How prevalent are family risk factors among Minnesota children who receive Medical Assistance (MA) or MinnesotaCare?

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Office of the Medical Director
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Minnesota Department of **Human Services**

Research Report

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Executive Summary

How prevalent are family risk factors among children who receive Medical Assistance (MA) or MinnesotaCare health coverage?

- We found **a total of 397,306 children ages 0-17** had coverage in at least one of these programs for at least three months in 2013, lived with a parent, and that parent was in the MAXIS eligibility system at some time during that year.

The MAXIS system maintains eligibility for MA, food support and cash assistance. Among these children, we found the following:

- **83 percent have incomes lower than the poverty level**, according to DHS program enrollment records. Reaching poor and low-income families is the specific intent of MA and MinnesotaCare programs and this finding is therefore not surprising.

- **32 percent live in an area with concentrated poverty**, where at least 20 percent of residents have income at or lower than the poverty level.

- **25 percent have a parent who speaks a language other than English most of the time.** Studies find that families who speak a language other than English more often report problems accessing services such as health care. Twenty eight percent of children have a parent who immigrated to the U.S., although relatively few children (four percent) immigrated to the U.S. themselves.

- **19 percent received Child Protection services within the last five years.** They may have been subjects of a family investigation or a family assessment, or they may have received services to address risk or safety issues.

- **17 percent live in households in which at least one child has a complex chronic medical condition.** These families may devote more caregiving time and effort to meet the child with the chronic condition's medical and other needs, which can mean that they do not meet other children's needs as quickly.

- **13 percent have a parent with a serious mental illness, and five percent have a parent with a serious and persistent mental illness (this is a more severe subset of the serious mental illness group).** Mental illness in a parent can be a very concerning situation, especially if untreated. These children may experience fear, anger, guilt, shame or other feelings about their caregiver's illness. They also may be required to take on adult-like responsibilities at an early age, thus impacting their own development.

- **10 percent have a parent with a chemical dependency diagnosis in the past 18 months.** This is a troubling number, given how substance use can impair the parent's overall ability to care for the child and, in particular, the parent's emotional responsiveness.

- **Eight percent have a parent who uses a very high level of medical care**. These children may have a caregiver who needs to put considerable time and effort into his or her own medical care, leaving less time to care for children.

- **Eight percent report an episode of homelessness in the past five years.** Homelessness is believed to interfere with a child's ability to fully concentrate in school and to accomplish other age-appropriate developmental tasks.

Children enrolled in Medical Assistance (MA) or MinnesotaCare make up one-third of all children in Minnesota. DHS hopes the data in this report will help DHS leadership, policymakers and other community members understand the risk factors these children face every day. These factors are especially troubling, because they can impede children's ability to develop the knowledge, skills and attitudes necessary to become productive workers and engaged community members.

DHS hopes to use this data to:

- Further partner with community organizations already working with vulnerable children and their families;

- Identify the risk areas most in need of supportive services and the geographic areas most in need of attention;

- Inform and encourage discussion on how we can best work together to strengthen the healthy development of our youngest generation; and

- Support providers who serve our most vulnerable participants by considering family risk factors in our payment methodologies.

I.   Children served by DHS

Widespread participation in DHS programs

This report describes the family risk factors experienced by children enrolled in Medical Assistance (MA) or MinnesotaCare, also referred to as Minnesota Health Care Programs (MHCP), for at least three months in 2013.

Children enrolled in these programs make up approximately one-third of all children ages 0 to 17 in Minnesota, so the findings should be of interest to many audiences. The family risk factors are an indicator of the environments in which a significant proportion of our state's children find themselves during the critical time in which they are trying to develop the skills and attitudes they will need to become self-sufficient adults. In areas where we find the environments to be less than optimal for their development, we want to assure appropriate support for these children to help them reach their potential as productive adults and community members.

Figure 1.1 shows the size of the MHCP population (dark shaded circle) as a portion of all Minnesota children in 2013. An estimated 1,282,594 children lived in Minnesota in 2013[1]. DHS records indicate that **420,538 children** participated in an MHCP program for at least three months during 2013, of which 397, 306 had a parent in the MAXIS system at some time during the year.

Figure 1.1. Number of children living in Minnesota, as well as those participating in DHS safety net programs.[2]

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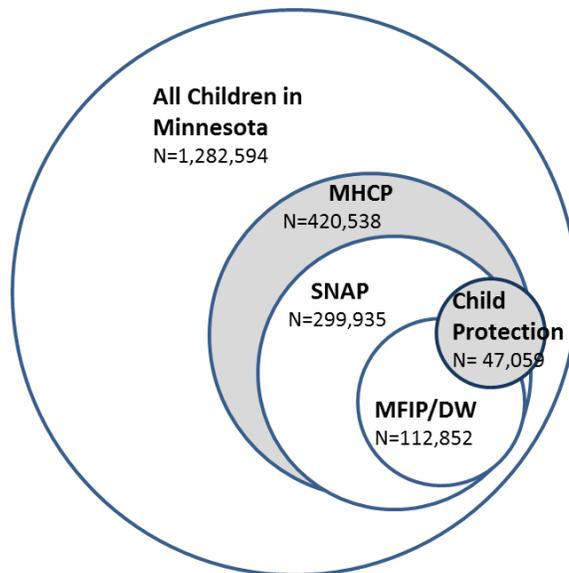
[1] In calendar year 2013, the Census Bureau's point-in-time estimate for the number of children age 0-17 in Minnesota was 1,282,594. Source: Table B01001 Sex by Age. U.S. Census Bureau, American FactFinder at http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml.

[2] In calendar year 2013, 420,538 children were enrolled in a Minnesota Health Care Program for at least three months. Source: DHS enrollment records. The Census Bureau's count of Minnesota children is not directly comparable to DHS' count of children on MHCP programs (point-in-time vs. enrollment any three months in 2013). This will tend to understate the number of all Minnesota children, as compared to the DHS method of counting program participants.

How many children participated in all DHS safety net programs?

Figure 1.1 also illustrates participation in DHS safety net programs during 2013. This includes MHCP programs, SNAP (food support), MFIP/DWP (cash assistance) and child protection services. Minnesota Health Care Programs (MHCP) had 420,538 children enrolled for at least three months in 2013. These health care programs place the fewest barriers to enrollment, with an income ceiling of approximately 275 percent of the Federal Poverty Guidelines (FPG) for children and the requirement that they re-register only once per year with no in-person meetings required. MHCP programs have the largest child enrollment among DHS programs.

Supplemental Nutrition Assistance Program (SNAP) [3]

SNAP, commonly called food support, had 299,935 children enrolled for at least one month in 2013.

- SNAP has the next fewest barriers after MHCP with an income ceiling of approximately 165 percent FPG. Most children in MHCP programs, the Minnesota Family Investment Program (MFIP), the Diversionary Work Plan (DWP), and child protection also receive food support from SNAP.

Minnesota Family Investment Program (MFIP) and Diversionary Work Program (DWP)

The Minnesota Family Investment Program (MFIP) or the Diversionary Work Program (DWP)[4] had 112,852 children enrolled for at least one month in 2013.

- MFIP combines cash assistance with SNAP in a single package.

- DWP provides cash assistance only. DWP participants often apply for SNAP separately.

- MFIP and DWP programs had the lowest income ceiling of approximately 115 percent FPG. These programs require more interactions with financial or employment service workers but still have a substantial number of participants.

Child Protection Services

Child Protection services[5] were provided to 47,059 children in 2013.

- These children may have been subjects of a family investigation or a family assessment in that year.

- Alternatively, they may have been subjects of a family investigation or assessment in the past and, in 2013, were receiving post-assessment/investigation services to address risk or safety issues. Of the programs under consideration in this report, the smallest population of children was served by child protective services.

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[3] SNAP: Children were enrolled at least one month in 2013.

[4] MFIP or DWP: Children were in a case receiving these programs at least one month in 2013.

[5] Child Protection: The child was the subject of a family investigation, family assessment or received Child Protection services sometime in 2013.

Do DHS safety net programs serve many of the same children?

DHS' mission is to help people meet their basic needs, so they can live in dignity and achieve their highest potential. Given this mission, we might expect different DHS safety-net programs to serve many of the same children. And they do.

Figure 1.1 illustrates the number of children served by MHCP programs, SNAP (food support), MFIP/DWP (cash assistance) and Child Protection services. We carefully measured the circles in this figure to represent the size of their respective populations. However, we visually estimated the overlap across programs.

Figure 1.2 provides a more precise view of the overlap between programs. For example, the bottom left cell where the Child Protection row and the MHCP column intersect shows that of the 47,059 children in Child Protection, 85.8 percent were also enrolled in an MHCP program.

Figure 1.2 Enrollment in and overlap between DHS safety net programs, calendar year 2013.

Programs	MHCP	SNAP	MFIP/ DWP	Child protection
All DHS Safety Net Programs (N=444,961)	94.5%	67.4%	25.4%	10.6%
MHCP (N=420,538)		66.9%	25.9%	9.6%
SNAP (N=299,935)	93.8%		37.6%	11.7%
MFIP/DWP (N=112,852)	96.6%	99%		16.7%
Child Protection (N=47,059)	85.8%	74.7%	40.1%	

As Figure 1.2, shows, nearly all of the children on SNAP (food support) or MFIP/DWP (cash assistance) were also in an MHCP program. More than four out of five children receiving Child Protection services were also in an MHCP program. Similarly, two-thirds or more of all program participants in MHCP, MFIP/DWP or Child Protection also were in SNAP (food support).

These figures show that, despite different eligibility criteria, enrollment requirements and services provided to their recipients, most children participating in MHCPs, MFIP/DWP, SNAP and Child Protection services also participate in at least one other DHS safety net program. Further, these children make up a significant number of all children in Minnesota, making these children's outcomes important for the state as a whole.

DHS staff currently collaborates across divisions and administrations to increase the effectiveness of each program's individual efforts. However, the commonality of the children served by DHS' programs argues for more such collaborative work. We hope that the information contained in this report and the social risk data made available upon request will further increase these collaborations.

II. How prevalent are family risk factors among children receiving Medical Assistance (MA) and MinnesotaCare?

As described in the previous section, a total of 420,538 children received Medical Assistance (MA) or MinnesotaCare for at least three months in 2013. In this section we focus on a smaller group of 397,306 children who lived with a parent sometime during 2013 and that parent was in the MAXIS system in 2013. The MAXIS system maintains eligibility for MA (but not MinnesotaCare), food support and cash assistance. We limited the study's sample to children whose parents' information is in our system, because parental risk factors are such an important source of family risk data.

Figure 2.1 shows the risk factors of the 397,306 children in our sample. The majorities of children live in poverty and most have other financial risk factors. We expect this given most MA and MinnesotaCare programs' income ceilings. However, nearly one-fifth of children also received some kind of Child Protection services in the past five years, nearly one in seven children had a parent with a serious mental illness diagnosis and 10 percent of children had a parent with a chemical dependency diagnosis. Though less common, these indicate significant social risk for these children.

Figure 2.1. Family risk factors among children participating in an MHCP program (look-back period)	Children in MHCP programs N=397,306	MN Children	U.S. Children
Income and other tangible resources			
Income <= 100 percent FPG (12 months) [6]	83%		
Resides in high poverty census tract (>20 percent of residents are poor)	32%	14%	17%
Parent indicated self/family was homeless (5 years)	8%		
Family lacks vehicle worth at least $2,500	59%		
Family structure risk factors			
Parent is unmarried	63%	29%	35%
Four or more children in household	23%	6%	6%
Child in household is medically complex	17%		
Parent is disabled or has very high health care utilization	8%		
Language and immigration			
Parent speaks language other than English most of the time	25%		
Child immigrated to U.S.	4%	4%	4%
Parent immigrated to U.S.	28%	17%	24%
Child maltreatment or diminished parental functioning			
Parent with chemical dependency diagnosis (18 months)	10%		
Parent has Serious and Persistent Mental Illness (18 months)	5%		
Parent has Serious Mental Illness (18 months)	13%		
Child received Child Protection services (5 years)	19%		

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[6] Income data is collected for eligibility determination, and is not comparable to survey-based poverty estimates.

The last two columns of Figure 2.1 provide comparison data, when available, on all Minnesota or all U.S. children, to give the reader some context to better understand the MHCP percentages. The comparability of the MHCP vs. other data sources is far from perfect and can be reviewed in the "Data Source" shaded boxes following each risk factor on the next pages. A quick review of the data in the MHCP column indicates that these programs are serving families quite a bit more vulnerable than Minnesota children or U.S. children overall (shown in the far right columns). This should not be surprising since MHCP programs are targeted to meet the needs of the most vulnerable individuals and families.

The researchers on this study recognize that many risk factors not included in this report contribute significantly to children's well-being. We report here only on the risk factors that DHS has readily available from enrollment, claims or other program administration data. This limits the types of risk factors we can report on but allows us to replicate the findings year after year at minimal cost.

We gathered all data in this report from existing administrative records, each of which has different limitations. Some data is self-reported by parents but lacks consistent definitions (e.g., applicants self-report homelessness, so one family living in a friends' basement may consider themselves homeless while another in the same circumstance might not). Many indicators understate risk factors (e.g., only parents who received chemical dependency treatment are identified as having chemical dependency). Data might be available for some children but not others (e.g., children whose parents are not enrolled in MA or MinnesotaCare had no data on parental disability since DHS has no claims data for their parents). Even when no data is available for a child, the child is still included in the denominator of the analysis. Many of the risk factors should therefore be thought of as underestimates. For more information on limitations of each risk factor, please review the Data Source shaded box immediately below each risk factor.

The researchers chose the risk factors in this report because they are associated with negative health outcomes or with non-optimal health care utilization. Kim Arthur, M.P.H., of the Seattle Children's Research Institute conducted a literature review which identified the risk factors. We drew much of the research cited below from her literature review.

The next nine pages describe each of the risk factors and why they are important to the well-being of children. We grouped risk factors into the following categories:

- Income and other tangible resources
- Family structure
- Language and immigration
- Child maltreatment or diminished parental function

Figures at the end of this section show the prevalence of these risk factors according to each child's program enrollment (Figure 2.2), rural/urban residence (Figure 2.3), racial/ethnic group (Figure 2.4) and age (Figure 2.5).

Income and other tangible resources

MHCP children are much more likely than other children in Minnesota to have low income and to live in an area with concentrated poverty.

Poverty

DHS enrollment records indicate that 83 percent of children enrolled in MHCP programs have family income at or below the Federal Poverty Guideline (FPG). The 2013 poverty guideline is $23,550 for a family of four. Child Protection services serves among the highest percentage of low-income children (shown in Figure 2.2, later in this section).

Poverty is an important indicator as it is associated with a wide variety of negative child outcomes, in the health care field as well as in other outcome areas. For example, low-income children are two to three times less likely to receive health care when parents feel they need it, even controlling for health insurance status (Devoe, Tillotson & Wallace, 2009).

Data Sources: The poverty indicator used in this report is not comparable to poverty indicators reported by the Census Bureau or other organizations using survey-based data. In this report, we use income data collected and verified as part of the enrollment process. This includes data on all household members whose income is counted towards eligibility for the child and others in the child's eligibility unit. For SNAP applications, this can include household members who are not related to the child. In contrast, poverty measures calculated using the American Community Survey are based on the income of family members only, as reported by a family member in a telephone survey.

We pulled income data from DHS's MAXIS eligibility system, or from MMIS if not available in MAXIS. We calculated income from all members of the same case for the previous 12 months and reported it as a percentage of the Federal Poverty Guideline (FPG). Some programs include a much more inclusive group of people on the case than do others, which makes the cross-program aggregation of children's income less than ideal.

The analysis in this report used the raw income data on all members of the case as defined by the program's data system. In contrast, MA and MinnesotaCare eligibility determinations use only some parts of the raw income data and only the income of certain family members, as defined by that particular program's eligibility rules. The FPG used in eligibility determinations can therefore be different from what we report here.

A previous internal draft of this report did not include income from MFIP or DWP, Minnesota's cash assistance programs for families with children. That report found that 86% of children had income at or below the Federal Poverty Guideline.

Concentrated poverty

One-third of MHCP children live in areas of concentrated poverty (defined as >20 percent of residents of the census track living in poverty). Concentrated poverty is associated with various negative child

outcomes, including higher rates of children who require a hospital stay due to asthma (Kimes et. al., 2004).

The racial/ethnic disparities among children on MHCP programs who live in concentrated poverty are striking (see Figure 2.3). Fourteen percent of White children enrolled in MHCP programs live in concentrated poverty. This is very similar to the 12 percent of *all* children in Minnesota who live in concentrated poverty. In contrast, the following percentages of children of color on MHCP programs live in concentrated poverty:

- 59 percent of MHCP Asian children
- 53 percent of MHCP American Indian children and
- 48 percent of MHCP Black children

Data Sources: This indicator was operationalized as a person living in a census tract with at least 20 percent of residents living below the poverty guideline (100 percent FPG). We used Table S1701 "Poverty status in the past 12 months," from the 2008-2012 American Community Survey Five-Year Estimates for data on MHCP and all Minnesota children. We selected poverty data for each census tract in Minnesota and downloaded the data from the American FactFinder tool on the US Census Bureau website: http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml. We merged the percentage of people in a census tract living in poverty from the Census Bureau with data on the census tract for each child's home address. For about 99,280 children, no poverty data were available for their census tracts, so these children were not included in this analysis.

The percentage of U.S. children who live in a census tract with a poverty rate of 20 percent or more was taken from a U.S. Census Bureau report "Areas with Concentrated Poverty: 2006-2010: American Community Survey Briefs," December 2011, by Alemayehu Bishaw.
http://www.census.gov/prod/2011pubs/acsbr10-17.pdf   This uses a five-year set of data which begins one year earlier than the other high poverty census tract data.

Homelessness

The parents of eight percent of children indicated on an enrollment form that they were homeless in the past five years. This was most common among children receiving Child Protection services (21 percent), less common for those receiving cash/food assistance (nine percent) and least common for those receiving only Minnesota Health Care Programs (MHCP) and not cash assistance, food support or Child Protection services (one percent). Homelessness was also common between two racial groups enrolled in MHCP: American Indian children (22 percent) and Black children (16 percent).

Homelessness can interfere with a child's ability to fully concentrate in school and to accomplish other age-appropriate developmental tasks. Homeless children also miss significantly more days of school than do other children (Harpaz-Rotem, Rosenheck & Desai, 2006).

Data Sources: Homelessness is pulled from the MAXIS application form which asks for the applicant's address, and specifies that the applicant should write 'homeless' if they do not have an address. It is unknown how applicants are interpreting these instructions and in which situations they would consider themselves to be homeless or to not have an address. While one applicant may interpret this to mean that they should write 'homeless' if they are living doubled-up at a friend's house, another may simply write in the friend's address.

The family was considered homeless if the parent had indicated that they were homeless during any enrollment span during the years 2009-2013. Given the five-year look-back period, the parent's homeless episode may have occurred before the child was born, or at a time when the child was not living with this parent. However, parents' homelessness can only be identified during periods in which they were enrolled in a MAXIS-based program, and many of the programs either require that the applicant have children (e.g. MFIP), or the applicant is more likely to meet the income guidelines if they have children or other dependents (e.g. MA or SNAP).

Lack of a reliable vehicle

Most families (59 percent) lack a motorized vehicle, or they own a vehicle worth less than $2,500 (our proxy for a reliable vehicle). Families on MHCP programs are eligible for transportation vouchers to and from medical appointments, though the availability may vary. A reliable vehicle can still be important for parents' ability to access employment, shop where they can find healthy food and meet their family's other needs in a time-efficient manner.

Data Sources: We took the family's vehicle data from MAXIS. We chose a value of $2,500 as a proxy for the minimum value of a reliable vehicle. This data field is part of the original application for Medical Assistance (MA), cash assistance and food support. However, it may not be updated regularly.

Family structure risk factors

MHCP children appear to live in families who have greater caregiving responsibilities and less spousal support than other Minnesota families.

Parent is unmarried

Although less than one-third (29 percent) of all Minnesota children live with an unmarried parent, nearly two-thirds (63 percent) of children enrolled in MHCP programs live with an unmarried parent. This is much more common among children receiving Child Protection services (83 percent) than among those receiving cash/food but not Child Protection (69 percent) or among those receiving only MHCP programs (47 percent).

Extensive research finds better outcomes for children living with married parents than for those living with single or co-habiting parents. For example, among children in the general population (Gorman & Braverman, 2008) or those with asthma (Chen & Escarce, 2008) or diabetes (Thompson, Auslander & White, 2001), those with a single parent had health care utilization that conformed less to expectations (e.g., more missed clinic visits).

Data Source: We used DHS enrollment records to identify unmarried parents. Application forms ask for marital status, but may not be updated on a regular basis. For all data sources, children are considered to have unmarried parents if the parent is co-habiting but not married.

We took the rates for all Minnesota and U.S. children from the National Kids Count Project, which used 2013 ACS data. http://datacenter.kidscount.org/data/tables/106-children-in-single-parent-families?loc=1&loct=2#ranking/2/any/true/36/any/430

Four or more children in household

One-quarter of MHCP children (23 percent) live in a family with at least four children under the age of 18 (including themselves). In comparison, only six percent of all Minnesota children live in a family with four or more children. Families with unmarried parents, and four or more children, might be considered indicators of a caregiver burden, especially if they have both characteristics. These indicators were common in populations served by all DHS safety net programs.

Families of this size are likely to require greater time and effort from parents to meet all children's needs effectively. One researcher found that families with four or more children have more unmet mental health needs than other children (Fulda et. al., 2009), but this was only the case with low-income families (<133 percent FPG). Since almost all children served by DHS safety net programs have low family income, having four or more children in the household appears to be an important independent risk factor.

Data source: If a child had three or more siblings under the age of 18 living with him/her and on the same case, we considered the family to have four or more children.

The 2012 American Community Survey's question on number of each child's own siblings living with each of them was used to report on Minnesota and national children. This variable may include some adult siblings (due to ACS questionnaire design) while the DHS numbers only include children age 0-17. Researchers pulled data from the Minnesota Population Center's 'Integrated Public Use Microdata Series' (IPUMS) online data analysis tool, located at https://usa.ipums.org/usa/. Weights were applied so the results would be representative of the population of children age 0-17. Analyses were conducted for all children in Minnesota and for all children in the U.S.

Medically complex child in household

Among MHCP children, 17 percent live in households in which at least one child has a complex, chronic medical condition. These families require more caregiving time and effort to meet the child's medical and other needs. This could mean that other children's needs may not be addressed as quickly as needed. For families with multiple children with special health care needs, their use of specialists and prescriptions was significantly lower compared to families with a single child with special health care needs (Porterfield & McBride, 2007).

Data source: We used the Pediatric Medical Complexity Algorithm (Simon et. al., 2014) to determine whether at least one of the children in the household (including the target child) was medically complex. The child's claims data from 01/01/2011 – 12/31/2013 was used to categorize them according to whether they have no chronic medical conditions, a single non-complex chronic condition or one or more medically complex chronic conditions. This last group, identified in this indicator, includes children with:

a) Significant chronic condition in two or more body systems;
b) Progressive condition associated with deteriorating health and decreased life expectancy in adulthood,
c) Continuous dependence on technology for at least six months, or
d) Progressive or metastatic malignancies which impact life function.

This algorithm was developed by the Center of Excellence on Quality of Care Measures for Children with Complex Needs, the same collaboration conducting this study on social complexity (see Section III for more information).

Parent has high health care use

Parents of eight percent of MHCP children used a very high level of medical resources or are eligible for MHCP programs because they are disabled. This is used here as a proxy for the parent having a medically complex condition. These children have at least one parent who may need to put a significant amount of time and effort into his or her own medical care, leaving less time to care for children.

Data source: This indicator relies on parents being enrolled in Medical Assistance (MA) or MinnesotaCare for its data. Parents who are not enrolled in an MHCP program do not have the opportunity to be identified as a high user of medical care. Therefore, this indicator may be an underestimate, as there may be parents who would qualify for the measure, but they do not receive health care through a public program.

MA and MinnesotaCare enrollment records provide the data on which parents are eligible due to their disability status.

MA and MinnesotaCare claims and encounter forms provide data on parents' medical condition. This was measured using a different tool than used to identify medically complex children above. The Johns Hopkins' Adjusted Clinic Groups Resource Utilization Band (RUB) score of five out of five (very high resource utilization) was used as a proxy for parents having a medically complex condition. Only 2.7 percent of the adult U.S. population age 18 to 64 has a RUB score this high (Personal communication with Amy Salls, DST Health Solutions on October 24, 2013).

Language and Immigration

The parents of one-fourth (25 percent) of MHCP children indicated on the MHCP application that they speak a language other than English most of the time, that they need an interpreter or their child had an interpreter at a health care visit during 2013. This may be an important social complexity factor since families who speak a language other than English more often report problems accessing services such as health care (Yu & Singh, 2009).

This indicator was most common among MHCP children identified as Asian (72 percent), Hispanic (63 percent) or Black (33 percent). These three groups were also most likely to have a parent who immigrated to the U.S. Relatively few children (four percent) immigrated themselves, but child immigration was most common among Asian (20 percent) and Black (11 percent) children. Children in urban counties had much higher rates of parental immigration (39 percent) than did children in rural counties (12 percent).

Children whose parents speak a language other than English most of the time or whose parents immigrated are most commonly found enrolled in Cash/Food and MHCP programs. A much smaller proportion of children in Child Protection services have parents who immigrated (11 percent), or have a parent who speaks a language other than English most of the time (10 percent).

Data sources:

Parent speaks language other than English most of the time. We included children in this category if they met any of the following criteria:

- Parent indicated they need an interpreter on MAXIS enrollment application,
- Parent gave a language other than English as the one they speak most of the time on MAXIS enrollment application, or
- Child's MHCP claim or encounter indicates that child had an interpreter at a health care visit in 2013.

Child/parent immigrated to U.S. We took this indicator from MAXIS enrollment forms, which ask for a person's entry date into the U.S. If there was any entry date, we categorized that person as having immigrated.

We gathered immigration data on all Minnesota and U.S. children from the 2012 ACS American Community Survey (ACS) Birthplace variable. We coded everyone whose birthplace was outside of the U.S. as having immigrated.

Data on the immigration status of Minnesota and U.S. children's parents used an analysis reported in Kids Count data center http://datacenter.kidscount.org/data/tables/115-children-by-family-nativity?loc=1&loct=1#detailed/1/any/false/868,867,133,38,35/any/445,446. This reported the percentage of children who were foreign-born themselves, or resided with at least one foreign-born parent. This will include some more children than the MHCP analysis, which included only foreign-born parents and did not include the child him/herself.

Child maltreatment or diminished parental functioning

Parental chemical dependency, parental serious mental illness and child maltreatment might be the most serious risk factors in this report. The American Academy of Pediatrics (2014) notes that "when a child experiences strong, frequent or prolonged adversity, such as physical or emotional abuse, chronic neglect, caregiver substance abuse or mental illness…in the absence of adequate adult support" (p. 2), the toxic stress disrupts healthy development and has long-term detrimental effects on the health and well-being of these individuals.

The indicators in this section are almost certainly underestimates, as a parent has to have received a particular diagnosis or to have come to the attention of Child Protection services to be included in the data. Children in Child Protection services stand out as being at much higher risk on these indicators than children on other DHS safety net programs.

Parental chemical dependency

Parents of one in 10 MHCP children had a chemical dependency diagnosis in the past 18 months. This is a troubling number, given how substance use can impair the parent's overall ability to care for the child and, in particular, his or her emotional responsiveness (Dawe, Harnett & Frye, 2008).

The rate of parental chemical dependency is even higher among children served by Child Protection services, where 30 percent of children have a parent with this diagnosis. Parental chemical dependency is one of the few risk factors which are more prevalent among rural MHCP children (12 percent) than among urban children (nine percent). Among American Indian children, 35 percent have this risk factor, much higher than any other racial/ethnic group.

Data source: This measure only counts parents as chemically dependent if they received chemical dependency treatment, paid for by MA or MinnesotaCare, in the past 18 months. We expect this significantly underestimates the total number of chemically dependent parents. We identified treatment using claims and encounter data in MMIS, and we used a look-back period of 18 months, ending 12/31/2013.

Both MFIP and Child Protection services screen for chemical dependency in their participants, but this data was not included in this analysis as not all children were in one of these programs and thus may not have had such data available.

The Alcohol and Drug Abuse Division of Chemical and Mental Health Services provided the diagnoses used to construct this variable. They include alcohol dependency syndrome (303.X) and drug dependence (304.X). It also includes non-dependent abuse of drugs (305.X except for tobacco use disorder 305.1). This diagnosis suggests that the parent is not dependent on the substance, but there is some problem associated with their use. A few medical diagnoses were also included. They indicated that there has at least historically been a significant abuse of chemicals. These include alcohol or drug induced mental disorders (291.X or 292.X), alcoholic gastritis (535.3) or acute alcoholic hepatitis (571.1).

Parental mental illness

Parents of five percent of MHCP children met the criteria for Serious and Persistent Mental Illness (SPMI). Only people who are receiving intensive mental health services and have one of four serious

diagnoses meet this criterion. Children who received Child Protection services had this risk factor more often (13 percent of children).

A more common indicator is that of "Serious Mental Illness" (SMI). This indicator does not require intensive services but only particular diagnosis codes. In the general population, the estimate is that 5.4 percent of people have a SMI. A much larger 13 percent of MHCP children have parents who meet this criterion. These are different units of analysis and are not directly comparable. But it indicates that a significant minority of DHS children are growing up with parents who a health care professional recently identified as having a SMI.

Mental illness in a parent can be a concerning situation, especially if untreated. These children may encounter many barriers to their own healthy emotional development (Orel, Groves & Shannon, 2003). They may experience fear, anger, guilt, shame or other feelings about their parent's illness (Blanch, Nicholson & Burcell, 1998). They may also be required to take on adult-like responsibilities at an early age, thus focusing less on their own development.

Data sources: Similar to the parental chemical dependency measure, only parents who were enrolled in an MHCP program and who had claims/encounters with a mental illness diagnosis were counted as having mental illness. These measures may therefore also undercount the total number of children whose parents have mental illness.

Parent has Serious and Persistent Mental Illness. Parents are considered to have a Serious and Persistent Mental Illness (SPMI) if they met two criteria, as operationalized by the DHS Adult Mental Health division.

First, they had to have one of the following mental illness diagnoses: Schizophrenia or Schizo-affective Disorder (295.X), Borderline Personality Disorder (301.83), Major Depression Disorder (296.2 – 296.3X) or Bipolar disorder (296.0X, and 296.4X – 296.8X).

Second, the parent must have received one of the following mental illness services which are both intensive and only available to people found to need a high level of care. The service categories used to represent them are the following: Inpatient MH Service (MH diagnosis was first in the list of diagnoses), MH-Targeted Case Management, MH Rehab Services CTSS, ACT, ARMHS, Day Treatment, Residential Treatment (IRTS or Rule 5), MH Crisis Services- Intervention or Stabilization, or at least 15 therapy sessions during the year.

To be flagged as SPMI in this report, the parent also must have *not* received a Developmental Disability Waiver and did not live in a DD/MR residential facility. The look-back period for both indicators of mental illness is 18 months ending 12/31/2013. Researchers pulled all mental illness data from MMIS.

Parent has Serious Mental Illness. States receive federal block grant funding to serve people with Serious Mental Illness (SMI). The federal government defines this in a uniform way as people experiencing moderate functional impairment. However, DHS lacks data on the functional status of the majority of recipients, so the Adult Mental Health Division of Chemical and Mental Health Services operationalizes SMI using diagnosis codes. Other states may operationalize SMI differently. In general, these mental health conditions interfere with some area of social functioning.

Child Protection services

One in five MHCP children received Child Protection services within the last five years. These children may have been subjects of a Family Investigation or a Family Assessment during that time. Alternatively, they may have been subjects of a Family Investigation or Assessment in the past and sometime during those five years received post-assessment/investigation services to address risk or safety issues.

Data source: Child Safety and Permanency division staff pulled all child protection data from Social Service Information System (SSIS). Children were included in the category of having received Child Protection services if they were the subject of a Family Investigation, a Family Assessment or received post-assessment services at any time during 2009-2013.

In the first half of Section II, this report showed the overall prevalence of family risk factors among children enrolled in MHCP programs. It also provided the data source for each risk factor as well as a short description of why each factor is important for children's health and well-being.

In the remainder of Section II the report gives the prevalence of these risk factors among children with various demographic characteristics and among children participating in different DHS safety net programs.

Prevalence of risk factors by DHS program participation

What are the risk factors of children who participate in different DHS safety net programs? Children who received Child Protection services in 2013 had a much higher prevalence of risk factors than others (see Figure 2.2). Children who received cash assistance or food support had the second highest rates of risk factors, followed by children enrolled in an MHCP program only. This is especially striking for risk factors such as parental chemical dependency or mental illness.

Children's access to resources follows the same pattern of highest risk for children in Child Protection services, then cash/food support, then MHCP only. Child Protection services are not income-tested, but nevertheless serve among the poorest children, and are much more likely to have experienced homelessness, compared with other children in DHS programs.

Immigration and language are the risk factors which do not fit this pattern. Child Protection serves the fewest children in families with immigrant parents and children and with parents who speak a language other than English most of the time. Children with these characteristics are most prevalent in the cash assistance/food support programs.

Methodological notes

The substantial overlap in program participation among children makes the categorization of children into program categories difficult. As shown in the first three columns of Figure 2.2, we separated the children into three mutually exclusive groups:

- children who enrolled in MHCP and received Child Protection services,
- children who were enrolled in MHCP and Cash/Food support but not Child Protection services and
- children who were only enrolled in an MHCP program.

All three of these groups received the respective services during calendar year 2013. It should be noted that most children who received Child Protection services also received cash/food. However, they are excluded from the MHCP + Cash/Food but no Child Protection services because children receiving both types of services are expected to be more similar to those in Child Protection than to those in cash/food programs when it comes to their social risk factors.

The receipt of Child Protection services is an important risk factor (it is the last row of the table), but it is also one of the program categories (the first column 'MHCP + Child Protection'). The criteria for being included in the program category of 'MHCP and Child Protection' is identical to that of receiving the Child Protection services risk factor except that the risk factor identifies families who received Child Protection services at any time during the past five years while the program category 'MHCP and Child Protection' only includes children who received those services in 2013. Of course, 100 percent of children who received MHCP and Child Protection services in 2013 have the risk factor of receiving Child Protection services in the past five years.

Figure 2.2 Family Risk Factors among Children participating in an MHCP Program

Family Risk factors (look-back period)	Children participating in an MHCP program in 2013[7] (N=397,306)								Comparison Groups	
	MHCP + Child Protection[8] (N=37,537)		MHCP + Cash/Food but no CP[9] (N=241,414)		MHCP Only[10] (N=118,355)		All MHCP[11] (N=397,306)		MN kids	U.S. kids
	#	%	#	%	#	%	#	%	%	%
Income and other tangible resources										
Income <= 100 percent FPG (12 months) [12]	32,794	87%	211,077	87%	85,322	72%	329,193	83%		
Resides in high poverty census tract (>20 percent of residents are poor)	10,182	36%	66,818	36%	17,033	21%	94,033	32%	14%	17%
Parent indicated self/family was homeless (5 years)	7,700	21%	22,825	9%	1,752	1%	32,277	8%		
Family lacks vehicle worth at least $2,500	27,187	72%	145,873	60%	61,231	52%	234,291	59%		
Family structure risk factors										
Parent is unmarried	30,988	83%	165,629	69%	55,046	47%	251,663	63%	29%	35%
Four or more children in household	10,758	29%	67,253	28%	14,595	12%	92,606	23%	6%	6%
Child in household is medically complex	8,922	24%	42,226	17%	17,799	15%	68,947	17%		
Parent is disabled or has very high health care utilization (may be medically complex)	5,775	15%	23,872	10%	4,080	3%	33,727	8%		
Language and immigration										
Parent speaks language other than English most of the time	3,722	10%	65,822	27%	31,735	27%	101,279	25%		
Child immigrated to U.S.	444	1%	14,335	6%	2,539	2%	17,318	4%	4%	4%
Parent immigrated to U.S.	4,228	11%	75,438	31%	32,875	28%	112,541	28%	17%	24%
Child maltreatment or diminished parental functioning										
Parent with chemical dependency diagnosis (18 months.)	11,344	30%	25,433	11%	3,761	3%	40,538	10%		
Parent has Serious and Persistent Mental Illness (18 months.)	5,042	13%	13,641	6%	1,588	1%	20,271	5%		
Parent has Serious Mental Illness (18 months.)	10,657	28 %	34,432	14%	5,064	4%	50,153	13%		
Child received Child Protection services (5 years)	37,537	100%	32,160	13%	6,483	5%	76,180	19%		

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7 **Children participating in an MHCP Program'**: The child was enrolled in MA or MN Care for at least 3 months in 2013 and a parent was identified in the MAXIS system as living with them sometime during that year.

8 **MHCP + Child Protection**: During 2013, these children were enrolled in an MHCP program (as defined above) and received child protection services. Most children also received cash assistance or food support.

9 **MHCP + Cash Program but no CP**: In 2013, these children were enrolled in an MHCP program (as defined above), and were enrolled in Supplemental Nutritional Assistance Program (SNAP), Minnesota Family Investment Program (MFIP) or Diversionary Work Program (DWP) for at least one month. Excluded from this group are children who also received child protection services.

10 **MHCP Only**: In 2013, these children were enrolled in an MHCP program (as defined above) but did not participate in a cash/food program or receive child protection services.

11 **All MHCP:** This column functions as a 'Total' column as it combines all children in the three categories.

12 Income data is collected and verified for the purpose of determining program eligibility, and is not comparable to Census Bureau or other survey-based poverty estimates.

Prevalence of risk factors by child's race/ethnicity

The prevalence of social risk varies dramatically by the child's racial or ethnic background (see Figure 2.3). Race/ethnicity data come from enrollment forms, which ask applicants to identify the child as any one or more of these racial groups: Asian, Black/African American, American Indian/Native American, Pacific Islander or Native Hawaiian, or White. It also asks whether or not the child is Hispanic or Latino. This section reports social risk factors for Hispanics and for non-Hispanics of the following racial groups: Whites, Blacks, Asians, American Indians and people identifying multiple or other race. Except where specified, we do not differentiate between immigrants and non-immigrants.

Non-Hispanic Whites: Although most (72 percent) children in Minnesota are non-Hispanic White[13], fewer than half (45 percent) of children enrolled in MHCP programs are non-Hispanic White, as reported by their parent (or the caseworker if the parent did not respond to that question). Nevertheless, they are by far the largest racial group enrolled in MHCP. Non-Hispanic White children have much lower rates of social risk factors than children in other groups. For example, 79 percent of non-Hispanic White children have family income which is at or below the poverty level, compared with 83 percent of Asian children, 86 percent of Black children, 88 percent of Hispanic children and 89 percent of American Indian children.

Non-Hispanic Blacks: Non-Hispanic Black children are the next largest group of children enrolled in MHCP programs. They have high rates of poverty, and 16 percent have reported an episode of homelessness in the past five years. Most children have an unmarried parent *and* one-third have four or more children in the household. One in five children has a child in the household who is medically complex. Their rates of parental mental illness and chemical dependency are similarly high to other groups'. This group of children is made up of recent African immigrants (11 percent of children immigrated and 45 percent of children have an immigrant parent) combined with African Americans who have been in the U.S. for generations. Future analyses might review these and other groups separately.

Hispanics: Hispanic children are identified as such regardless of their race. They are the next largest group enrolled in MHCP programs. They have high rates of poverty, though they seldom report homeless episodes. About two-thirds of children have a parent who immigrated, and the same percentage have a parent who speaks a language other than English most of the time. Their rates of parents' physical conditions, mental illness and chemical dependency are lower than for other children, though this may be because parents are ineligible for MHCP programs, and DHS lacks data on their conditions.

Non-Hispanic Asians: Non-Hispanic Asian children have a mix of protective and risk factors. They had high rates of having four or more children, but they also had the highest rates of two married parents. They had the lowest prevalence of reporting being homeless. On the other hand, they have the highest prevalence of a parent being disabled or having very high medical expenses. Family immigration experiences are the norm for this population: four of five children had at least one parent who immigrated to the U.S., one in five children immigrated themselves and 72 percent have a parent who speaks a language other than English most of the time.

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[13] Source: Kidscount data center, using 2013 data. http://datacenter.kidscount.org/data/tables/103-child-population-by-race?loc=1&loct=2#detailed/2/25/false/36,868,867,133,38/66,67,68,69,70,71,12,72/423,424

Non-Hispanic American Indians: American Indian children make up the smallest racial group enrolled in MHCP programs, but they experience some of the greatest social risk. This is true for access to resources: American Indian children enrolled in MHCP programs have the highest rates of poverty (95 percent) and homelessness (22 percent). Their greater risk is especially notable when it comes to parental functioning: one third of children had a parent who received a chemical dependency diagnosis in the past 18 months; this is nearly three times higher than any other group. Similarly, 40 percent of American Indian children received Child Protection services within the last five years, nearly twice the percentage of any other racial group.

Figure 2.3. MHCP Children's Risk Factors by Racial/Ethnic Group.

Program	Hispanic	%	American Indian	%	Asian	%	Black	%	White	%	Multiple/ Other Race	%	All MHCP	%
							Non-Hispanic							
MHCP (n=397,306)														
Family Risk factors (look-back period)	55,549	%	12,465	%	28,526	%	84,820	%	180,270	%	35,676	%	397,306	%
Income and other tangible resources														
Income <= 100% FPG (12 months)[14]	48,957	88%	11,108	89%	23,758	83%	72,572	86%	143,255	79%	29,543	83%	329,193	83%
Resides in high poverty census tract (> 20% of residents are poor)	17,239	39%	3,874	53%	13,507	59%	34,065	48%	18,279	14%	7,069	20%	94,033	32%
Parent indicated self/family was homeless (5 years)	2,229	4%	2,712	22%	498	2%	13,417	16%	9,471	5%	3,870	11%	32,277	8%
Family lacks vehicle worth at least $2,500	38,976	70%	9,986	80%	13,186	46%	58,286	69%	91,506	51%	22,351	63%	234,291	59%
Family structure risk factors														
Parent is unmarried	34,803	63%	10,929	88%	14,181	50%	60,780	72%	105,710	59%	25,260	71%	251,663	63%
Four or more children in household	11,663	21%	3,296	26%	11,406	40%	29,939	35%	30,361	17%	5,941	17%	92,606	23%
Child in household is medically complex	9,262	17%	1,985	16%	3,515	12%	16,962	20%	31,288	17%	5,935	17%	68,947	17%
Parent is disabled or has very high health care utilization (may be medically complex)	1,814	3%	1,364	11%	3,915	14%	8,453	10%	15,292	8%	2,889	8%	33,727	8%
Language and immigration														
Parent speaks language other than English most of the time	3,5075	63%	328	3%	20,609	72%	28,084	33%	12,714	7%	4,469	13%	101,279	25%
Child immigrated to U.S.	804	1%	17	0%	5,792	20%	8,944	11%	1,425	1%	336	1%	17,318	4%
Parent immigrated to U.S.	37,310	67%	204	2%	23,289	82%	37,757	45%	8,521	5%	5,460	15%	112,541	28%
Child maltreatment or diminished parental functioning														
Parent with chemical dependency diagnosis (18 months.)	2,882	5%	4,384	35%	937	3%	6,921	8%	20,813	12%	4,601	13%	40,538	10%
Parent has Serious and Persistent Mental Illness (18 months.)	1,260	2%	709	6%	1,987	7%	4,081	5%	10,194	6%	2,040	6%	20,271	5%
Parent has Serious Mental Illness (18 months.)	3,297	6%	2,108	17%	4,507	16%	10,388	12%	24,941	14%	4,912	14%	50,153	13%
Child received Child Protection services (5 years)	8,413	15%	5,018	40%	2,334	8%	17,267	20%	35,530	20%	7,618	21%	76,180	19%

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[14] Income data is collected and verified for the purpose of determining program eligibility, and is not comparable to Census Bureau or other survey-based poverty estimates.

Prevalence of risk factors by Rural/Urban Residence

Children's county of residence was categorized as urban (Anoka, Carver, Dakota, Hennepin, Olmsted, Ramsey, Scott, Stearns, St. Louis, and Washington) or rural (any other county). Figure 2.4 shows the prevalence of risk factors for these two groups. More than half of children (61 percent) live in an urban county.

MHCP children in urban counties are poorer and report higher rates of homelessness. Their own and their parents' immigration rates are three times higher than those of rural children, as are their rates of parents speaking a language other than English at home. On the other hand, children in rural areas have higher rates of having a parent with chemical dependency and having received Child Protection services in the past five years.

Figure 2.4. MHCP Children's Risk Factors by Rural/Urban Residence.

	MHCP (n=397,306)					
	Urban		Rural		All MHCP	
Family Risk factors (look-back period)	242,732	%	154,574	%	397,306	%
Income and other tangible resources						
Income <= 100 percent FPG (12 months) [15]	203,244	84%	125,949	81%	329,193	83%
Resides in high poverty census tract (> 20 percent of residents are poor)	73,487	38%	20,546	20%	94,033	32%
Homelessness indicated in past five years	22,596	9%	9,681	6%	32,277	8%
Family lacks vehicle worth at least $2,500	152,986	63%	81,305	53%	234,291	59%
Family structure risk factors						
Parent is unmarried	158,927	65%	92,736	60%	251,663	63%
Four or more children in household	59,637	25%	32,969	21%	92,606	23%
Child in household is medically complex	44,038	18%	24,909	16%	68,947	17%
Parent is disabled or has very high health care utilization (may be medically complex)	21,499	9%	12,228	8%	33,727	8%
Language and immigration						
Parent speaks language other than English most of the time	81,247	33%	20,032	13%	101,279	25%
Child immigrated to U.S.	14,755	6%	2,563	2%	17,318	4%
Parent immigrated to U.S.	93,995	39%	18,546	12%	112,541	28%
Child maltreatment or diminished parental functioning						
Parent with chemical dependency diagnosis (18 months.)	22,737	9%	17,801	12%	40,538	10%
Parent has Serious and Persistent Mental Illness (18 months.)	12,889	5%	7,382	5%	20,271	5%
Parent has Serious Mental Illness (18 months.)	30,846	13%	19,307	12 %	50,153	13%
Child received child protection services (5 years)	44,293	18%	31,887	21 %	76,180	19%

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[15] Income data is collected and verified for the purpose of determining program eligibility, and is not comparable to Census Bureau or other survey-based poverty estimates.

Prevalence of risk factors by child's age

Although children in different DHS safety net programs, regions and racial/ethnic groups have dramatic differences in their social risk, children of different ages have much smaller differences in their levels of social risk.

Younger children's families have fewer financial and other resources, though the differences are not as dramatic as in earlier comparisons. Older children, on the other hand, have higher rates of a physical, chemical or mental illness in the family. This may be partly due to the fact that older age children have higher rates of four or more siblings and of two married parents. Older children also have higher rates of being immigrants themselves, though their parents' immigration status does not vary by the child's age.

Figure 2.5. MHCP Children's Risk Factors by Age Group.

	MHCP (n=397,306)												
	<1		1-2		3-5		6-9		10-14		15-17		All MHCP	
Total number of children	24,459	%	57,278	%	64,213	%	80,616	%	82,343	%	40,520	%	397,306	%
Risk factors(look-back period)														
Income and other tangible resources														
Income <= 100 percent FPG (12 months) [16]	21,862	89%	49,973	87%	62,108	82%	77,536	82%	78,818	81%	38,895	79%	329,193	83%
Resides in high poverty census tract (> 20 percent of residents are poor)	5,696	33%	13,586	32%	18,389	33%	22,636	32%	22,528	30%	11,198	30%	94,033	32%
Parent indicated self/family was homeless (5 yrs)	2,744	11%	6,115	11%	7,477	10%	7,208	8%	5,995	6%	2,738	6%	32,277	8%
Family lacks vehicle worth at least $2,500	15,552	64%	34,146	60%	44,643	59%	54,612	58%	56,166	58%	29,172	60%	234,291	59%
Family structure risk factors														
Parent is unmarried	16,084	66%	36,526	64%	48,324	64%	59,013	63%	60,413	62%	31,303	64%	251,663	63%
Four or more children in household	3,299	13%	8,733	15%	16,485	22%	26,122	28%	27,435	28%	10,531	21%	92,606	23%
Child in household is medically complex	2,460	10%	7,521	13%	11,461	15%	16,815	18%	19,980	21%	10,709	22%	68,947	17%
Parent is disabled or has very high health care utilization (may be medically complex)	968	4%	2,761	5%	4,457	6%	7,182	8%	10,843	11%	7,516	15%	33,727	8%
Language and immigration														
Parent speaks language other than English most of the time	5,938	24%	14,471	25%	19,880	26%	24,628	26%	24,412	25%	11,949	24%	101,279	25%
Child immigrated to U.S.	14	0%	315	1%	1,636	2%	3,778	4%	6,685	7%	4,890	10%	17,318	4%
Parent immigrated to U.S.	6,807	28%	15,980	28%	22,411	30%	27,891	30%	27,028	28%	12,423	25%	112,541	28%
Child maltreatment or diminished parental functioning														
Parent with chemical dependency diagnosis (18 months.)	2,607	11%	5,647	10%	8,135	11%	9,606	10%	9,528	10%	5,015	10%	40,538	10%
Parent has Serious and Persistent Mental Illness (18 months.)	774	3%	2,165	4%	3,466	5%	4,859	5%	5,721	6%	3,286	7%	20,271	5%
Parent has Serious Mental Illness (18 months.)	2,281	9%	5,924	10%	9,114	12%	11,935	13%	13,380	14%	7,519	15%	50,153	13%
Child received child protection services (5 years)	1,419	6%	6,916	12%	15,485	21%	21,470	23%	21,189	22%	9,701	20%	76,180	19%

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[16] Income data is collected and verified for the purpose of determining program eligibility, and is not comparable to Census Bureau or other survey-based poverty estimates.

III.   Discussion and Next Steps

The family risk factors described in this report provide an indication of the environments in which a significant proportion of our state's children find themselves during the critical time in which they are trying to develop the skills and attitudes they will need to become self-sufficient adults. In areas where we find the environments to be less than optimal for their development, we will want to assure appropriate support to these children to help them reach their potential as productive adults and community members.

The authors hope this data will increase collaboration across DHS and strengthen partnerships with community organizations working with vulnerable children and their families. We also hope this data will inform and encourage discussion on how we can best work together to strengthen the healthy development of the children we all serve.

This data can help identify the risk areas most in need of supportive services and the geographic areas most in need of attention. We can use family risk data for needs assessments, policy analysis, program development and targeting of interventions where families need them most.

In the health care area, we hope this data will also allow us to risk-adjust children according to their family risk factors. The next step will be to develop a continuous risk adjustment measure of family risk. To do this, we will investigate the association between a child's family risk factors and the following health care utilization and cost indicators:

- Total cost of care
- Receipt of childhood immunizations
- Receipt of well-child visits in the first 15 months of life, in years three to six and in adolescence
- Receipt of an annual dental visit

We hope that this kind of continuous measure of family risk will allow us to risk-adjust groups of children, and that this type of tool would be available for use in Accountable Care Organization gain-share payments and other payment methodologies.

IV.   Origins of and Funding for this project

This study was funded through a cooperative agreement with the Agency for Healthcare Research and Quality, grant #U18HS020506, part of the Pediatric Quality Measures Program. This grant funded the Center of Excellence on Quality of Care Measures for Children with Complex Needs (COE4CCN) a multi-stakeholder collaborative led by principal investigator, Dr. Rita Mangione-Smith at Seattle Children's Research Institute. The Minnesota Department of Human Services was a subcontracting organization for this grant.

The Center's initial charge was to develop indicators which measure the quality of care coordination provided by clinics to children enrolled in Medicaid programs. To do this, the group decided it was first necessary to determine which children would benefit from care coordination.

Medically Complex Children. Experts agree that children with a complex condition can benefit from care coordination. The Center of Excellence partners therefore developed a new algorithm, the Pediatric Medical Complexity Algorithm (Simon et. al., 2014) which uses Medicaid medical claims to identify children who are medically complex.

Socially Complex Children. DHS's Medical Director Dr. Jeff Schiff suggested that there may be a second group of children who would benefit from care coordination. He noted that parents with many social risk factors often have a hard time following their children's care plans, even simple plans. He referred to these children as "socially complex," paralleling the "medically complex" term often used in health care. Dr. Mangione-Smith believed it was worth investigating whether this population would also benefit from care coordination and created a new workgroup to test this hypothesis. Kim Arthur, also of SCRI, conducted a literature review which identified risk factors negatively associated with health care utilization and health outcomes.

Washington State Social Complexity Study. Researchers in Washington State found that a variety of family risk factors were predictive of greater use of Emergency Department services and decreased timely adherence to well child visits in a sample of children enrolled in Medicaid after adjusting for medical complexity. Risk factors included the following: parental mental illness, family limited English proficiency, family child protection involvement, homelessness, and family welfare participation. They also found parental criminal justice involvement to be predictive. This last factor is not available in the Minnesota dataset.

Minnesota Social Complexity Study. We compiled family risk factors from enrollment data, claims data, cash assistance/food support data and Child Protection data in Minnesota. We drew a sample of children with a single chronic medical condition to look closer at this data. Parents of these children were interviewed (n=460) as were these children's primary care providers (n=140). We validated the administrative indicators against the parent survey. Further, children who had at least one social risk factor (of those in Washington State's study above) were more likely to need care coordination, as reported by their parent.

Abbreviations

DWP (Diversionary Work Program): The cash assistance program which families with children initially enroll in. This program focuses on helping parents to find jobs. The family may later move into the MFIP program.

FPG (Federal Poverty Guideline): This guideline, updated annually, expresses the amount of income an individual or family has, as a percentage of the poverty line. Families with income less than 100 percent FPG have less income than the poverty line.

MAXIS: This computer system maintains eligibility for Medical Assistance, cash assistance and food support.

MFIP (Minnesota Family Investment Program): This is a cash assistance program for families with children.

MHCP (Minnesota Health Care Programs): This includes all of Minnesota's Medical Assistance and Minnesota Care programs.

MMIS (Medicaid Management Information System): This computer system processes and stores claims and encounter data for Medical Assistance and Minnesota Care as well as maintaining eligibility for Minnesota Care.

SSIS (Social Service Information System): This computer system maintains child protection data.

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