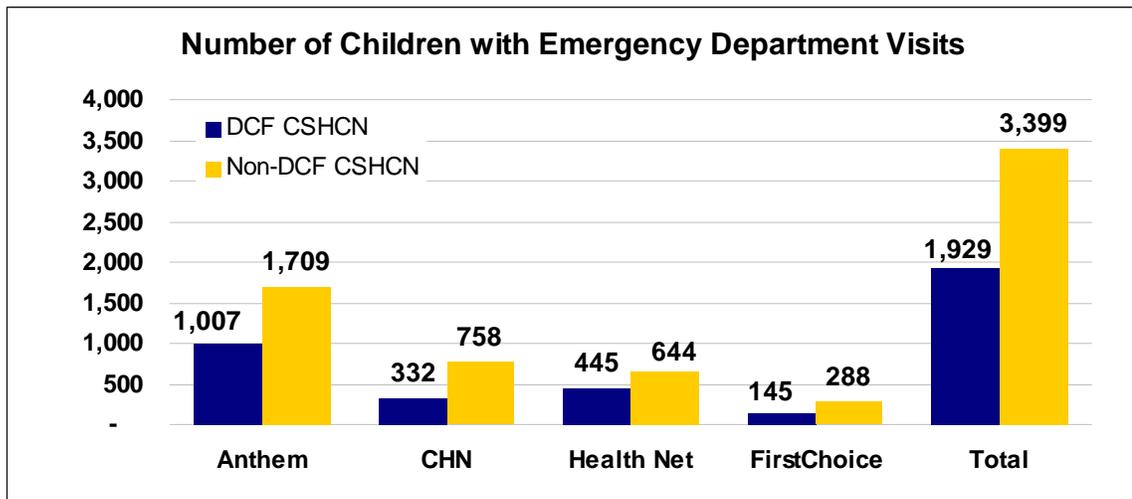
Overall, nearly 8 out of 10 children received pharmacy and/or physician services. About one-half received dental, outpatient, and/or ancillary support. Vision services were provided to about 1 out of every 5 children.

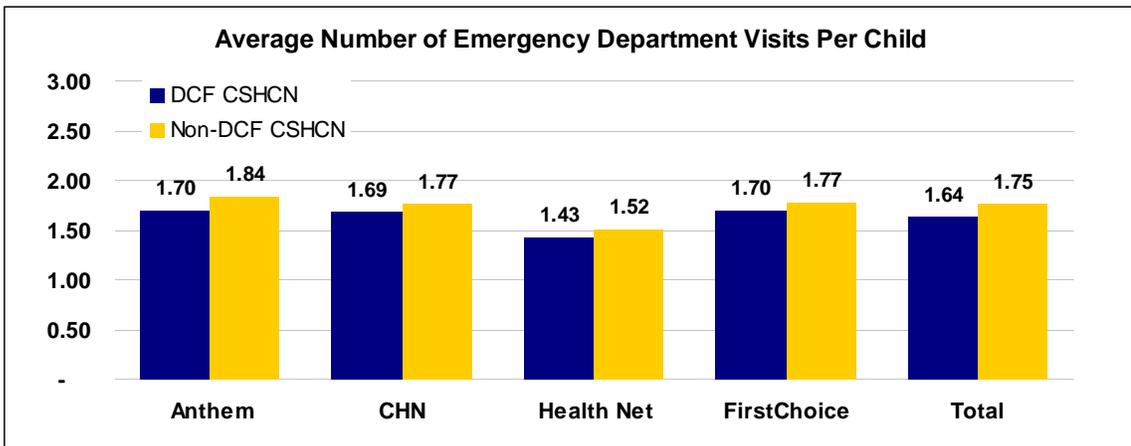
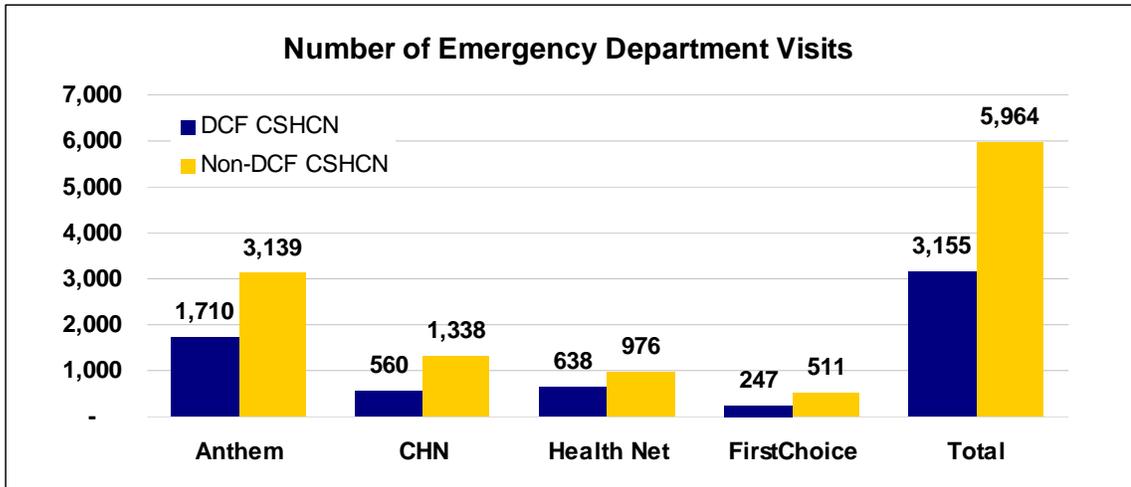
Of 8,589 DCF CSHCN, about 4 percent (364 children) utilized inpatient BH services and slightly over 1 out of 4 (2,354 children) received outpatient BH services. There were more acute inpatient users (7 percent) and less outpatient BH users (22 percent) for the Non-DCF SCHCN group. On an average per child basis, it appears that the demand for BH visits and inpatient beds was greater for the DCF CSHCN group.

### ED Visit Utilization

The utilization for ED visit was examined between DCF and Non-DCF CSHCN groups in SFY 2004. Utilization for this service is defined as visits. The ED visits were calculated by examining inpatient, outpatient, and physician claims. Any ED visits that resulted in an inpatient admission were excluded. The remaining claims were compared using member ID and date of service. All claims related to a single ED visit counted only once to avoid claim duplication.

Of 8,587 DCF CSHCN, about 1,929 (22 percent) received 3,155 ED visits from DCF. The utilization appears to be slightly less than the Non-DCF group (i.e., 3,399 or 31 percent for 5,964 visits). The average utilization on a per child basis for the ED service appears to be very similar between DCF CSHCN (1.64 visits) and Non-DCF CSHCN (1.75 visits) groups. The number of ED users and visits can be found in the following graphs.





The number of ED users and visits were also identified by the focus of treatment with respective to behavioral issue and physical care. On an average visit per child basis, there was minimal difference between DCF and Non-DCF children on the focus of ED visit (behavioral focus versus physical care) for Anthem, CHN, and Health Net. However, it is noted that FirstChoice had a higher average of ED utilization for the BH issues for the Non-DCF population.

MCO	Category	DCF CSHCN			Non-DCF CSHCN		
		Number of Children	Number of ED Visits	Average ED Visits Per Child	Number of Children	Number of ED Visits	Average ED Visits Per Child
Anthem	Behavioral Health	139	321	2.3	143	297	2.1
	Physical Health	868	1,389	1.6	1,566	2,842	1.8
CHN	Behavioral Health	51	110	2.2	58	118	2.0
	Physical Health	281	450	1.6	700	1,220	1.7
Health Net	Behavioral Health	67	117	1.7	67	104	1.6
	Physical Health	378	521	1.4	577	872	1.5
FirstChoice	Behavioral Health	22	41	1.9	13	43	3.3
	Physical Health	123	206	1.7	275	468	1.7
All	<b>Behavioral Health</b>	<b>279</b>	<b>589</b>	<b>2.1</b>	<b>281</b>	<b>562</b>	<b>2.0</b>
	<b>Physical Health</b>	<b>1,650</b>	<b>2,566</b>	<b>1.6</b>	<b>3,118</b>	<b>5,402</b>	<b>1.7</b>

## Top 15 Diagnoses for Inpatient and Physician Services

The focus of diagnosis for inpatient service was examined between DCF and Non-DCF CSHCN groups in SFY 2004. For the purposes of this analysis, only primary diagnoses were reviewed for each inpatient episodes and physician services.

The top 15 diagnoses accounted for about 68 percent of all conditions for the 611 DCF CSHCN who received inpatient treatment. Nearly one-fourth (23 percent) of all inpatient hospitalizations were treated for disturbances relating to posttraumatic stress disorder, as compared to mood disorders (18 percent), behavioral/aggressive problems (9 percent), childhood psychoses (9 percent), and inattention/hyperactivity symptoms (6 percent).

Likewise, the top 15 diagnoses accounted for approximately 45 percent of 1,051 Non-DCF CSHCN who had inpatient services. Posttraumatic stress disorder was the top reason for the inpatient treatment (11 percent), followed by childhood psychoses (6 percent), attention deficit disorders (5 percent), mood disorders (4 percent), and oppositional disorders (3 percent).

Of particular interest is that 66 percent of inpatient treatment for DCF CSHCN was related to MH problems, compared to only 31 for Non-DCF CSHCN.

The analysis of the top15 reasons for physician services shows that nearly 24 percent of the visits by DCF CSHCN were related to attention, behavioral, and emotional problems, compared to 13 percent for Non-DCF CSHCN.

The following tables summarize the Top 15 diagnoses that were the focus of inpatient treatment and physician services between the two CSHCN groups.

**Top 15 Diagnoses for Inpatient Services, DCF CSHCN**

Code	Description	Frequency	Percent
309.81	Prolonged posttraumatic stress disorder	478	23.45%
314.01	Attention deficit disorder with hyperactivity	131	6.43%
311	Depressive disorder, NEC	115	5.64%
313.81	Oppositional disorder	104	5.10%
300.4	Neurotic depression	92	4.51%
298.9	Unspecified psychosis	71	3.48%
296.90	Other unspecified affective psychoses	61	2.99%
V30.00	Single liveborn, born in hospital	49	2.40%
312.34	Intermittent explosive disorder	47	2.31%
296.33	Major depressive disorder, recurrent, severe	45	2.21%
296.34	Major depressive disorder, recurrent, severe w/psychotic behavior	43	2.11%
299.80	Other current childhood psychoses	43	2.11%
296.20	Major depressive disorder, single episode, unspecified	41	2.01%
296.7	Bipolar affective disorder, unspecified	41	2.01%
312.9	Unspecified disturbance of conduct	35	1.72%

**Top 15 Diagnoses for Inpatient Services, Non-DCF CSHCN**

Code	Description	Frequency	Percent
309.81	Prolonged posttraumatic stress disorder	294	11.18%
314.01	Attention deficit disorder with hyperactivity	144	5.48%
282.62	Sickle cell anemia, Hb-S disease w/ mention of crisis	85	3.23%
311	Depressive disorder, NEC	79	3.00%
313.81	Oppositional disorder	79	3.00%
V30.00	Single liveborn, born in hospital	63	2.40%
298.9	Unspecified psychosis	61	2.32%
493.92	Asthma, unspecified, w/acute exacerbation	58	2.21%
296.80	Other specified early childhood psychoses, active	54	2.05%
296.90	Other unspecified affective psychoses	54	2.05%
486	Pneumonia, organism unspecified	54	2.05%
V30.01	Single liveborn, born before admission to hospital	47	1.79%
V58.1	Chemotherapy	47	1.79%
296.7	Bipolar affective disorder, unspecified	38	1.44%
275.0	Iron metabolism disorder	29	1.10%

**Top 15 Diagnoses for Physican Services, DCF CSHCN**

Code	Description	Frequency	Percent
V20.2	Routine infant or child health check	14,074	11.85%
799.9	Other unknown or unspecified cause of morbidity/mortality	7,502	6.32%
314.01	Attention deficit disorder with hyperactivity	6,553	5.52%
309.81	Prolonged posttraumatic stress disorder	6,162	5.19%
313.81	Oppositional disorder	3,710	3.12%
309.4	Adjustment reaction w/ mixed disturbance of emotions and conduct	3,073	2.59%
309.28	Adjustment reaction w/ mixed emotional features	1,957	1.65%
309.9	Unspecified adjustment reaction	1,843	1.55%
313.89	Other mixed emotional disturbances of childhood or adolescence	1,796	1.51%
462	Acute pharyngitis	1,733	1.46%
300.4	Neurotic depression	1,716	1.45%
367.1	Myopia	1,713	1.44%
311	Depressive disorder, NEC	1,657	1.40%
493.90	Asthma, unspecified	1,291	1.09%
465.9	Acute upper respiratory infection, unspecified	1,206	1.02%

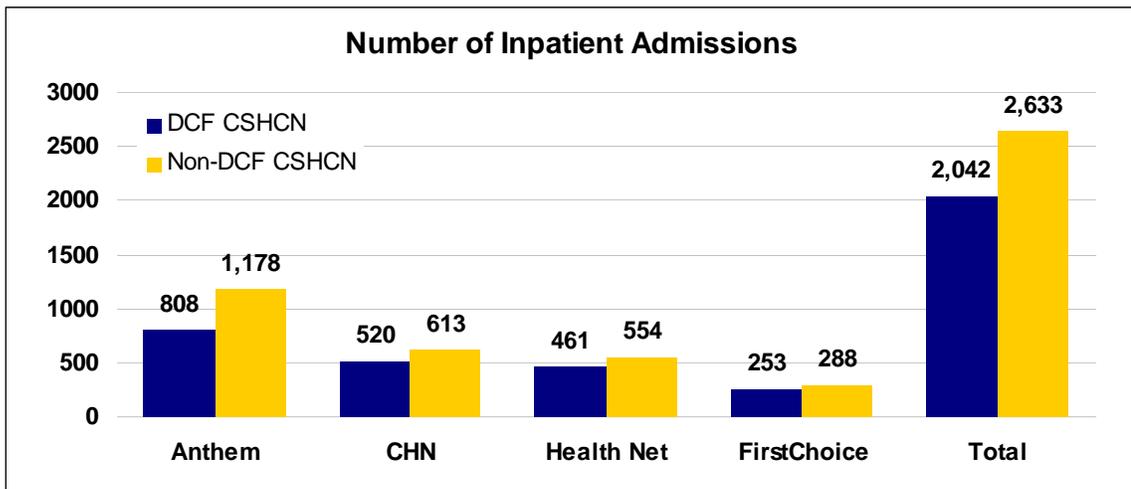
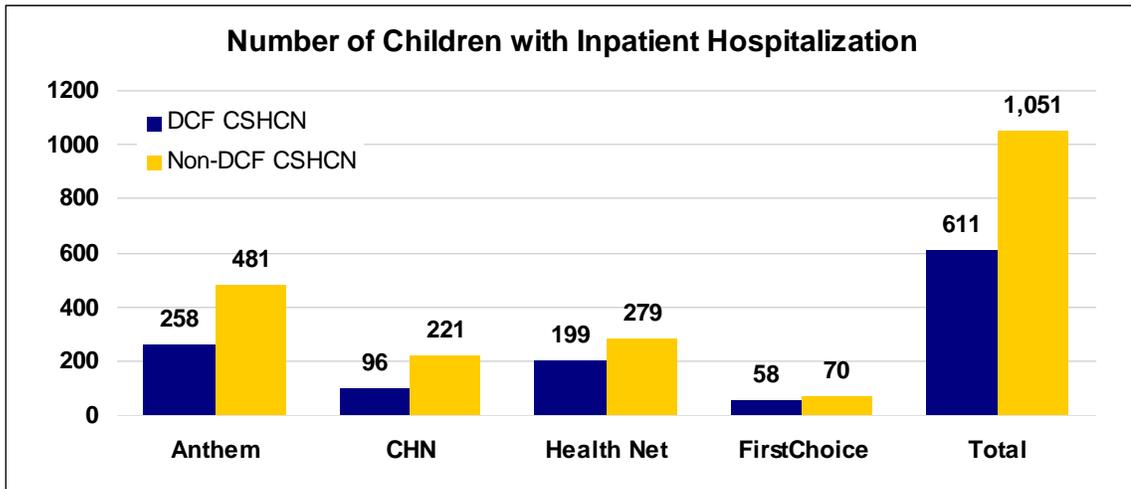
**Top 15 Diagnoses for Physican Services, Non-DCF CSHCN**

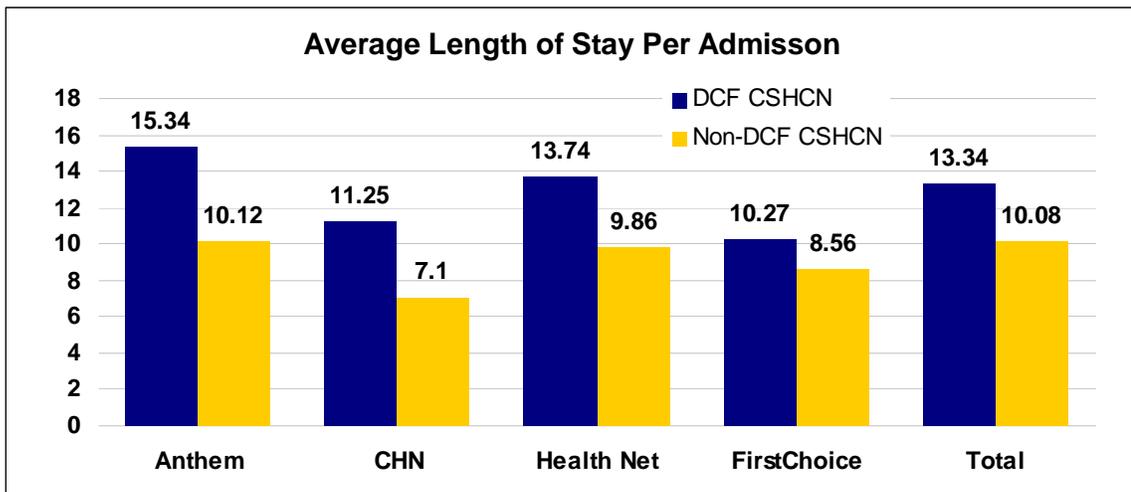
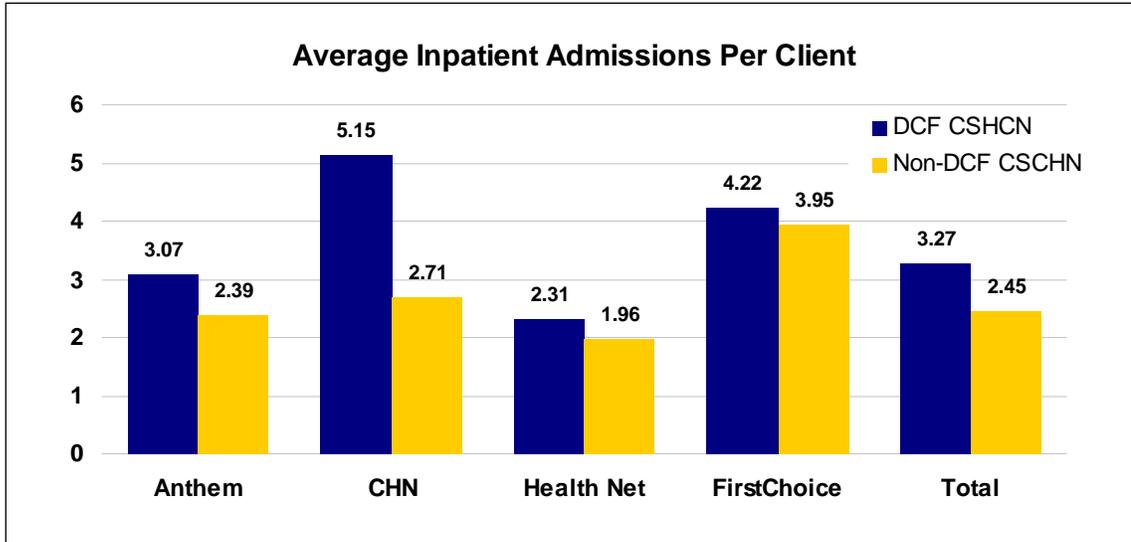
Code	Description	Frequency	Percent
V20.2	Routine infant or child health check	15,685	9.32%
314.01	Attention deficit disorder with hyperactivity	7,788	4.63%
799.9	Other unknown or unspecified cause of morbidity/mortality	7,037	4.18%
313.81	Oppositional disorder	4,334	2.58%
343.9	Infantile cerebral palsy, unspecified	3,768	2.24%
309.81	Prolonged posttraumatic stress disorder	3,631	2.16%
493.90	Asthma, unspecified, w/out mention of exacerbation	3,415	2.03%
309.4	Adjustment reaction w/ mixed disturbance of emotions and conduct	2,172	1.29%
465.9	Acute upper respiratory infection, unspecified site	2,170	1.29%
462	Acute pharyngitis	2,159	1.28%
367.1	Myopia	1,864	1.11%
309.28	Adjustment reaction w/ mixed emotional features	1,670	0.99%
V72.6	Laboratory examination	1,501	0.89%
311	Depressive disorder, NEC	1,430	0.85%
300.4	Neurotic depression	1,382	0.82%

## Inpatient Admissions and ALOS

The inpatient admission and ALOS profiles were examined for DCF and Non-DCF CSHCN groups in SFY 2004. The number of inpatient admissions was determined using a unique combination of member ID and admission date. Interim bills were not counted in this analysis. The ALOS was calculated by dividing the total inpatient days by number of admissions.

Overall, there were 2,042 inpatient admissions among 611 of DCF CSHCN and 2,633 admits among 1,051 Non-DCF CSHCN in SFY 2004. There were more Non-DCF CSHCN who utilized the inpatient services (9.6 percent), as compared to DCF CSHCN (7.1 percent). However, DCF CSHCN had a higher prevalence of inpatient admissions per child (3.27 versus 2.45 admits) and a longer length of stay per admission (13.34 versus 10.08 days). More specifically, the ALOS per inpatient admission was 3.26 days longer for DCF children when compared to the Non-DCF CSHCN population. The statistics for the inpatient admission and utilization are showed in the following graphs.

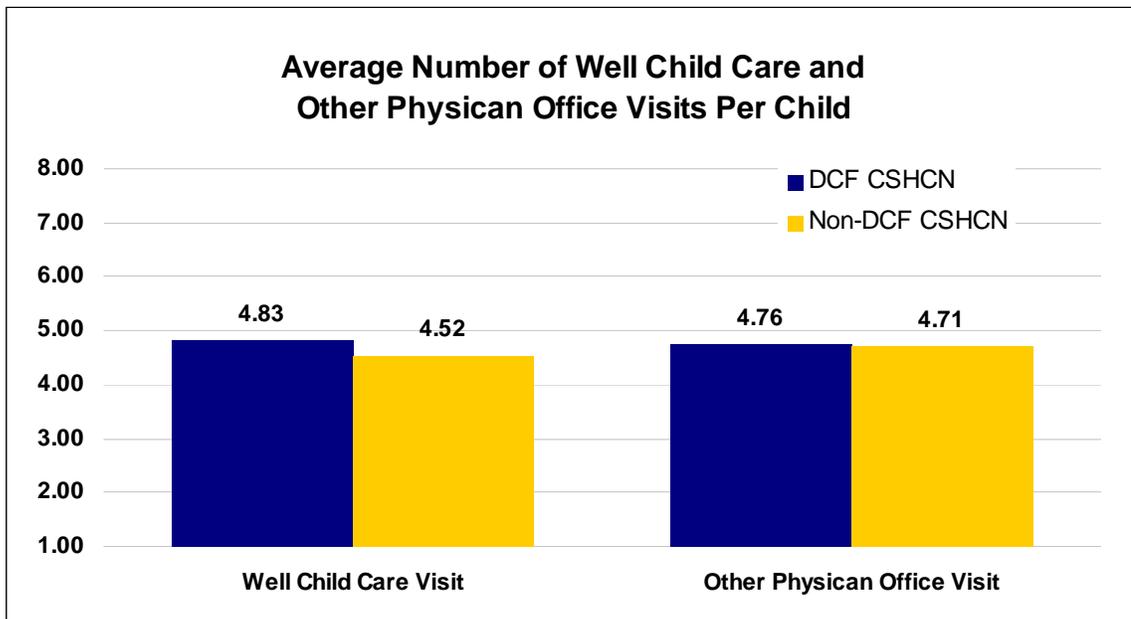
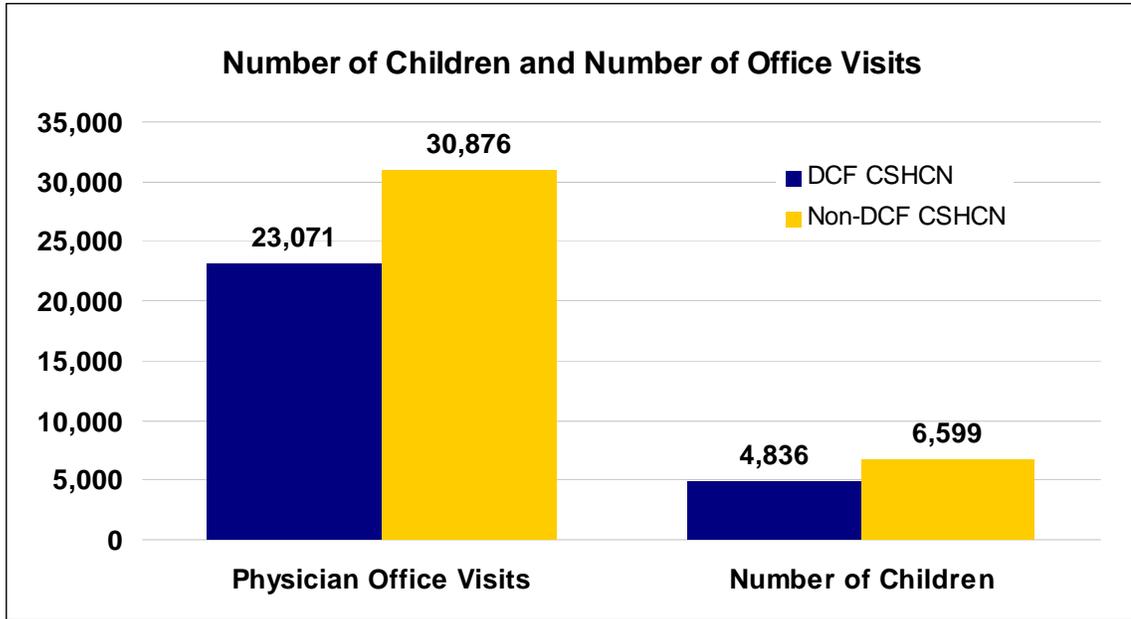




### Office Visits

The utilization for office visits were examined for DCF and Non-DCF CSHCN groups in SFY 2004. Office visits were defined as a physician claim with Evaluation and Management (E/M) procedure codes.

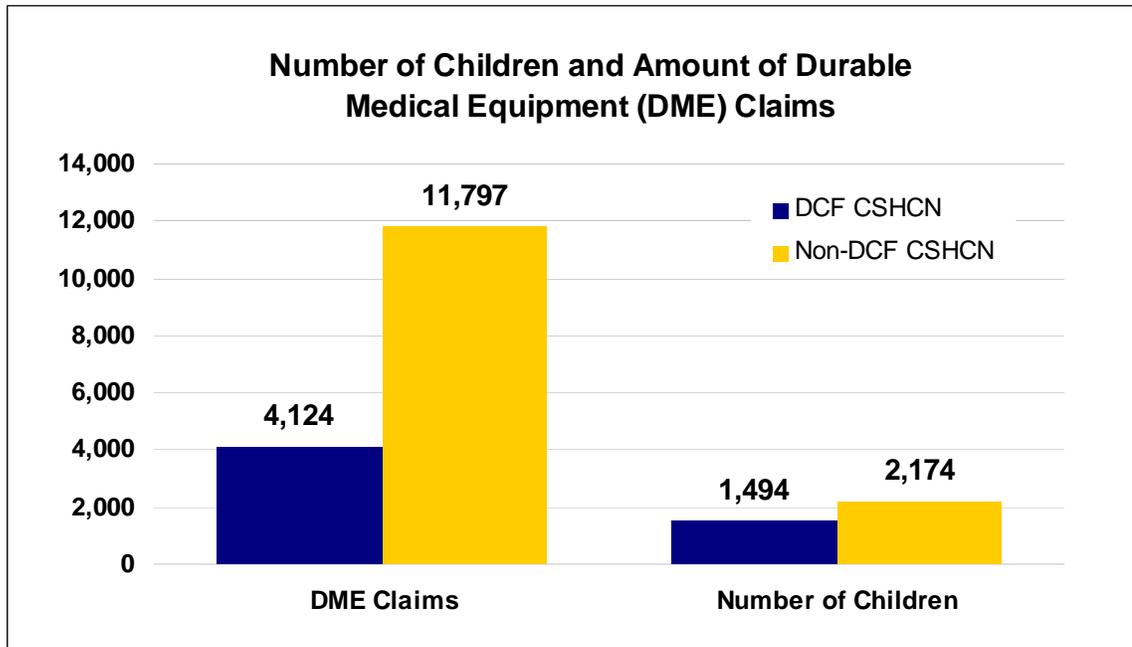
A total of 4,836 DCF and 6,599 Non-DCF CSHCN received 23,071 and 30,876 physician office visits in SFY 2004, respectively. The user rates for physician office service of 56 percent for DCF and 60 percent Non-DCF were very similar. Further, the two groups did not distinctly differ on the average annual number of well-child care visits (4.83 for DCF versus 4.52 for Non-DCF CSHCN) and other physician office visits (4.76 for DCF versus 4.71 for Non-DCF CSHCN).



### Use of DME

DME is part of the covered services of the Medical Assistance Program in Connecticut, and the service is available to all Medicaid eligible individuals. DME is referred to non-disposable, repeated use equipment that is primarily and customarily used to serve a medical purpose and generally is not useful to a person in the absence of an illness or injury. The service requirements for payment of DME are governed by the sections 17b-262-672 through 682 of the Regulations of Connecticut State Agencies.

The use of DME claims was identified using specific HCPCS codes for SFY 2004. Overall, about 1 of every 5 children received DMEs. Specifically, the DCF group comprised of 1,494 users (17 percent), as compared to 2,174 (20 percent) in the Non-DCF group. The user rates for this service were very similar. Please refer to the Graph below for the number of children who received DME and the amount of claims between the DCF and Non-DCF children.



To closely examine the type of DME equipment purchased and utilized between DCF and Non-DCF children, the DME procedure codes were analyzed. The following tables present the top 10 DME services by the user.

A slightly more Non-DCF children (12 percent) than the DCF children (8 percent) utilized Nebulizer for asthma. Nevertheless, it appears that the majority of DME service was purchases of vision correction equipment (e.g., eye glasses and frames) for both DCF and Non-DCF children.

**Top Ten DME Services by the Number of Users, DCF Children**

Code	Description	Number of Children	Percent of Users	Number of Claims
V2020	Frames, purchase	1,173	79%	1,310
V2100	Spectacle lenses, sphere, single vision plano to +/- 4.00, per lens	734	49%	806
V2103	Spectacle lenses, spherocylinder, single vision plano to +/- 4.00d sphere, 0.12-2.00d cyl, per lens	360	24%	378
E0570	Nebulizer, with compressor	88	6%	104
V2101	Spectacle lenses, sphere, single vision, +/-4.12 to +/- 7.00d, per lens	50	3%	53
E1399	DME, miscellaneous	30	2%	66
V2200	Spectacle lenses, sphere, bifocal, plano to +/- 4.00d, per lens	29	2%	30
A7005	Administration set, w/small volume nonfiltered pneumatic nebulizer, non-disp	27	2%	30
V2203	Spectacle lenses, spherocylinder, bifocal, plano to +/- 4.00d sphere, 0.12-2.00d cyl, per lens	27	2%	28
L1960	Ankle-foot orthosis, posterior solid ankle, plastic, custom	25	2%	11

**Top Ten DME Services by the Number of Users, Non-DCF Children**

Code	Description	Number of Children	Percent of Users	Number of Claims
V2020	Frames, purchase	1,327	61%	1,488
V2100	Spectacle lenses, sphere, single vision plano to +/- 4.00, per lens	849	39%	928
V2103	Spectacle lenses, spherocylinder, single vision plano to +/- 4.00d sphere, 0.12-2.00d cyl, per lens	385	18%	408
E1399	DME, miscellaneous	192	9%	448
E0570	Nebulizer, with compressor	188	9%	224
L1960	Ankle-foot orthosis, posterior solid ankle, plastic, custom	129	6%	142
E1340	Repair or non-routine service for DME requiring technician, labor comp., per 15 min	112	5%	218
L2275	Addition to lower extremity ankle-foot orthosis, varus/valgus correction, plastic, padded	82	4%	88
V2101	Spectacle lenses, sphere, single vision, +/-4.12 to +/- 7.00d, per lens	72	3%	76
A7005	Administration set, w/small volume nonfiltered pneumatic nebulizer, non-disp	69	3%	73

## Pharmacy Usage

The use of psychotropic medications was examined for DCF and Non-DCF CSHCN groups in SFY 2004. Pharmacy claims were broken into three categories: (1) Psychotropic Drugs, (2) Non-Psychotropics used for Psychotropic Purposes, and (3) Other. Psychotropic drugs were identified using First Data Bank's NDC therapeutic classes 7 (Psychostimulants/Antidepressants) and 11 (Ataractics/ Tranquilizers).

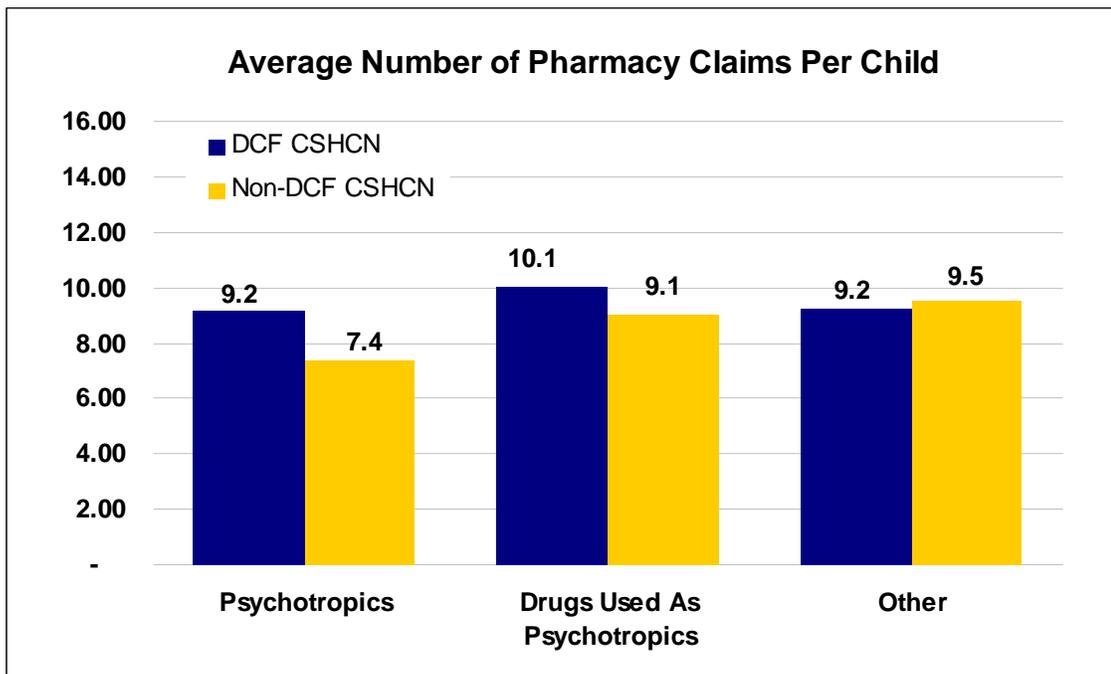
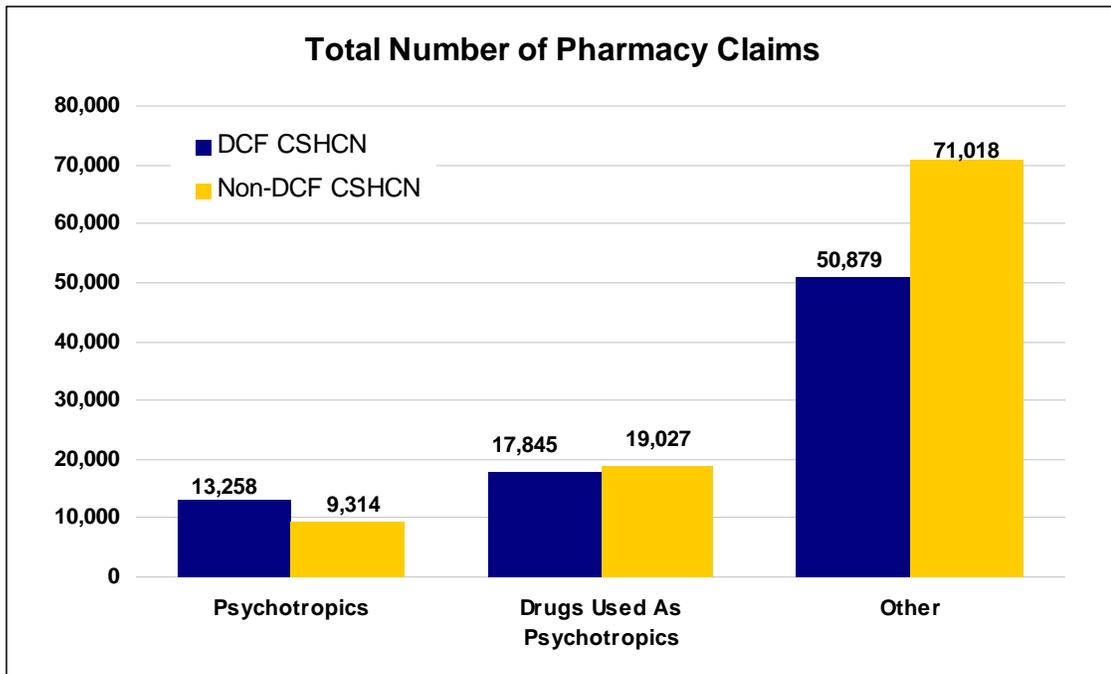
The use of psychotropic drugs for mental illness and emotional disturbance accounted for 16.8 percent of the drugs used by DCF children and 11.5 percent of Non-DCF CSHCN population. The drugs listed in the "Drugs Used as Psychotropics" bucket include drugs considered by some as "mood altering" or used in BH treatment. They include sedative/hypnotics, stimulant/amphetamines used for attention deficit disorder with hyperactivity (ADHD) treatment, anticonvulsants used as mood stabilizers, and clonidine used for the treatment of ADHD, mania, or psychosis. About 20.6 percent of DCF children and 19.1 percent of the Non-DCF CSHCN used these drugs. Any drugs not falling into either of these two categories were listed under "Other." This category accounted for 64.1 percent of DCF children's drug usage and 67.9 percent for the Non-DCF CSHCN.

When combining the "Psychotropic Drugs" and "Drugs Used as Psychotropics" categories, about 37.4 percent of DCF CSHCN used those drugs for MH or BH treatment, as compared to 30.6 percent for the Non-DCF children population.

### Number and Percentage of Users by Drug Category

Drug Category	DCF CSHCN		Non-DCF CSHCN	
	Users	Percent	Users	Percent
Psychotropic Drugs	1,442	16.8%	1,258	11.5%
Drugs Used As Psychotropics	1,771	20.6%	2,097	19.1%
Other Drugs	5,504	64.1%	7,439	67.9%

The average number of pharmacy claims for "Other" drug category per child was very comparable between the DCF and Non-DCF CSHCN population (9.2 versus 9.5). Nevertheless, it appears that DCF CSHCN had a higher usage for drugs in the "Psychotropics" and "Drugs Used as Psychotropics" categories.

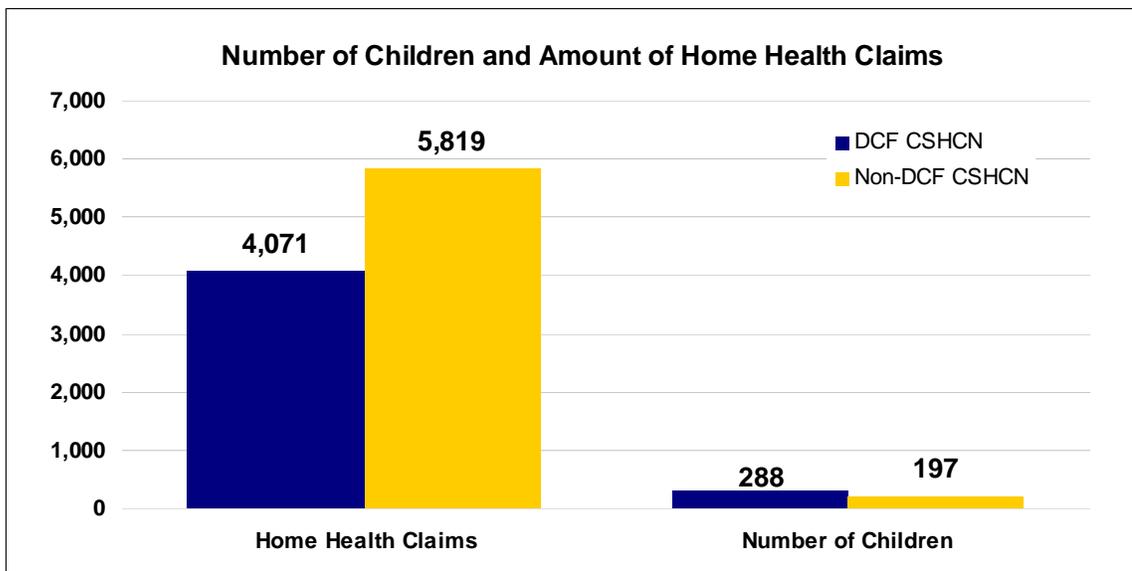


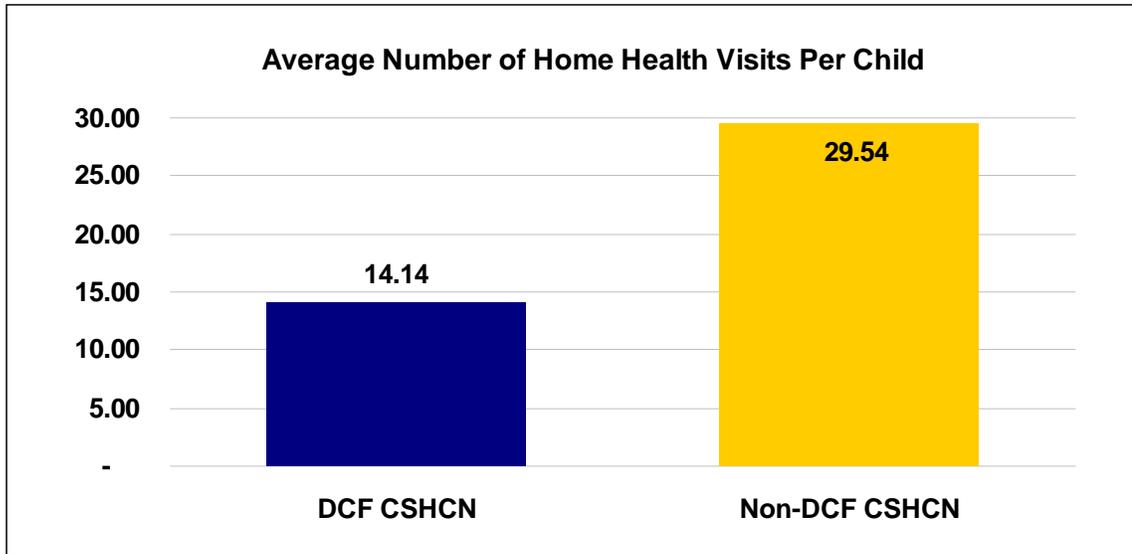
## Home Health Services

To examine the extent of recipients who received specialized medical care services, home health claims were identified using specific procedure codes. The unit of measure was unique claims. Overall, the following procedure codes were identified and matched in the claims data to describe home health services:

- 99341 Home visit, new patient, problem focused, usually 20 minutes
- 99342 Home visit, new patient, low complexity, usually 30 minutes
- 99343 Home visit, new patient, detailed, usually 45 minutes
- 99347 Home visit, established patient, problem focused, usually 15 minutes
- 99348 Home visit, established patient, expanded problem focused, usually 25 minutes
- 99349 Home visit, established patient, detailed, usually 40 minutes
- 99350 Home visit, established patient, comprehensive, usually 60 minutes
- S5498 HIT Simple catheter care
- S5501 HIT Complex catheter care
- S5502 HIT Interim catheter care
- S9122 HH aide or CN aide, per hour
- S9123 RN Nursing care in home, per hour
- S9124 LPN nursing care in home, per hour
- T1021 HH aide or CN aide, per visit

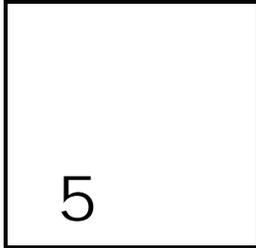
There were a total of 288 DCF and 197 Non-DCF CSHCN receiving home health services in SFY 2004. The following graphs present the number of users and utilization for home health services between the DCF and Non-DCF children.





Overall, only a small number of children received home health services. The user rate of 3.4 percent was nearly double for DCF children, as compared to 1.8 percent for Non-DCF children. However, the utilization for home health services was greater for Non-DCF children (29.54 visits vs. 14.14 visits). More specifically, the table shown below summarizes the home health service utilization by procedure codes between the DCF and Non-DCF children.

Code	Description	DCF Children				Non DCF Children			
		Number of Children	Number of Claims	Number of Service Hours	Average Hours Per Child	Number of Children	Number of Claims	Number of Service Hours	Average Hours Per Child
99341	Home visit, new patient, problem focused, usually 20 min.	20	712	237	11.9	28	545	182	6.5
99342	Home visit, new patient, low complexity, usually 30 min	0	NA	NA	NA	1	1	1	0.5
99343	Home visit, new patient, detailed, usually 45 min.	16	18	14	0.8	14	97	73	5.2
99347	Home visit, established patient, problem focused, usually 15 min	2	33	8	4.1	2	58	15	7.3
99348	Home visit, established patient, expanded problem focused, usually 25 min	46	297	124	2.7	26	584	243	9.4
99349	Home visit, established patient, detailed, usually 40 min	204	1,127	751	3.7	113	510	340	3.0
99350	Home visit, established patient, comprehensive, usually 60 min	46	551	551	12.0	13	87	87	6.7
S5498	HIT Simple catheter care	0	NA	NA	NA	5	7	7	1.4
S5501	HIT Complex catheter care	0	NA	NA	NA	2	4	4	2.0
S5502	HIT Interim catheter care	0	NA	NA	NA	1	2	2	2.0
S9122	HH aide or CN aide, per hour	8	1,207	1,207	150.9	14	2,434	2,434	173.9
S9123	RN Nursing care in home, per hour	16	125	125	7.8	27	639	639	23.7
S9124	LPN nursing care in home, per hour	0	NA	NA	NA	9	820	820	91.1
T1021	HH aide or CN aide, per visit	1	1	0	0.0	2	31	NA	NA



## Conclusions and Recommendations

There were a total of 19,543 CSHCN who received health care services from DSS and DCF in SFY 2004. About 8,589 or 44 percent of the CSHCN were served by DCF. Slightly more than half of the children population was males (53 percent for DCF and 59 percent for Non-DCF). The overall distribution of children by age group was very similar between the 2 groups. Approximately 3 out of 10 children served were males greater than 10 years old.

CSHCN require a broad range of services, from primary and specialty medical care to prescription medications, DME, and special therapies. Evidently, there are a variety of health care services available to CSHCN in the State. The health care services include physician visits, prescription medications, inpatient care, DME, ED visit, transportation, dental, and vision care. Other specialty care services include home health services and treatment for emotional disturbances and MH disorders.

Based on service utilization patterns, the proportion of SHCN varied among the children population. Overall, nearly 8 out of 10 CSHCN received pharmacy and/or physician services. About one half received dental, outpatient, and/or ancillary support. The health care access for pharmacy, physician services, dental, outpatient, and ancillary support appears to be very similar between the 2 groups. Nevertheless, vision care was provided to 1 out of 5 children. Transportation service was provided to approximately 13 percent of the population. Less than 3 percent of the children received home health services.

Further, it appears that slightly more DCF children received BH services (i.e., 27 percent versus 22 percent) and less on inpatient care (7 percent versus 10 percent). More strikingly, 41 percent of all health care visits were related to mental disorders for DCF children, as compared to only 25 percent for Non-DCF children. A higher percentage of DCF children (37.4 percent versus 30.6 percent) utilized psychotropic drugs, including drugs considered by some as “mood altering” or used in BH treatment.

Of particular interest is that 66 percent of the inpatient treatment for DCF children was related to MH and emotional disturbance conditions (e.g., posttraumatic stress disorder, childhood psychoses, attention deficit disorders, mood disorders, and oppositional disorders) and the ALOS for each inpatient admission was 3.26 days longer, as compared to Non-DCF children group.

The service utilization, as measured by the average units per child, was about the same for physician services, ED visit, pharmacy, dental, vision care, and outpatient services between the DCF and Non-DCF groups. However, there are dissimilarities in the utilization of BH services between the two groups. There is initial evidence to suggest that the DCF children group utilized more BH services, including the use of psychotropic medications.

The findings of this study are comparable to findings of the 2001 CSHCN National Survey. For example, the need for and use of emotional or behavioral services among 1 out of 4 children found in this study was congruent with the national survey finding. Also, the need for prescription drugs for the State's CSHCN was by far the second most common service, reported for 7 out of 10 CSHCN. Further, the finding of nearly 1 out of 5 children who was supported by the use of DME in this study was slightly higher than the 11 percent of need expressed by the participants in the national survey. Yet, the need for and use of vision care service by approximately 1 out of 5 children in this study was somewhat lower than the need found in the national survey (36 percent).

This focused study examined the health care access and service utilization patterns of CSHCN served by DSS and DCF in SFY 2004. This is an important quality study that aims at understanding the needs of the CSHCN population in the State. Mercer recommends that DSS and DCF jointly review the key findings of this EQR study to identify goals and objectives for continuous QI. Mercer's findings should be considered the baseline performance for establishing QI targets.

While the focus of the present study largely examined the access and utilization of medical services among CSHCN, future investigation will need to address the availability of specialty medical care and special therapies in meeting the needs of CSHCN conditions. Further, the assessment of family support (e.g., day care, respite care, or family counseling) and care coordination efforts should be conducted, as those are vital services to the children and their families. Additionally, the demographic groups by ethnicity and urbanicity should be examined to determine the access to care issues in future studies.

The study determined that needs vary greatly by age. For example, preschool-age children (ages 5 and under) are much more likely than older children to need home health care, DME, and health aids. Conversely, adolescents (ages 14 – 17) are more likely to need MH services. Therefore, future study should examine the purchase of services and utilization that correlate to the developmental life stages of the children.

An equally important issue that addresses the access to care for this vulnerable population is to examine the percent of children who say they needed the service(s) but did not receive them. Future study design that includes this service gap analysis will offer valuable information (such as financial barriers, lack of access to providers, transportation issues) how the service delivery system will need to be improved to meet the needs of this challenging population.

Lastly, it is critical to examine the relationship of the service intervention and child well-being outcomes. Namely, what are the effective services and treatment protocols that yield the most benefits for the CSHCN population and their families? As part of the outcome tracking, it is useful to conduct the per capita cost analysis. A cost analysis will provide information on the usual and typical annual cost on a per child basis; and, the service utilization profile purchased for each of the cost homogenous population groups, especially children who need child welfare and foster care service.

Mercer recommends using this study as part of the continuous performance improvement initiative. The quality measures drawn from this study can be used as the baseline measures for future benchmarking. Future studies could examine the service gaps between needs and services by demographic groups (age group, gender, and ethnicity) and geographic areas (urbanicity). The purchase of services analysis could include, not only medical health care, but also family support, specialty care, special therapy, and care coordination services. The impact analysis will need to include an outcome evaluation that addresses consumer's specific outcomes and identifies the use of promising services and "best practices" treatment guideline (e.g., family-centered practices) in the service delivery system.

Appendix A

## Service Type Definitions

Ancillary	Additional services related to care, including, but not limited to: Supplies, DME, Infusions, Injections, Orthotics, Prosthetics, Lab, and Radiology normally reported on a HCFA 1500 form (record type 20)
Behavioral	All services related to MH and substance abuse, excluding Psychiatric Inpatient Care, normally reported on a HCFA 1500 form (record type 20)
Dental	All preventative, diagnostic, and orthodontic dental services and supplies (record type 40)
Inpatient	All inpatient services, including, but not limited to: Psychiatric, Detoxification, Nursery, NICU, Obstetrics, Pediatrics, Rehabilitation, Oncology, Hospice, and Long-Term Care (record types 10, 15)
Outpatient	All hospital services provided on an outpatient basis, including, but not limited to: Ambulatory Surgical Centers, Birthing Centers, Dialysis Centers, Home Health, ER/Urgent Care, Clinics, Therapies, Lab, and Radiology (record types 11, 16)
Pharmacy	All prescriptions filled, which are identified with a National Drug Code (NDC) code, normally reported on Form C (record type 30)
Physician	Services provided by primary care physicians, specialists, hospital based anesthesiologists/radiologists/ emergency medicine physicians/pathologists (record type 20)
Transport	All transportation services including, but not limited to Emergent, Non-Emergent, Paramedic Intercept, and Night Call Vehicles (record type 20)
Vision	Services pertaining to sight, including examinations and screenings, frames, lenses, and vision aids (record type 20)

# MERCER

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