

Youth with High Behavioral Health Needs in Colorado:

Cross-System Utilization Patterns

Strong minds, strong futures.

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SUBMITTED BY:

Diane R. Fox, Ph.D.
Nancy Johnson Nagel, Ph.D.
Kaia Gallagher, Ph.D.
Ashley Brock-Baca, Ph.D.

SUBMITTED TO:

Colorado Department of Human Services, Office of Behavioral Health



COLORADO
Department of Human Services

FORWARD

The Masai, an accomplished and fabled tribe of Africa have a traditional greeting inquiring about the health and welfare of their children. The traditional greeting that passed between Masai warriors "Kasserian ingera", means "And how are the children?"

It is still the traditional greeting among the Masai, acknowledging the high value that this society places on their children's well-being. We in Colorado also value our children. This report which looks across systems is addressing the question, "How are Colorado's children?"

This evaluation represents the first attempt to comprehensively document service utilization across child serving systems. Data was obtained from multiple data systems which required effort from many data staff. This comprehensive system analysis provides information regarding the factors that impact youth outcomes to possibly lead to more effective intervention and coordination of services between systems.

We hope that this report will be helpful in moving Colorado forward to a system of care that meets the needs of children with behavioral health concerns and their families. We are committed to working between our Offices and throughout our Department and state government to fully implement services and supports that are innovative, coordinated and effective. While there are many ways to measure the success of a system of care, the question that really matters is "How are Colorado's Children?"

Sincerely,



Lisa M. Clements, PhD.
Director, Office of Behavioral Health



Julie Krow, MA, LPC
Director, Office of Children, Youth and Families

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	III
BEHAVIORAL HEALTH NEED IN THE YOUTH POPULATION: PREVALANCE AND IMPLICATIONS.....	1
INTENSIVE SERVICE UTILIZATION	4
Who Pays for High Cost Intensive Services?	4
How Many Children are Receiving Intensive Services?	5
How Are Costs Distributed Among Individuals?	6
CHARACTERISTICS OF CHILDREN RECEIVING MENTAL HEALTH SERVICES WITH AN INDICATION OF CHILD WELFARE INVOLVEMENT.....	9
What is the Clinical and Demographic Presentation of the Children in the System Bearing the Largest Proportion of Intensive Services?	9
HIGHEST CHILD WELFARE UTILIZERS AND SYSTEM OVERLAP	13
In What Other Systems Do Children with Extensive Child Welfare Services Participate?	13
What are the Clinical Implications of Multiple System Involvement?	14
What are the Costs of Multiple System Involvement?	14
From Which Agency Do Children First Receive Public Services?	15
Does it Matter Which is the System of First Involvement?	17
What is the demographic and clinical presentation of children whose first service system differs? ...	18
DYC INVOLVEMENT	23
What is the clinical and demographic presentation of the children who become involved with DYC?...	23
What Factors Predict DYC Involvement for Child Welfare High Utilizers?	26
What Factors Predict DYC Involvement for a Mental Health Population?	28
SUMMARY AND CONCLUSIONS.....	29
APPENDICES	31

LIST OF FIGURES AND TABLES

TABLE 1. FY2010-11 HIGH INTENSITY SERVICES	5
FIGURE 1. AGENCY OVERLAP OF HIGH INTENSITY SERVICES	5
FIGURE 2. FISCAL YEAR HIGH INTENSITY SERVICES: PERCENT OF OVERALL YOUTH SERVED AND EXPENDITURES BY AGENCY	6
FIGURE 3. MEDICAID SPENDING	7
FIGURE 4. YOUTH WITH CLINICALLY ELEVATED ADMISSION CCAR SCORES BY CHILD WELFARE STATUS	10
FIGURE 5. YOUTH WITH CLINICALLY ELEVATED DISCHARGE CCAR SCORES BY CHILD WELFARE STATUS	11
FIGURE 6. CHILD WELFARE HIGH UTILIZERS SYSTEM OVERLAP.....	14
TABLE 2. SYSTEM OVERLAP	15
FIGURE 7. MEAN CW COST IN FY11-12 BY NUMBER OF SYSTEMS.....	15
FIGURE 8. SYSTEM ORDER PROGRESSION OF 1,881 HIGH EXPENDITURE YOUTH.....	16
FIGURE 9. SYSTEM ORDER PROGRESSION INTO THE DIVISION OF YOUTH CORRECTIONS.....	17
FIGURE 10. NUMBER OF SYSTEMS BY SERVICE ORDER FOR CHILD WELFARE HIGH UTILIZERS	18
FIGURE 11. RACE/ETHNICITY BY SYSTEM ORDER	19
FIGURE 12. AGE AT ADMISSION BY SYSTEM ORDER.....	19
FIGURE 13. CHILD WELFARE PROGRAM AREA BY SYSTEM ORDER	20
FIGURE 14. MEAN ONE-YEAR SERVICE COST TO CHILD WELFARE BY SYSTEM ORDER	21
FIGURE 15. GENDER* BY DYC INVOLVEMENT	23
FIGURE 16. AGE AT FIRST SERVICE BY DYC INVOLVEMENT	24
FIGURE 17. CW PROGRAM AREA* BY DYC INVOLVEMENT	24
TABLE 3. CCAR DOMAINS WITH SIGNIFICANTLY DIFFERENT RATES OF CLINICAL ELEVATION FOR YOUTH WITH (VS. WITHOUT) DYC INVOLVEMENT	26
TABLE 4. FACTORS FOR LOGISTIC REGRESSION: PREDICTING DYC INVOLVEMENT.....	27
FIGURE 18. RISK FACTORS FOR DYC INVOLVEMENT	28

EXECUTIVE SUMMARY

Approximately 13% of youth ages 8 to 15 experience severe mental disorders in a given year; a rate that increases to 20% for youth ages 13 to 18. Rates increase to over 50% when mild and moderate mental disorders are also included¹.

In Colorado and across the nation, uncoordinated care is consistently cited by consumers, families, practitioners and other stakeholders as being a primary barrier to quality and cost effective care². In response to this challenge, the Colorado Department of Health and Human Services (CDHS) Office of Behavioral Health (OBH) of the applied for, and was awarded, a federal grant from the Substance Abuse and Mental Health Services Administration (SAMHSA) to develop and implement a comprehensive strategic plan to expand the system of care for Colorado children and adolescents with serious emotional disturbances (SED) and their families called COACT Colorado.

The COACT project also sponsored an evaluation to examine the service delivery that existed prior to the implementation phase of the system of care. The goal of this evaluation was to document high intensity service utilization and cost, system overlap, and outcomes for high utilizers of public services. The four phases of the evaluation were comprised of:

- Compiling cost and utilization statistics of high intensity services (inpatient and residential treatment)
- Examining clinical and demographic characteristics of individuals from the highest cost system
- Analyzing the system involvement and service trajectory of the highest cost individuals in the system (Child Welfare) the provides the largest proportion of high intensity services
- Evaluating the clinical and system outcomes of children with high utilization of Child Welfare Services

This evaluation represents the first attempt to comprehensively document service utilization across child serving systems. Data was obtained from multiple data systems that do not include a universal identifier for individuals across systems. Multiple state agencies participated in this project by providing client level information critical for the analyses. This comprehensive system analyses provides information regarding the factors that impact youth outcomes to possibly lead to more effective intervention and coordination of services between systems.

Inpatient and residential treatment services are the most intensive and costly forms of behavioral health service. Findings across multiple studies indicate that these services should be reserved for children with the most severe needs and use of such restrictive settings should be limited to the briefest period of time possible before transitioning children back to community based therapy settings^{3,4}. In Colorado, multiple child serving agencies pay for these intensive services, they include:

- Behavioral Health Organizations (BHOs) for Medicaid eligible children
- Child Welfare (CW)

¹ 2010 Data. http://www.nimh.nih.gov/statistics/1ANYDIS_CHILD.shtml, Accessed online August, 2014.

² TriWest Group. (2011). The Status of Behavioral Health Care in Colorado – 2011 Update. Advancing Colorado's Mental Health Care: Caring for Colorado Foundation, The Colorado Health Foundation, The Colorado Trust, and The Denver Foundation: Denver, CO.

³ World Health Organization, http://www.who.int/mental_health/media/en/75.pdf. Accessed online August 26, 2014

⁴ Mental Health America <http://www.mentalhealthamerica.net/patient-care>. Accessed online August 26, 2014

- The Division of Youth Corrections (DYC)
- The Office of Behavioral Health (OBH) through The Child Mental Health Treatment Act (CMHTA) for non-Medicaid eligible children
- Colorado Mental Health Institutes at Ft. Logan⁵ and Pueblo

Data from all of these systems were compiled to determine that the largest proportion of intensive service cost was paid by the Child Welfare System. Child Welfare Residential Treatment expenditures were \$51,719,376, in FY10-11, which accounted for 59% of \$95,283,149, total of all child-serving agencies. Cost per client data was available for those served through the BHO Medicaid system and it was determined the Medicaid cost per client was more than five times greater (\$41,889 per client) for the top 10% in spending than for the remaining 90% (\$7,695 per client).

Due to the large proportion of intensive service cost being borne by the Child Welfare system an analyses of the clinical and demographic characteristics of children served by public mental health and who had an indicator that they were also involved with the Child Welfare system was conducted.

No differences were found between the children with an indicator of Child Welfare involvement and those without a Child Welfare indicator in a comparison of demographic characteristics; gender and race/ethnicity, and the distributions of mental health diagnoses.

While the two groups were similar demographically, the clinical presentation of children with an indication of Child Welfare system involvement was quite different, and more severe than for those children enrolled in public mental health services who did not have an indication of Child Welfare involvement.

The facts that Child Welfare pays the largest proportion of intensive services and children with an indicator of Child Welfare involvement have a more severe clinical presentation, led to an analyses of the cross system overlap in service utilization for the highest cost children in the Child Welfare system. It was hypothesized that the children who comprise the top 20% of expenditures are likely to have some of the most severe behavioral health challenges and thus may be receiving services from other agencies at some point in their lives. To test this hypothesis, the top 20% of Child Welfare Service Utilizers in FY2011-12 (N=1,881) were identified. All of these children had a single fiscal year expenditure that exceeded \$21,000 to the Child Welfare system alone. Nearly all of the 1,881 Child Welfare High Utilizers (92%) had mental health services, nearly half (46%) had DYC involvement, and 20% received Substance Use Disorder treatment services.

Another important aspect to understanding cross system involvement is the order in which children received services from different systems. Almost half of the children receive their first services from the Child Welfare system, while the other half receive their first services from the public Mental Health system. Only a very small proportion of children begin their service trajectories in DYC.

⁵ In the target FY10-11 adolescents were served at CMHIFL but that unit has since closed.

When comparing groups of children who entered either MH or CW first, gender did not differ. There were slight but statistically significant differences in racial and ethnic distributions such that more Hispanic and African American youth began services in Child Welfare while White youth were more likely to begin services in Mental Health. Examination of the admission ages to services show age at first service being the same for both CW-MH and MH-CW at around 8.5 years. Admission age into subsequent systems did differ, with age at admission to Child Welfare as the second system at 12.1 years and age at admission to Mental Health as the second system at 10.3 years.

The Child Welfare High Utilizers who enter public services through mental health are more likely to become involved with DYC, and have contact with a greater number of systems than children entering through the Child Welfare system.

Research has documented a significant overlap of the Child Welfare and DYC systems. Further evaluation of factors related to this overlap in the sample of Child Welfare high utilizers provides a unique opportunity to look for differences in the demographic and clinical factors for youth who did and did not have DYC involvement in Colorado.

Youth in DYC are older when they first enter public services, are more likely to be male, and do not differ in race/ethnicity from those who do not become involved in DYC.

At admission to mental health services, those who become involved with DYC are clinically similar to youth without DYC involvement; however, at discharge from MH services DYC-involved youth present a much more severe clinical picture.

In a separate evaluation of youth aged 14-25 in the mental health system, predictive analyses related system utilization, demographic, and clinical factors to DYC involvement. A striking 25% of youth served in MH have DYC involvement, a risk that escalates to 80% with additional system and individual risk factors.

Public system expenditures and clients served demonstrate that multiple systems spend a great deal of funds on intensive high cost services. A relatively small number of children (4,020) received over \$95 million in just residential or inpatient services (exclusive of less intensive services these children were likely to have received) in FY10-11.

The complexity of the typical youth who is requiring high levels of public resources is reflected in multiple system usage, greater clinical severity for youth in multiple systems, and poorer outcomes. Disproportionate resources are being expended for a group of high needs youth. These needs can be better understood and addressed with a coordinated, collaborative approach that involves all agencies in the care for these youth and families that results in less system involvement and improved mental health. This has been a consistent finding across multiple studies of Colorado's children with behavioral health challenges.

BEHAVIORAL HEALTH NEED IN THE YOUTH POPULATION: PREVALANCE AND IMPLICATIONS

Approximately 13% of youth ages 8 to 15 experience severe mental disorders in a given year; a rate that increases to 20% for youth ages 13 to 18. Rates increase to over 50% when mild and moderate mental disorders are also included⁶. Applying these statistics to Colorado's youth population indicates that between 160,000 and 250,000 of Colorado's youth experience severe mental health issues during a given year⁷. It is estimated that only about half of those in need in the US access needed mental health treatment⁸, and suicide is the third leading cause of death for ages 15 to 24 years. More than 90 percent of persons with suicidal deaths have histories of one or more mental disorders⁹.

Not surprisingly, the prevalence of mental health and other behavioral health issues is even higher in the child welfare population. A nationwide survey funded by the National Institute of Mental Health (NIMH) found that almost half (47.9%) of youth in the foster care system had clinically significant emotional or behavioral problems, and a literature review by the Casey Family Programs reported rates of 50 to 75% for youth entering the foster care system with treatment-level behavioral/social needs.¹⁰ A recent study of foster care youth in Colorado revealed four-year high school graduation rates of less than 33%, with one in three foster care youth identified as having a disability and eligible for special education.

Further complicating the lives of these youth is engagement with other systems, such as substance use disorder treatment and corrections. Research shows that youth in the child welfare system are more likely to cross over into the juvenile justice system, and experience increased mental health and substance use issues. More than 95% of newly committed youth, to the Colorado Division of Youth Corrections, required substance abuse and/or mental health treatment, with half of the newly committed youth in FY 2012 – 13 requiring treatment for both.

The Colorado Department of Education currently uses the definition for Serious Emotional Disability (formerly Significant Identifiable Emotional Disturbance) to determine eligibility criteria in accordance with the *Administration of the Exceptional Children's Educational Act 1 CCR 301-8*. While they do not have Colorado-specific statistics (in part, because of the evolving disability definition) for the prevalence of SED within Colorado's schools, they do cite the NIH 2009 finding that one in five youth have a diagnosable mental disorder¹¹.

⁶ 2010 Data. http://www.nimh.nih.gov/statistics/1ANYDIS_CHILD.shtml, Accessed online August, 2014.

⁷ Calculated using 2013 census estimates <http://quickfacts.census.gov/qfd/states/08000.html>. Accessed online August, 2014.

⁸ <http://www.nimh.nih.gov/statistics/1NHANES.shtml>. Accessed online August, 2014.

⁹ http://www.nami.org/factsheets/mentalillness_factsheet.pdf. 2010/2012 data, Accessed online August, 2014.

¹⁰ Greyson, J. (2012). Mental health needs of foster children, and children at risk for removal. *Children Youth and Families News*, American Psychological Association Winter, 2012. Accessed online, August 2014.

¹¹ www.cde.state.co.us/cdesped/ecea_sedppt

In Colorado and across the nation, uncoordinated care is consistently cited by consumers, families, practitioners and other stakeholders as being a primary barrier to quality and cost effective care¹². In response to this challenge, the Colorado Department of Health and Human Services (CDHS) Office of Behavioral Health (OBH) applied for, and was awarded, a federal grant from the Substance Abuse and Mental Health Services Administration (SAMHSA) to develop and implement a comprehensive strategic plan to expand the system of care for Colorado children and adolescents with serious emotional disturbances (SED) and their families. The COACT project builds on previous SAMHSA-funded system of care projects in Colorado (Cornerstone and BLOOM), as well as ongoing efforts such as the Collaborative Management Program (H.B. 04-1451) and the S.B. 94 program managed by the divisions of Child Welfare and Youth Corrections, respectively, and the other local collaborative initiatives in the state. There are 16 Communities of Excellence participating in the effort across the state to coordinate services to children with SED.

The COACT project also sponsored an evaluation to examine the service delivery that existed prior to the implementation phase of the system of care. The goal of this evaluation was to document high intensity service utilization and cost, system overlap, and outcomes for high utilizers of public services. The first phase of the evaluation examined the utilization and cost of high intensity services (inpatient psychiatric hospitalization and residential treatment) because it was assumed that children accessing these services are those with the highest and most complex behavioral health needs and furthermore that these children would most benefit from coordinated services. When it was recognized that children involved with the Child Welfare system accounted for the greatest amount of intensive services an analysis of the clinical picture of children receiving public mental health services with an indication of Child Welfare involvement was initiated. The next phase of the evaluation focused on the highest utilizers of Child Welfare services because these children represent the highest utilizers of services within the system that expends the greatest amount of resources on intensive services. The evaluation sought to document from which other systems these Child Welfare children received services and the order in which these services were accessed. The final phase of the evaluation addressed the non-optimal outcome of involvement in the Division of Youth Corrections (DYC). This portion of the analyses focused on the factors related to Child Welfare high utilizers and more generally adolescents receiving public mental health services becoming involved in DYC.

This evaluation represents the first attempt to comprehensively document service utilization across child serving systems. Data was obtained from multiple data systems that do not include a universal identifier for individuals across systems. Multiple state agencies participated in this project by providing client level information critical for the analyses. This comprehensive system analyses provides information regarding the factors that impact youth outcomes to possibly lead to more effective intervention and coordination of services between systems.

¹² TriWest Group. (2011). The Status of Behavioral Health Care in Colorado – 2011 Update. Advancing Colorado's Mental Health Care: Caring for Colorado Foundation, The Colorado Health Foundation, The Colorado Trust, and The Denver Foundation: Denver, CO.

INTENSIVE SERVICE UTILIZATION

- ▶ Who Pays for High Cost Intensive Services?
- ▶ How Many Children are Receiving Intensive Services?
- ▶ How Are Costs Distributed Among Individuals?
- ▶ What is the Clinical and Demographic Presentation of the Children in the System Bearing the Largest Proportion of Intensive Services?

POPULATION IN FOCUS: CHILDREN WHO RECEIVED PUBLICALLY FUNDED INPATIENT AND RESIDENTIAL SERVICES DURING FY10-11 (N=4,020)

INTENSIVE SERVICE UTILIZATION

Inpatient and residential treatment services are the most intensive and costly forms of behavioral health service. Findings across multiple studies indicate that these services should be reserved for children with the most severe needs and use of such restrictive settings should be limited to the briefest period of time possible before transitioning children back to community based therapy settings^{13,14}. In Colorado, multiple child serving agencies pay for these intensive services. The first task of this evaluation was to compile the costs across these agencies to determine a state-wide total expenditure for inpatient and residential treatment services. A more detailed description of these costs can be found in Appendix A.

Who Pays for High Cost Intensive Services?

There are several child serving agencies that pay for inpatient and residential services. For those children who are Medicaid eligible, the Behavioral Health Organization (BHO) tasked with their care, provides funding for residential treatment and inpatient hospitalization when necessary. For children involved in either the Child Welfare system or the Youth Corrections system those agencies pay the majority of the residential treatment cost with Medicaid contributing a portion of the cost related directly to mental health services. Another source of funding for residential treatment is the Child Mental Health Treatment Act (CHMTA). This is a legislative initiative to help fund residential treatment for children with severe behavioral health needs but who are not Medicaid eligible. During the study year (FY10-11), the two mental health institutes (Pueblo and Ft. Logan) provided funding for inpatient hospitalization and residential treatment¹⁵ for children and adolescents through state general fund appropriations with a small portion of the costs paid for by the courts for court ordered evaluations and by school districts for per pupil funding.

THE LARGEST PROPORTION OF INTENSIVE SERVICE COST WAS PAID BY THE CHILD WELFARE SYSTEM.

CHILD WELFARE RESIDENTIAL TREATMENT EXPENDITURES=\$51,719,376
(59% OF \$95,283,149, TOTAL OF ALL CHILD-SERVING AGENCIES)

Table 1 represents the number of youth served in residential treatment and inpatient hospitalization during FY2010-11 by each child serving agency and the associated costs. The large proportion of intensive service cost was paid by the Child Welfare system, whose residential treatment expenditures (\$51,719,376) accounted for 59% of the fiscal year cross-system total.

¹³ World Health Organization, http://www.who.int/mental_health/media/en/75.pdf. Accessed online August 26, 2014

¹⁴ Mental Health America <http://www.mentalhealthamerica.net/patient-care>. Accessed online August 26, 2014

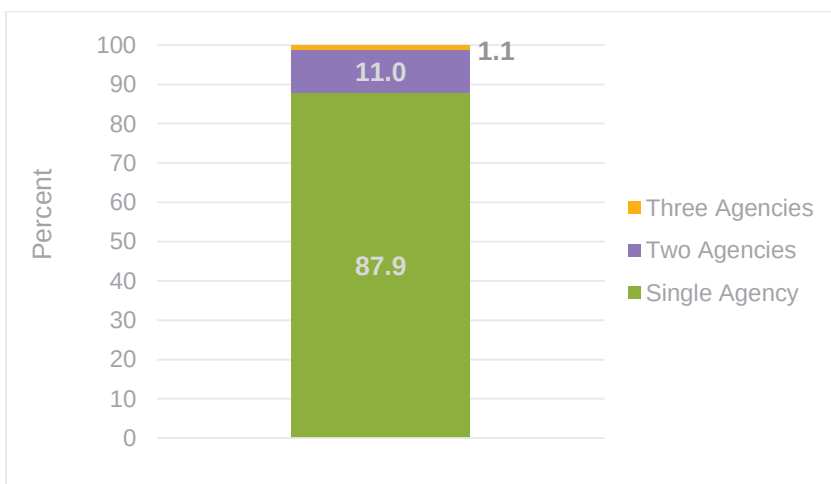
¹⁵ Mental Health Institutes no longer provide residential treatment.

Table 1. FY2010-11 High Intensity Services

<i>Funding Agency</i>	Number of Children	Agency Expenditure	Additional Medicaid Contribution	Total
<i>Child Welfare</i>	2,063	\$51,719,376	\$5,922,691	\$57,642,068
<i>Medicaid – BHO, Inpatient and Residential Treatment</i>	1,749	\$17,339,065	N/A	\$17,339,065
<i>DYC</i>	577	\$12,960,211	\$1,495,839	\$14,456,050
<i>Colorado Mental Health Institutes (Ft. Logan and Pueblo)</i>	132	\$5,041,972	N/A	\$5,041,972
<i>Office of Behavioral Health (non-Medicaid)</i>	31	\$656,148	\$147,845.69	\$803,993
<i>Total</i>	4,552	\$87,716,773	\$7,566,376	\$95,283,149

How Many Children are Receiving Intensive Services?

Each system was asked to provide client level data to determine client overlap. These data sets were matched and it was determined that there were 4,020 unique individuals served across all systems. Of these unduplicated youth, 488 (12.1%) had intensive behavioral health services paid for by more than one child serving agency in a single fiscal year.

Figure 1. Agency Overlap of High Intensity Services

While the relative number of children who had services paid for by more than one system is low, it is important to remember that the analyses were constrained to a single fiscal year *and* to only residential treatment and inpatient services. Children could have been receiving other less intensive services from these agencies that are not depicted here.

Table 1 above described the number of children served and the total cost to each agency, but to better understand the distribution of expenditures and clients served Figure 2 depicts the relative proportion of youth served and agency expenditures on intensive behavioral health services.

Figure 2. Fiscal Year High Intensity Services: Percent of Overall Youth Served and Expenditures by Agency

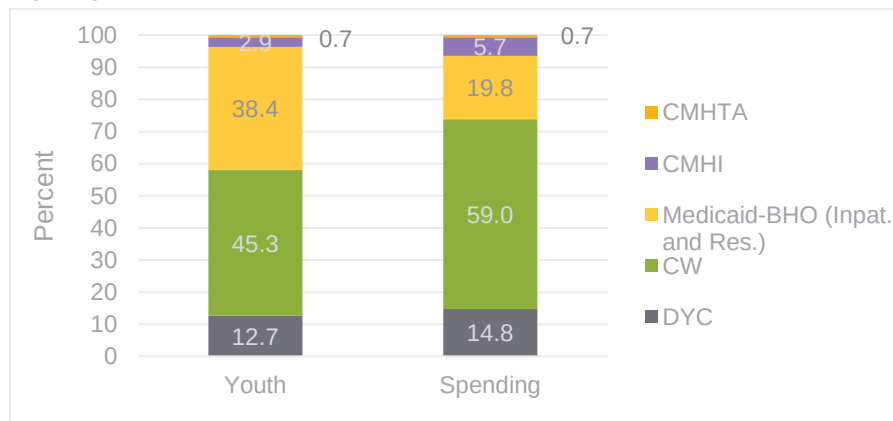


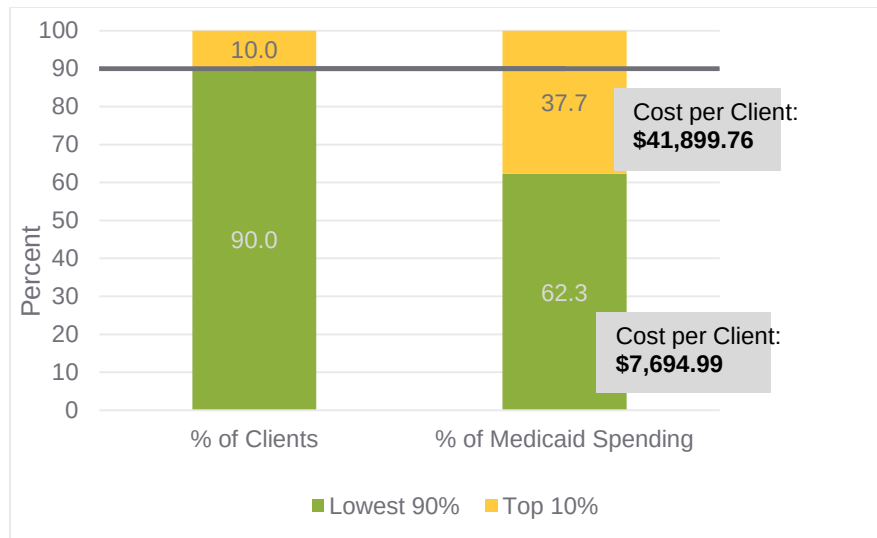
Figure 2 demonstrates that Child Welfare serves the largest proportion of youth (45.3%) and has the highest proportion of expenditures (59.0%) of all the child serving agencies in the provision of intensive behavioral health services.

How Are Costs Distributed Among Individuals?

It is clear that the number of youth served and relative costs are not distributed equally across agencies. Further analyses revealed that this is also the case for the cost of services at the individual level. Cost information for FY2010-11 was available at a client level for both inpatient and residential treatment paid for by Medicaid. Clients were organized into two groups comprised of the top 10% and the bottom 90% of expenditures. The percent of total spending and cost per client were calculated by group and are depicted in Figure 3.

THE MEDICAID COST PER CLIENT WAS MORE THAN FIVE TIMES GREATER (\$41,889 PER CLIENT) FOR THE TOP 10% IN SPENDING THAN FOR THE REMAINING 90% (\$7,695 PER CLIENT).

Figure 3. Medicaid Spending



Ten percent of the clients (n=156) accounted for nearly 40% of the Medicaid spending for a total of \$6,536,363, whereas the remaining 90% of clients (n=1,404) accounted for 60% of the Medicaid spending, for a total of \$10,803,767.

CHARACTERISTICS OF CHILDREN RECEIVING MENTAL HEALTH SERVICES WITH AN INDICATION OF CHILD WELFARE INVOLVEMENT

- What is the Clinical and Demographic Presentation of the Children in the System Bearing the Largest Proportion of Intensive Services?

POPULATION IN FOCUS: CHILDREN RECEIVING PUBLIC MENTAL HEALTH SERVICES IN FY 2010-11 (N=29,601)

CHARACTERISTICS OF CHILDREN RECEIVING MENTAL HEALTH SERVICES WITH AN INDICATION OF CHILD WELFARE INVOLVEMENT

What is the Clinical and Demographic Presentation of the Children in the System Bearing the Largest Proportion of Intensive Services?

The data above highlight both system and individual differences in the distribution of intensive behavioral health treatment resources, suggesting a need for further exploration of the clinical and demographic factors of those involved in the Child Welfare system. It was hypothesized that there may be some individual factors that differ between the children involved in Child Welfare and other children in the public mental health system leading to the greater proportion of intensive services.

An additional analysis was initiated to test this hypothesis. In order to obtain clinical profiles, data from the public mental health system was used. All children ages 0-18 who had active treatment episodes in Fiscal Year 2010-11 were included in the analysis. There were a total of 29,601 children who received mental health services. They were divided into two groups; one in which the children's records contained an indicator of Child Welfare system involvement and one in which their records did not have any indicators of Child Welfare system involvement. The 12,250 children with an indicator of Child Welfare involvement were compared to the 17,351 without a Child Welfare involvement indicator on demographic and clinical factors. (See Appendix B for details on sample selection and creation).

No differences were found between the children with an indicator of Child Welfare involvement and those without a Child Welfare indicator in a comparison of demographic characteristics; gender and race/ethnicity, and the distributions of mental health diagnoses can be seen in Appendix C. The mean age at admission was 11.57 years for those with an indication of Child Welfare involvement, whereas youth with no indication of Child Welfare involvement had a slightly higher mean of 11.74 years.

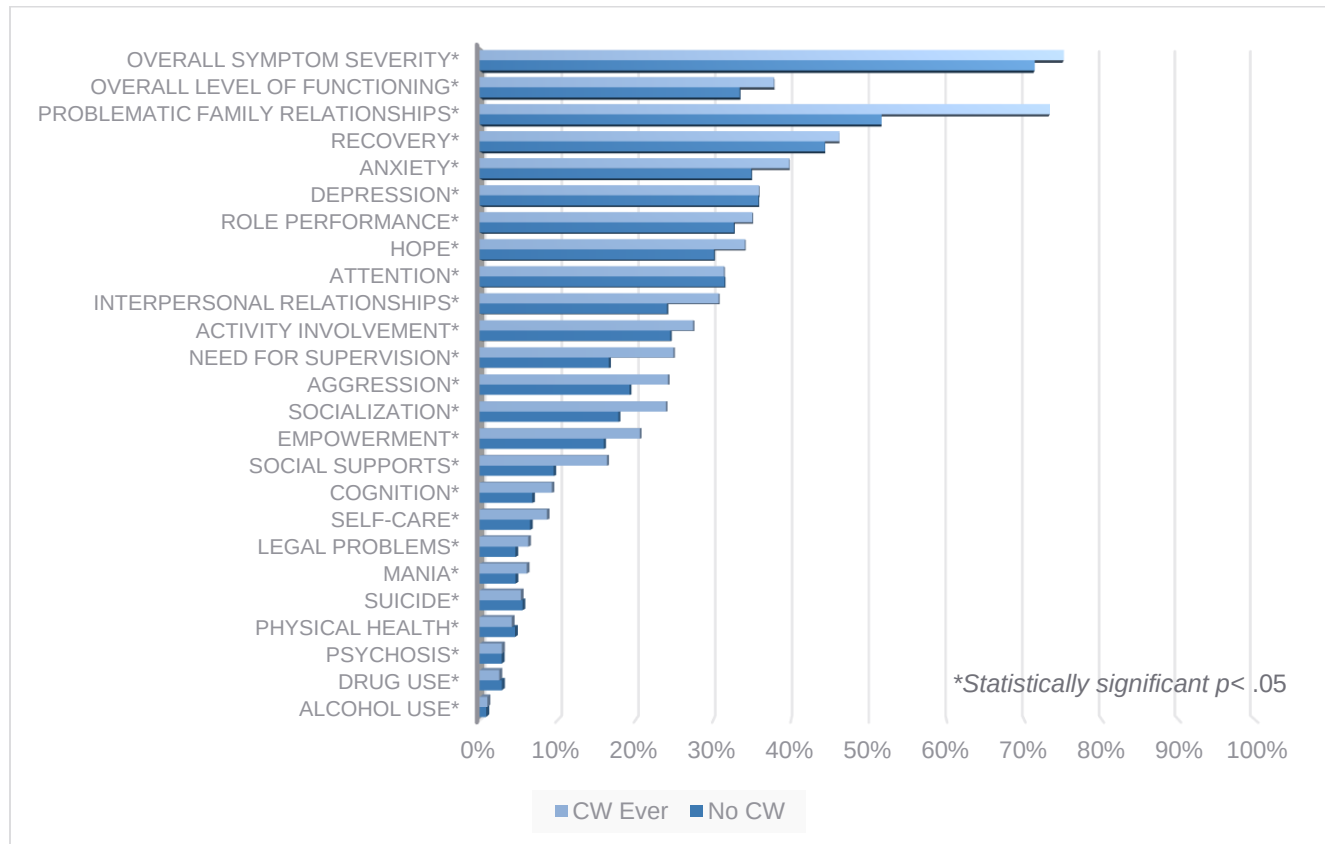
While the two groups were similar demographically, the clinical presentation of children with an indication of Child Welfare system involvement was quite different, and more severe than for those children enrolled in public mental health services who did not have an indication of Child Welfare involvement.

For the purposes of clinical analyses, the Colorado Client Assessment Record (CCAR) was used. See Appendix D for a copy of the tool and definitions. The CCAR is an assessment completed by providers to rate the current functioning on 25 domains of every individual receiving public mental health services. It is conducted at admission and discharge and each domain is rated on a 1-9 point scale. A score of 9 indicates the greatest severity, and a score that is greater than or equal to 5 indicates symptoms of clinical concern.

Figures 4 and 5 depict the percent of youth with clinically elevated CCAR scores (greater or equal to 5) at admission and discharge for youth served in the public mental health system with and without an indication of Child Welfare

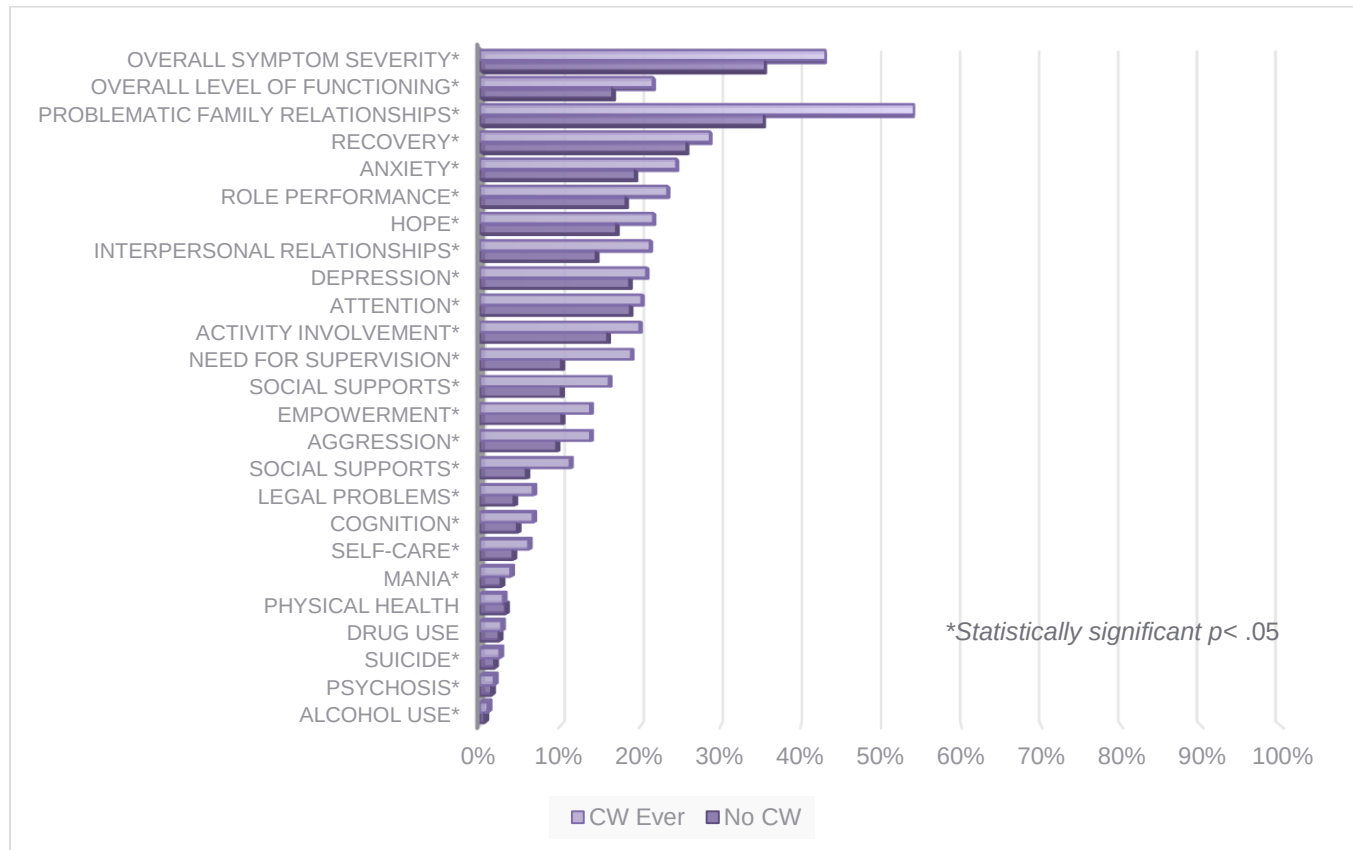
system involvement. At both admission and discharge those children with an indication of Child Welfare involvement have a more severe clinical presentation.

Figure 4. Youth with Clinically Elevated Admission CCAR Scores by Child Welfare Status



At admission the children with an indicator of Child Welfare involvement have a more severe clinical presentation on all 25 domains measured by the CCAR. Their scores are significantly higher than youth without Child Welfare Involvement across every domain.

Figure 5. Youth with Clinically Elevated Discharge CCAR Scores by Child Welfare Status



Similarly at discharge more children with an indication of Child Welfare system involvement remain at clinically elevated levels than do the children without Child Welfare involvement. Physical Health and Drug Use are the only two domains where the difference between groups does not reach the level of statistical significance.

WHILE THE TWO GROUPS WERE SIMILAR DEMOGRAPHICALLY, THE CLINICAL PRESENTATION OF YOUTH WITH AN INDICATOR OF CHILD WELFARE SYSTEM INVOLVEMENT WAS QUITE DIFFERENT, AND MORE SEVERE THAN FOR THOSE CHILDREN ENROLLED IN PUBLIC MENTAL HEALTH SERVICES, WHO DID NOT HAVE AN INDICATOR OF CHILD WELFARE INVOLVEMENT.

HIGHEST CHILD WELFARE UTILIZERS AND SYSTEM OVERLAP

- ▶ In What Other Systems Do Children with Extensive Child Welfare Services Participate?
- ▶ What are the Clinical Implications of Multiple System Involvement?
- ▶ What are the Costs of Multiple System Involvement?
- ▶ From Which Agency Do Children First Receive Public Services?
- ▶ Does it Matter which is the System of First Involvement?
- ▶ What is the clinical and demographic presentation of the children whose first service system differs?

POPULATION IN FOCUS: YOUTH IN THE TOP 20% OF CHILD WELFARE SERVICE EXPENDITURE DURING FISCAL YEAR 2011-12 (N=1,881)

HIGHEST CHILD WELFARE UTILIZERS AND SYSTEM OVERLAP

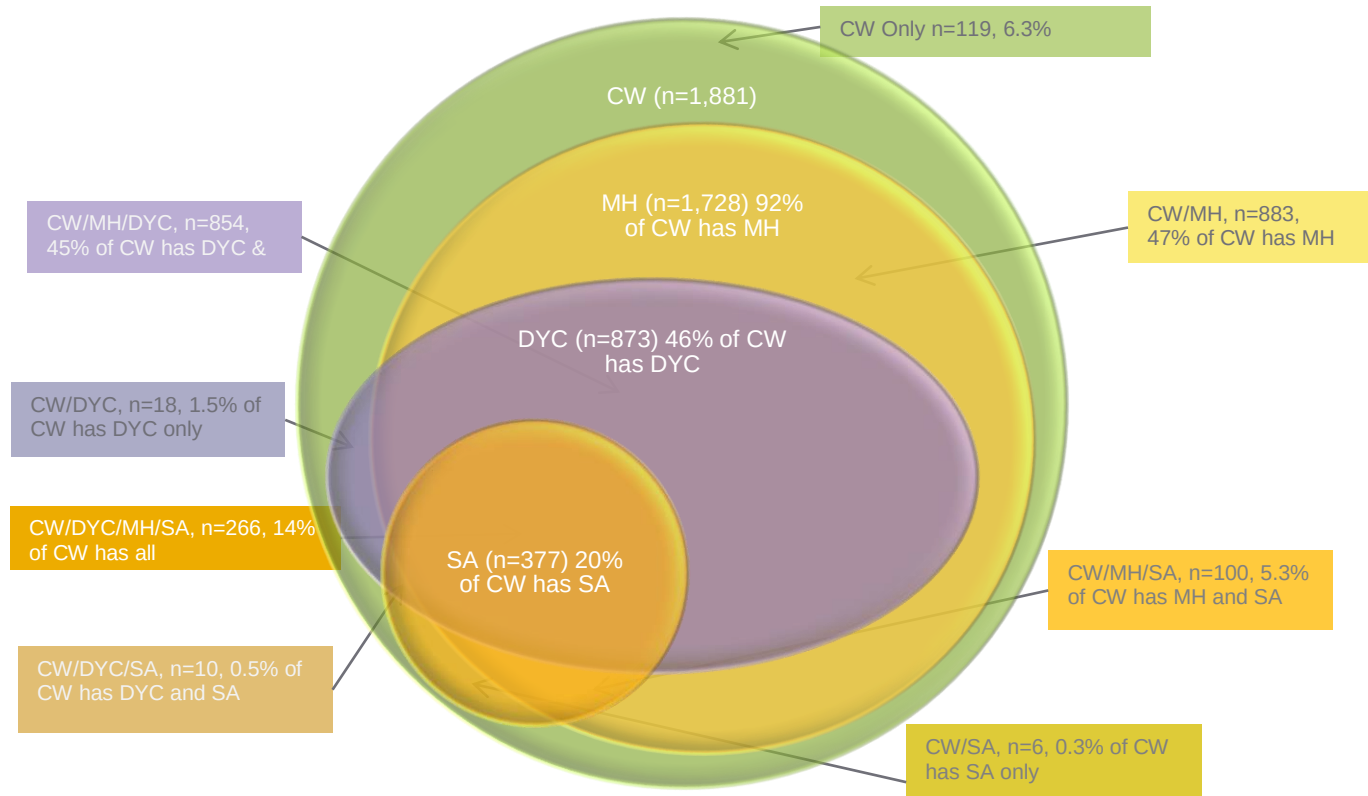
The data in the preceding section indicated that not only does the Child Welfare system pay the largest proportion of the cost of intensive behavioral health services, but also that those children with an indicator of Child Welfare involvement have a more severe clinical presentation at both admission and discharge to mental health services than do other children in the public mental health system. These two factors led to an analyses of the cross system overlap in service utilization for the highest cost children in the system (Child Welfare) with the highest expenditures for intensive services. It was hypothesized that the children who comprise the top 20% of expenditures are likely to have some of the most severe behavioral health challenges and thus may be receiving services from other agencies at some point in their lives. To test this hypothesis, the top 20% of Child Welfare Service Utilizers in FY2011-12 (N=1,881) were identified. All of these children had a single fiscal year expenditure that exceeded \$21,000 to the Child Welfare system alone.

In What Other Systems Do Children with Extensive Child Welfare Services Participate?

The children with extensive services from Child Welfare were matched to client level data sets of other child serving publically funded state systems spanning FY06-07 to FY12-13 to assess involvement in: the Division of Youth Corrections (DYC), the Public Mental Health (MH) system, and Substance Use Disorder (SUD) treatment system. See Appendix E for details of analysis.

There is a striking amount of cross system utilization. Only 119 children (6.3%) were served by the Child Welfare system exclusively. Of those 119, 84 (71.4%) were outside the age range served by DYC and therefore could not have overlapped with that system. Nearly all of the 1,881 children (92%) also received public mental health services during the seven-year study period. This finding indicates that it is quite likely that these children have extensive mental health challenges. Another important finding is that nearly half of these children (46%) have DYC involvement.

NEARLY ALL OF THE 1,881 CHILD WELFARE HIGH UTILIZERS (92%) HAD MENTAL HEALTH SERVICES AND NEARLY HALF (46%) HAD DYC INVOLVEMENT.

Figure 6. Child Welfare High Utilizers System Overlap

The involvement in more than one service system seems to indicate a child has a complex set of needs, therefore it seems likely that these needs could be observed in either the clinical presentation of children involved in multiple systems or in the costs they incur for services.

What are the Clinical Implications of Multiple System Involvement?

Examination of CCAR scores at admission to mental health treatment by number of systems revealed no pattern of increasing severity with an increased number of systems accessed. However, discharge CCAR scores were more severe for those involved in three and four systems. See Appendix F for depiction of CCAR scores.

What are the Costs of Multiple System Involvement?

Cost data from Child Welfare high utilizers for FY11-12 was used to explore whether multiple system involvement translated to higher costs. Figure 7 below depicts the annual cost exclusively to the Child Welfare system when youth are involved in multiple systems. This cost is highest for youth involved in three public systems. The reason for lower child welfare costs for youth in four systems is unclear. Costs from all systems would need to be aggregated to get the comprehensive cost picture. The number of systems and Child Welfare cost may be related to different reasons for

youth involvement in Child Welfare. However, almost half of those involved in Child Welfare only (One system) were designated as Youth in Need of Protection. It is important to note that 68% of children who were only involved in the Child Welfare system were under the age of 10 years so may not have the complexity of needs of older children. Those children involved in two systems are most likely to be receiving Specialized Services (such as subsidized adoption and independent living) from Child Welfare while those in three or four systems are most likely to be designated Youth in Conflict by Child Welfare system.

Figure 7. Mean CW Cost in FY11-12 by Number of Systems

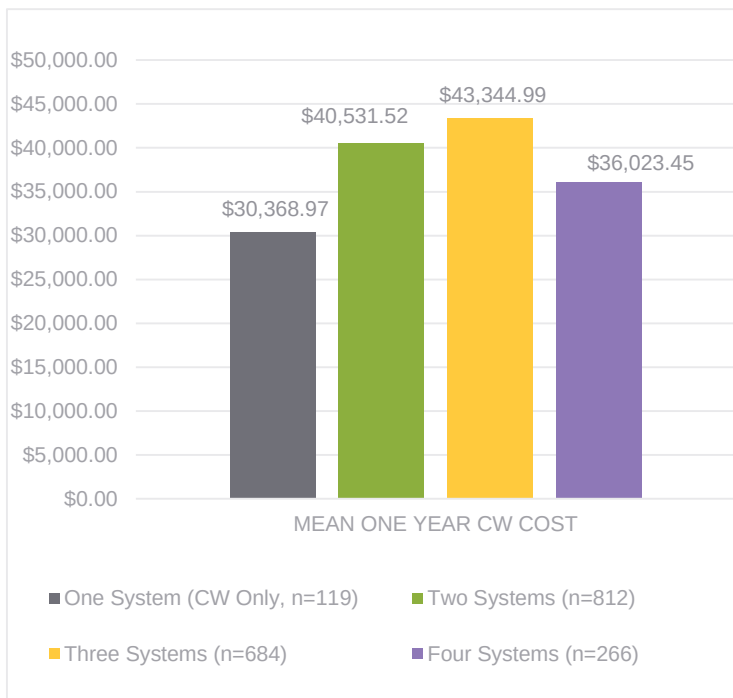


Table 2. System Overlap

Service Population	Number of Children
One System Only	
Child Welfare (CW)	119
Two Systems Only	
CW-Mental Health (MH)	788
CW-Division of Youth Corrections (DYC)	18
CW-Substance Use Disorder (SUD)	6
Three Systems Only	
CW-MH-DYC	579
CW-MH-SUD	95
CW-DYC-SUD	10
Four Systems	
CW-MH-DYC-SUD	266

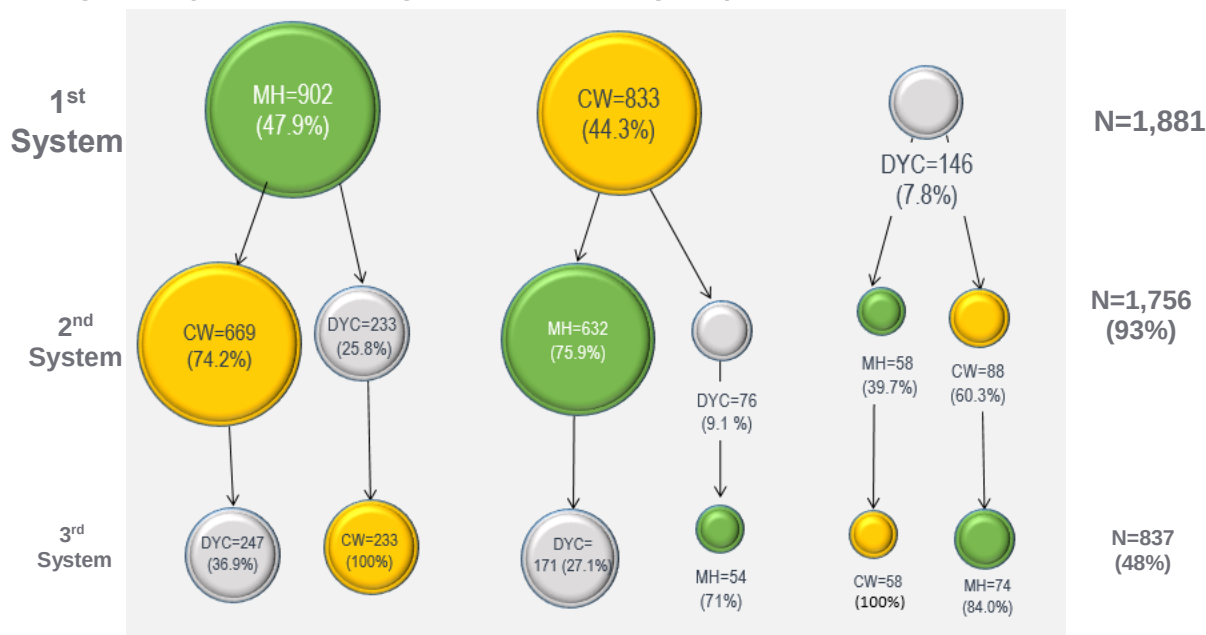
The system overlap analyses indicate that there is a great deal of cross system utilization, however, it does not explain *when* in the child's life they accessed services from each agency.

From Which Agency Do Children First Receive Public Services?

In addition to analyzing the number of systems involved with each of Child Welfare's highest utilizers, the evaluation team analyzed the order in which youth progressed through these publicly funded systems. Datasets included start dates and end dates (where appropriate) for each system. First date of contact by each system was identified. These dates were ordered chronologically to identify service order for each child. Out of the 1,881 clients, only one percent (19) had SUD treatment as their first service, and furthermore, pathways to SUD treatment services are dispersed throughout service trajectories. Since there was no discernable pattern of SUD services and to reduce complexity,

progression through the other three systems (CW, MH, and DYC) is depicted. Ninety-three percent (1,756) of clients had services in more than one system and almost half (48%) had involvement in all three systems.

Figure 8. System Order Progression of 1,881 High Expenditure Youth



*The % presented represent the percent of youth coming from the preceding system. The graphic areas represent the percent of youth out of the original sample of 1,881

As illustrated in Figure 8 above, almost half of the children receive their first services from the Child Welfare system, while the other half receive their first services from the public Mental Health system. Only a very small proportion of children begin their service trajectories in DYC.

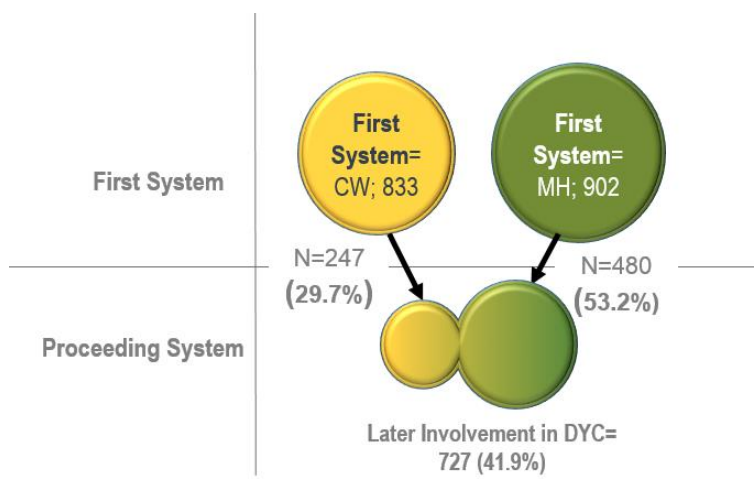
Because of this first system distribution, the following analyses are focused on the largest groups of children; those who begin in the Mental Health and Child Welfare systems.

ALMOST HALF OF THE CHILDREN RECEIVE THEIR FIRST SERVICES FROM THE CHILD WELFARE SYSTEM, WHILE THE OTHER HALF RECEIVE THEIR FIRST SERVICES FROM THE PUBLIC MENTAL HEALTH SYSTEM. ONLY A VERY SMALL PROPORTION OF CHILDREN BEGIN THEIR SERVICE TRAJECTORIES IN DYC.

Does it Matter Which is the System of First Involvement?

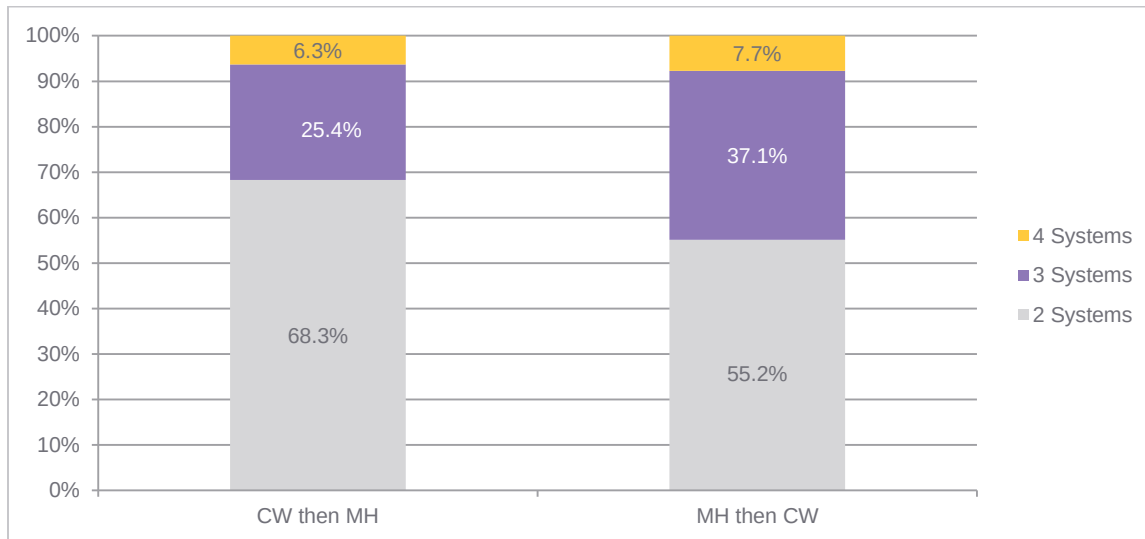
As noted previously, the original analysis sample was selected by identifying the highest cost children in the Child Welfare System during FY11-12. Due to these sample selection constraints, all children in the sample were by definition involved with Child Welfare at some point in their service trajectory. A notable pattern emerges with regard to DYC involvement; progression to DYC is far more likely when the first service system is Mental Health. Of those whose first public system involvement was with Child Welfare, about one in three progress into DYC, and of those whose first system of involvement is the Mental Health system, over one in two progress into DYC. Figure 9 (below) depicts this significant movement into the DYC system.

Figure 9. System Order Progression into the Division of Youth Corrections



A depiction of total number of systems (Figure 10 below) shows that starting in the Mental Health system was also associated with higher rates of involvement in three and four total publicly funded systems.

Figure 10. Number of Systems by Service Order for Child Welfare High Utilizers



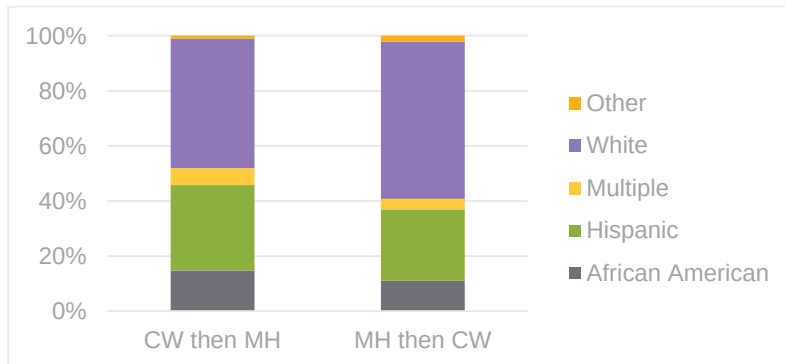
As system order was associated with different subsequent system trajectories, the question arose of whether client differences, systems differences, or some combination might account for the different system outcomes observed. The data available can address demographic and clinical differences between system order groups, but cannot account for a variety of unmeasured individual and system factors.

THE CHILD WELFARE HIGH UTILIZERS, WHO ENTER PUBLIC SERVICES THROUGH MENTAL HEALTH ARE MORE LIKELY TO BECOME INVOLVED WITH DYC, AND HAVE CONTACT WITH A GREATER NUMBER OF SYSTEMS THAN CHILDREN ENTERING THROUGH THE CHILD WELFARE SYSTEM.

What is the demographic and clinical presentation of children whose first service system differs?

There were no gender differences between groups with both groups comprised of about 60% males (see Appendix G). There were slight but statistically significant differences in racial and ethnic distributions such that more Hispanic and African American youth began in Child Welfare services while White youth were more likely to begin services in Mental Health.

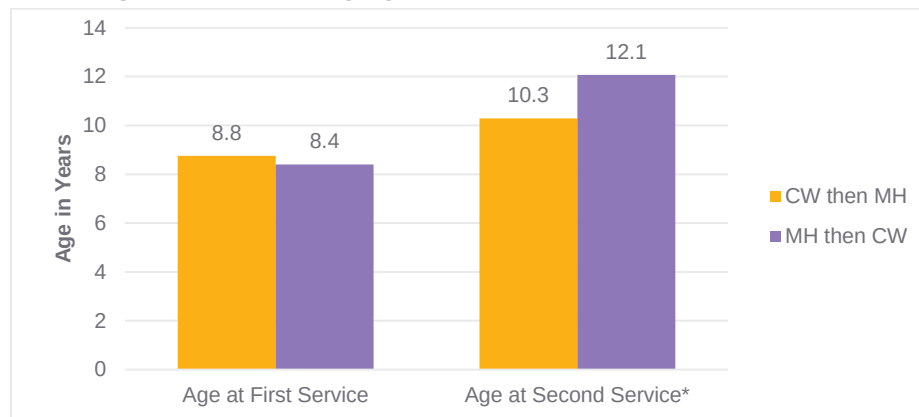
Figure 11. Race/Ethnicity by System Order



n=1,200; ethnicity was not available for n=81 youth
'Other' includes all categories of <1% including Hawaiian, Asian, and Missing
**p<.05*

Examination of the admission ages to services show age at first service being the same for both CW-MH and MH-CW at around 8.5 years. Admission age into subsequent systems did differ, with age at admission to Child Welfare as the second system at 12.1 years and age at admission to Mental Health as the second system at 10.3 years. Age at admission to NYC was the same for both groups at a little more than 14.5 years.

Figure 12. Age at Admission by System Order

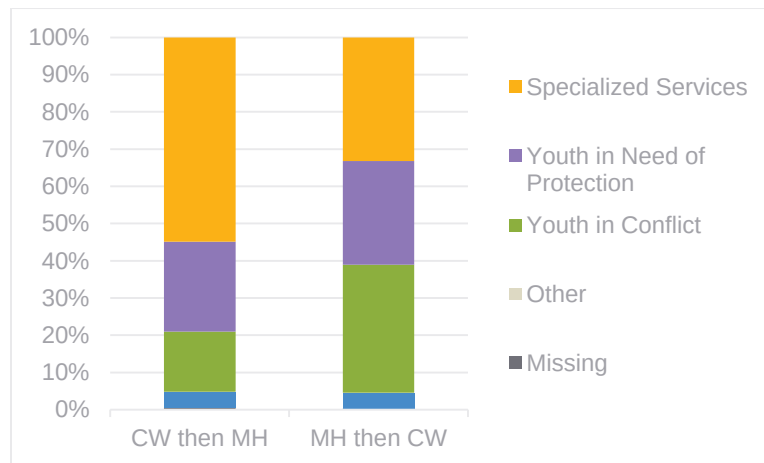


n=1,281
**Statistically significant at p<.05*

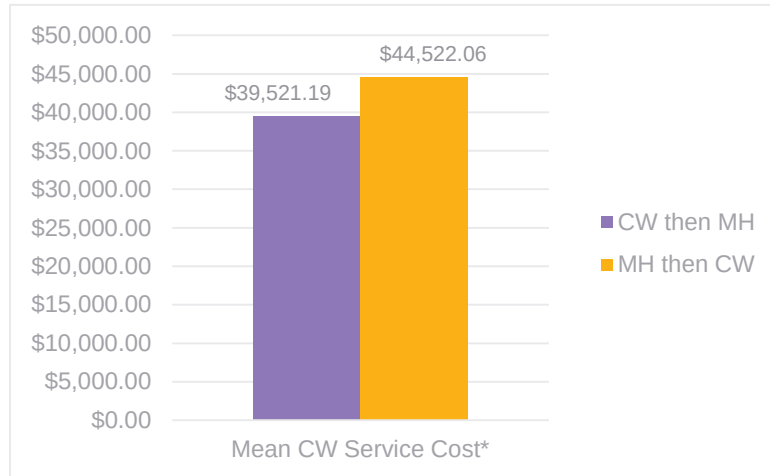
Children receiving services through Child Welfare are classified into several Program Areas. It is important to note that analyses were conducted on the most recent program area recorded for youth as this was the only program area available through the child welfare system. Further, it is likely that the children classified into the Specialized Services Program Area may have entered the child welfare system in another Program Area. Specialized Services are for children and families in need of adoption assistance, relative guardianship assistance, or Medicaid only services, or to

children for whom the goal is no longer reunification. There were significant differences between the distributions of Child Welfare Program Areas of youth who began in the Mental Health versus Child Welfare system. A larger proportion of youth who began in the Child Welfare system were in the Specialized Services Program Area while a larger proportion of youth who began in Mental Health were in Child Welfare Program Area for Youth in Need of Protection and Youth in Conflict.

Figure 13. Child Welfare Program Area by System Order



There were also statistically significant differences in the costs incurred by youth who began receiving services in different systems. Youth who began in the Mental Health system had an average one year cost to Child Welfare that was \$5,000.00 greater than youth who began in the Child Welfare system. It is not clear whether this is attributable to the initial system, the different ages at which Child Welfare services started, the different Program Areas utilized, or some unmeasured differences in the client populations.

Figure 14. Mean One-Year Service Cost to Child Welfare by System Order

Concordant with the system admission ages, youth who began in the Mental Health system entered Child Welfare over three years later, on average (44.3 months). Youth who began in the Child Welfare system accessed Mental Health services on average 18.7 months later.

As noted above, CCAR scores of five or greater indicate symptoms of clinical significance. A between groups comparison shows that youth whose system order began in Child Welfare and

in Mental Health had similar clinical elevations at admission; there were notably high rates (almost 80% of each group) of elevated Overall Symptom Severity scores. A statistically significantly larger proportion of youth who began in the Mental Health system versus Child Welfare had clinically significant Mania symptoms, which suggest elevated mood and excessive activity levels.

Discharge CCAR scores show that the proportion of youth in both groups with clinically significant CCAR scores is generally lower at discharge than at admission, i.e., there is improvement. By discharge, the proportion of youth who began in the Mental Health system who still have clinically elevated Overall Symptom Severity is higher than those who began in the Child Welfare System. The Mental Health first group was significantly more severe on 12 domains with particularly severity in Overall Level of Functioning, Recovery, Need for Supervision, Role Performance, Hope, and Interpersonal Relationships. See Appendix H.

In summary, there are no sweeping differences demographically or at admission between the populations of youth who access services in different orders; they differ slightly by race/ethnicity but do not look different clinically at admission to Mental Health. There are some differences at discharge, whether it be due to differential treatment response or system factors. The striking finding in these analyses is that the risk of DYC involvement is significantly associated with the system of first involvement. As such, further analyses to explore factors related to DYC involvement were conducted.

DYC INVOLVEMENT

- ▶ What is the clinical and demographic presentation of the children who become involved with DYC?
- ▶ What Factors Predict DYC Involvement for Child Welfare High Utilizers?

POPULATION IN FOCUS: CHILD WELFARE HIGH UTILIZERS* OLD ENOUGH FOR DYC INVOLVEMENT (N=1,665)

**Youth Old Enough for Potential DYC Involvement = Youth at least 11 years old by study end; FY 2012-13.
(N=1,665 of the 1,881)*

RISK FACTORS FOR DYC INVOLVEMENT

- ▶ What Factors Predict DYC Involvement for a Mental Health Population?

POPULATION IN FOCUS: ALL TRANSITION AGE YOUTH (AGE 14-17 YEARS) IN THE PUBLIC MENTAL HEALTH SYSTEM (N=9,556)

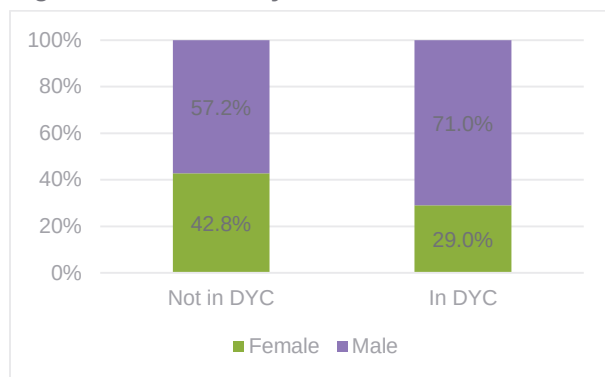
DYC INVOLVEMENT

Research has documented a significant overlap of the Child Welfare and DYC systems. Further evaluation of factors related to this overlap in the sample of Child Welfare high utilizers provides a unique opportunity to look for differences in the demographic and clinical factors for youth who did and did not have DYC involvement in Colorado.

What is the clinical and demographic presentation of the children who become involved with DYC?

The original sample of 1,881 youth of Child Welfare high utilizers was constrained to youth who were age 11 years by the time of study end (FY12-13), and therefore eligible for DYC services. The resulting sample size was 1,665.

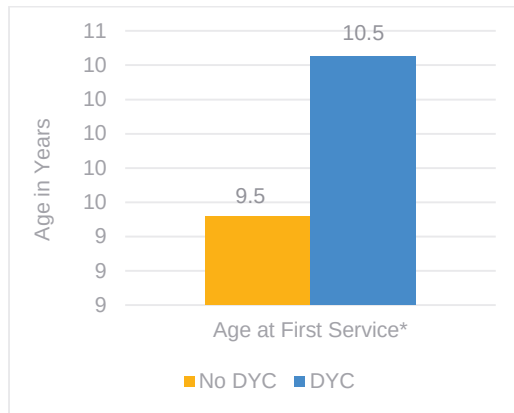
Figure 15. Gender* by DYC Involvement



*Statistically significant at $p < .05$

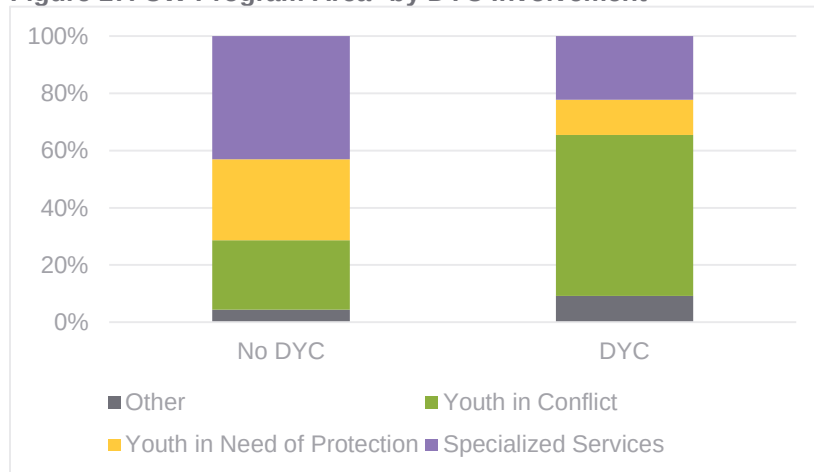
There are significant differences in DYC involvement by gender, but no difference in race/ethnicity (see Appendix I). There were also differences in age at first service, such that youth with DYC involvement were older when they first became involved in public service systems than youth with no DYC involvement.

Figure 16. Age at First Service by DYC Involvement



Comparison of Child Welfare Program Areas reveals differences between youth with DYC involvement versus those with no DYC involvement. Youth in Conflict is the program that has, by far, the largest proportion of youth with DYC involvement, while Specialized Services is most common for youth with no DYC.

Figure 17. CW Program Area* by DYC Involvement



There was no difference between average one-year Child Welfare costs, which were approximately \$41,000 per youth for each group. There was also no difference in the average time between first service system and second at approximately 33 months.

YOUTH IN DYC ARE OLDER WHEN THEY FIRST ENTER PUBLIC SERVICES, ARE MORE LIKELY TO BE MALE, AND DO NOT DIFFER IN RACE/ETHNICITY FROM THOSE WHO DO NOT BECOME INVOLVED IN DYC.

The clinical comparison between youth who are and are not involved in DYC reveals few, but interesting clinical differences. At admission, youth with DYC involvement do have a significantly higher proportion of legal problems and drug use, but have a significantly *lower* proportion of youth with clinically elevated scores in Overall Symptom Severity, Anxiety and Cognition. Admission scores overall show that while DYC youth do have a considerable number of mental health issues, they are consistently less severe than in the population of youth involved in Mental Health but not DYC.

At *discharge*, however, the clinical severity of the youth involved in DYC exceeds that of youth not involved in DYC in ten domains. Those with DYC involvement displayed greater elevation at discharge in Legal Problems, Alcohol Use, Drug Use, Socialization and Aggression, as well as in the protective factors of Recovery, Hope, Empowerment, and Activity Involvement. There was one domain in which youth *without* DYC involvement were more severe than those with DYC involvement. Youth *without* DYC involvement showed significantly higher levels of Cognition problems at discharge.

AT ADMISSION TO MENTAL HEALTH SERVICES, THOSE WHO BECOME INVOLVED WITH DYC ARE CLINICALLY SIMILAR TO YOUTH WITHOUT DYC INVOLVEMENT; HOWEVER, AT DISCHARGE DYC-INVOLVED YOUTH PRESENT A MUCH MORE SEVERE CLINICAL PICTURE.

The following table depicts the two admission, and ten discharge domains in which the clinical severity of youth with DYC involvement significantly exceeds the clinical severity of youth without DYC involvement. See Appendix J for all CCAR Admission and Discharge domain scores.

Table 3. CCAR Domains with Significantly Different rates of Clinical Elevation For Youth with (vs. without) DYC Involvement

Domain Name	Significantly Less Severe for DYC-Involved Youth at*:		CCAR Domain Description
	Admission	Discharge	
Overall Symptom Severity	✓		Severity of a person's mental health symptoms
Anxiety	✓		Extent to which a person experiences anxiety symptoms such as nervousness, fearfulness and tension
Cognition	✓		Extent to which a person is able to perform cognitive tasks
Domain Name	Significantly More Severe for DYC-Involved Youth at*:		CCAR Domain Description
	Admission	Discharge	
Legal	✓	✓	Extent to which a person is involved in the criminal justice system
Need for Supervision		✓	Extent to which the person is in need of increased supervision
Aggression		✓	Extent of aggressiveness in interactions with others
Alcohol Use		✓	Extent to which a person's use of alcohol impairs daily functioning
Drug Use	✓	✓	Extent to which a person's use of legal or illegal drugs impairs daily functioning
Socialization		✓	Extent to which a person's conduct deviates cultural and social norms
Empowerment		✓	Extent to which a person uses available resources that contribute to personal health, welfare, and recovery
Activity Involvement		✓	Extent to which a person participates in positive activities
Hope		✓	Extent to which a person is optimistic about future outcomes
Recovery		✓	Extent to which a person is involved in the process of getting better and developing restoring/maintaining a positive and meaningful sense of self

*Indicates higher rates of clinically concerning scores at Admission To and Discharge From public Mental Health Services. Differences are statistically significant at $p \leq .05$.

What Factors Predict DYC Involvement for Child Welfare High Utilizers?

As DYC involvement represents a negative life outcome for youth and an expensive service escalation, an analysis was conducted to predict DYC involvement using demographic and clinical data. Youth with DYC involvement between FY06-07 to FY12-13 were included. The following set of factors significantly predicted DYC involvement. Details of the Logistic Analyses are in Appendix K.

Table 4. Factors for Logistic Regression: Predicting DYC Involvement

Outcome	Demographics	Services	CCAR Admission Score
DYC Involvement	Gender, Ethnicity	CW/MH Order	Legal Problems, Self-Care, Cognition, Empowerment ¹⁶

In summary, the combination of being male, non-white, entering public service system into Mental Health first, and having elevated CCAR scores in the areas of Legal Problems, Self-Care, Cognition, and Empowerment, predicted DYC involvement.

While these factors are significantly related to the DYC outcome, the model overall does not provide strong predictive power (Nagelkerke R Square of .072). The client information available explains only a small portion of outcome variance, and does not fully explain what factors relate to DYC involvement. The low predictive power may be related to the fact that youth in DYC do not have a markedly more severe clinical picture at admission, making it hard to differentiate them as a group distinct from those with no DYC involvement. Another possibility is that the data are not capturing all elements that impact outcomes for this population. Yet another possibility, is that the relatively small sample size for this type of modeling may limit predictive power. To address this possibility, another model using a larger population drawn from the public mental health system was constructed.

¹⁶ See Appendix D for CCAR domain descriptions

What Factors Predict DYC Involvement for a Mental Health Population?

As noted above, to address the potential of sample size limiting predictive power, a second predictive model was constructed using all youth with public Mental Health involvement (N=9,556). The population represented in the following analysis was not limited to Child Welfare high utilizers, as in the previous results. In an evaluation of youth aged 14-25 in the mental health system, predictive analyses related system utilization, demographic, and clinical factors to DYC involvement. A striking 25% of youth served in MH have DYC involvement, a risk that escalates to 80% with additional system and individual risk factors. The Figure 18 illustrates the increasing level of DYC risk for youth with these characteristics.

Figure 18. Risk Factors for DYC Involvement

- ▶ Youth Commitment = 20.8 OUT OF 10,000 youth in the JUVENILE POPULATION
- ▶ DYC Involvement = 1 OUT OF 4 (25%) in the PUBLIC MENTAL HEALTH SYSTEM
- ▶ DYC Involvement = 1 OUT OF 3 (35%) MALES in the PUBLIC MENTAL HEALTH SYSTEM
- ▶ DYC Involvement = 1 OUT OF 2 (43%) Males with CHILD WELFARE INVOLVEMENT in the PUBLIC MENTAL HEALTH SYSTEM
- ▶ DYC Involvement = 3 OUT OF 4 (73.7%) Males with SUD SERVICES and CHILD WELFARE INVOLVEMENT in the PUBLIC MENTAL HEALTH SYSTEM
- ▶ DYC Involvement = 8 OUT OF 10 (82.5%) Males with an elevated score in the SOCIALIZATION DOMAIN and SUD SERVICES and CHILD WELFARE INVOLVEMENT in the PUBLIC MENTAL HEALTH SYSTEM

SUMMARY AND CONCLUSIONS

Public system expenditures and clients served demonstrate that multiple systems spend a great deal of funds on intensive high cost services. A relatively small number of children (4,020) received over \$95 million in just residential or inpatient services (exclusive of less intensive services these children were likely to have received) in FY10-11. Child Welfare funded a little over half of those children and paid \$57 million.

Looking further at per client costs, we see a small number of clients utilizing a disproportionate amount of funds. The top 10% of clients account for almost 40% of the spending, with a per client cost of almost \$42,000. The lower 90% of clients had a cost of around \$7,500. Clearly there is a subpopulation within recipients of residential and inpatient services that require greater resources. It is incumbent upon the public systems to look at the drivers of those costs. The brunt of the costs is borne by Child Welfare, leading to the question of whether children in CW are clinically more severe. Data comparing a Mental Health only population to Mental Health with Child Welfare showed consistently more severe clinical scores in those children with a Child Welfare indicator at admission to and discharge from mental health services. Again, a more complex subpopulation exists that does not respond as well to mental health treatment. Complex needs are also reflected in multi-system needs of youth. Further investigation into the multiple system usage revealed some intriguing patterns.

Multi-system engagement was evident for almost all youth (94%), with Mental Health occurring in 92% of CW high utilizing youth. Youth were likely to have engaged in first services in Child Welfare and Mental Health at approximately 8.5 years of age. Time to the second system engagement varied however as a function of which system was accessed first, with Mental Health services following Child Welfare on average about 18 months later and Mental Health service engagement following Child Welfare by about 44 months. One year Child Welfare costs were greater for the Mental Health first group. Comparison of the client populations' mental health severity at admission to services showed little difference, though at discharge Mental Health first clients displayed greater clinical elevation.

Another outcome that was different for the two groups was subsequent involvement in DYC. Overall, almost 42% of Child Welfare high utilizing clients became involved with DYC, though the chances were more likely if Mental Health was the first service (53% vs. 30%). Investigation for demographic and clinical differences that would account for the outcome revealed males and a few admission CCAR domains were statistically related in a logistic regression predicting DYC involvement. The most predictive factors were involvement in other public systems and the order in which children became involved in these systems.

The complexity of the typical youth who is requiring high levels of public resources is reflected in multiple system usage, greater clinical severity for youth in multiple systems, and poorer outcomes. Disproportionate resources are being expended for a group of high needs youth. These needs can be better understood and addressed with a coordinated, collaborative approach that involves all agencies in the care for these youth and families that results in less system

involvement and improved mental health. This has been a consistent finding across multiple studies of Colorado's children with behavioral health challenges. Recommendations for a coordinated system of care have been espoused by a variety of sources and are summarized in a Meta analyses also sponsored by this project¹⁷

¹⁷ Meta analyses conducted by the Center for Research Strategies March 2012 and available for COACT project staff upon request

APPENDICES

APPENDIX A DETAILED COSTS AND PAYMENT INFORMATION	32
APPENDIX B CHILD WELFARE CCAR ANALYSIS DESCRIPTION	35
APPENDIX C. DEMOGRAPHICS BY CHILD WELFARE STATUS.....	36
APPENDIX D: CCAR TOOL	38
APPENDIX E: SYSTEM OVERLAP ANALYSIS DESCRIPTION.....	43
APPENDIX F: CCAR SCORES BY NUMBER OF SYSTEMS.....	45
APPENDIX G. DEMOGRAPHICS BY SYSTEM ORDER.....	47
APPENDIX H. CCAR SCORES BY SYSTEM ORDER	48
APPENDIX I. DEMOGRAPHICS BY DYC INVOLVEMENT	50
APPENDIX J. CCAR SCORES BY DYC INVOLVEMENT	51
APPENDIX K. LOGISTIC REGRESSION	53

APPENDIX A DETAILED COSTS AND PAYMENT INFORMATION

Table A1. System of Care Expansion Planning Grant – Cost Exploration Residential Treatment Costs FY 2010-11*

State Agencies	Total Costs	Client and Daily Costs
CDHS Division of Child Welfare (DCW)	\$8,640,151.27 Residential Child Care Facility Costs (RCCF) for DCW clients	610 clients at an average cost of \$156 per day
	\$43,079,225.32 Therapeutic Residential Child Care Facility Costs for DCW clients	1,688 clients at an average cost of \$199 per day
Medicaid Fee For Service Expenditures for Child Welfare Children	\$5,278,547.20 Therapeutic Residential Child Care (TRCCF) Facility Costs for DCW clients	1,688 clients served
	\$644,144.23 Psychiatric Residential Treatment (PRTF) Facility Costs for DCW clients	11 Children served
CDHS Division of Behavioral Health (DBH)	Child Mental Health Treatment Act (CMHTA)	62 Youth Served at an average cost of \$13,912 per youth for both community and residential services
	\$414,673.31 DBH – State General Fund Only was used for community based services as well as residential services	28 youth served in residential treatment with a cost of \$23,434 per youth
	\$656,148.09 Residential Treatment for Youth (combined Medicaid, General Fund, and Tobacco funds)	
	\$96,893.99 Transition services from residential treatment back to the community	
Medicaid Expenditures for CMHTA Clients	\$46,609.02 TRCCF expenses	28 youth served in both types of residential treatment (TRCCF and PRTF)
	\$101,236.67 PRTF expenses	
CDHS Division of Youth Corrections (DYC)	\$12,960,211 TRCCF for DYC Youth	TRCCF placement costs are \$172.46 per day
		On average 205.9 DYC youth are in RCCF placements each day of the fiscal Year
Medicaid Expenditures for DYC	\$1,495,839 Residential Treatment for DYC clients	

Medicaid Fee For Service	\$39, 945.46 Therapeutic Residential Child Care Facility Costs for Tribal clients	
Medicaid BHO Costs	\$4,662,957.43 Residential Treatment	589 Clients Served with an average of \$7,916.74/client
	\$12,584,669.57 Inpatient Hospitalization for individuals under 21 years of age	1179 Clients Served with an average of \$10,674.02/client
Mental Health Institutes (Ft. Logan and Pueblo)	\$5,041,972.00 Inpatient Hospitalization	132 Clients with an average of \$38,196.76/client

Payment Eligibility and Responsibility

Patient eligibility criteria for Public Residential Treatment Facilities require certification of a diagnosis of a psychiatric disorder from one of the following diagnostic categories:

295 Schizophrenic disorders
296 Affective psychoses
297 Paranoid states
298 Other nonorganic psychoses
300 Neurotic disorders
301 Personality disorders
307 Eating Disorders, Tic Disorders and Sleep Disorders
308 Acute reaction to stress
309 Adjustment reaction
311 Depressive disorder, not elsewhere classified
312 Disturbance of conduct, not elsewhere classified
313 Disturbance of emotions specific to childhood and adolescence
314 Hyperkinetic syndrome of childhood

In addition, the patient must be certified to have a DSM Axis 5 Global Assessment of Functioning score of 40 or less.

DYC has requested additional funds for youth in residential treatment for the 2011-2012 fiscal year.

State General Fund dollars are used to pay the majority of expenses for the CMHI, however, a portion of the costs incurred for hospitalization are paid for through the courts when court ordered evaluations are ordered and by school districts for per pupil educational reimbursement.

Special thanks to the Colorado Department of Health Care Policy and Financing and the Department of Human Services' Divisions of Youth Corrections, Child Welfare, and Behavioral Health for their participation and assistance in data gathering. The Colorado Department of Education also provided information regarding services provided to children in their system with behavioral health needs. This information was not included in the above table because costs are incurred at the district level and not tracked by the state.

*Data is for FY2010-11 except where noted.

APPENDIX B CHILD WELFARE CCAR ANALYSIS DESCRIPTION

Client records were obtained from Colorado Department of Human Services, Office of Behavioral Health Colorado Client Assessment Record (CCAR) system. These data capture all clients served through the Colorado public community mental health system. Records of all clients with an open episode of care at any point in FY10-11 were identified and all CCAR records for those clients were included. The sample was then limited to clients under age 18 to reflect the general eligibility limits of Child Welfare. The final analysis included 29,601 youth, of which 17,351 had no indicator of current or past Child Welfare involvement. For 12,250 youth there was an indication of Child Welfare involvement. Child Welfare involvement was indicated by a variable on the CCAR that captures clinician report of past/concurrent CW services and/or place of residence in foster home.

The analyses of clinical factors further limited the population of analysis to those under age 18 discharged from mental health treatment. The resulting N for these analyses was 25,695; 15,318 without Child Welfare involvement and 10,377 with Child Welfare involvement.

APPENDIX C. DEMOGRAPHICS BY CHILD WELFARE STATUS

Figure C1. Gender by CW Designation

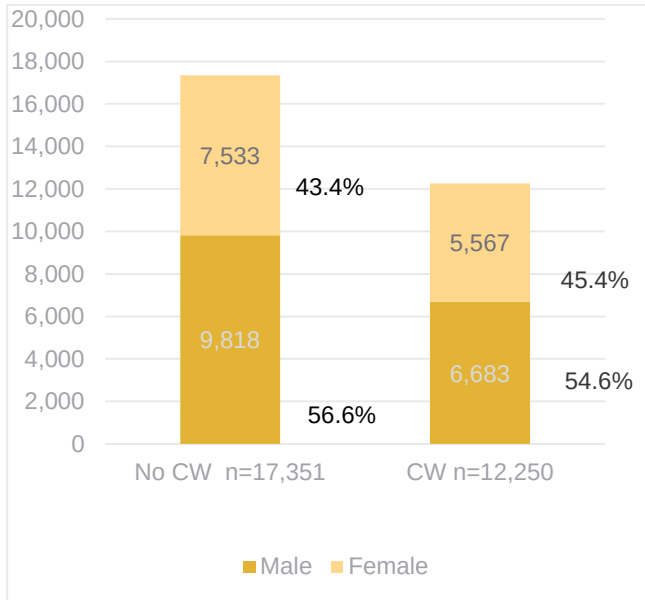


Figure C2. Racial Distribution by CW Designation

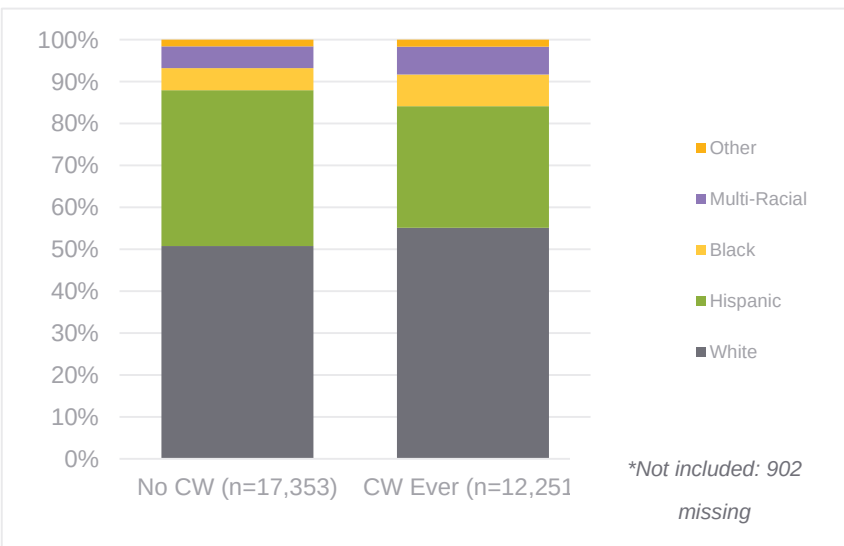
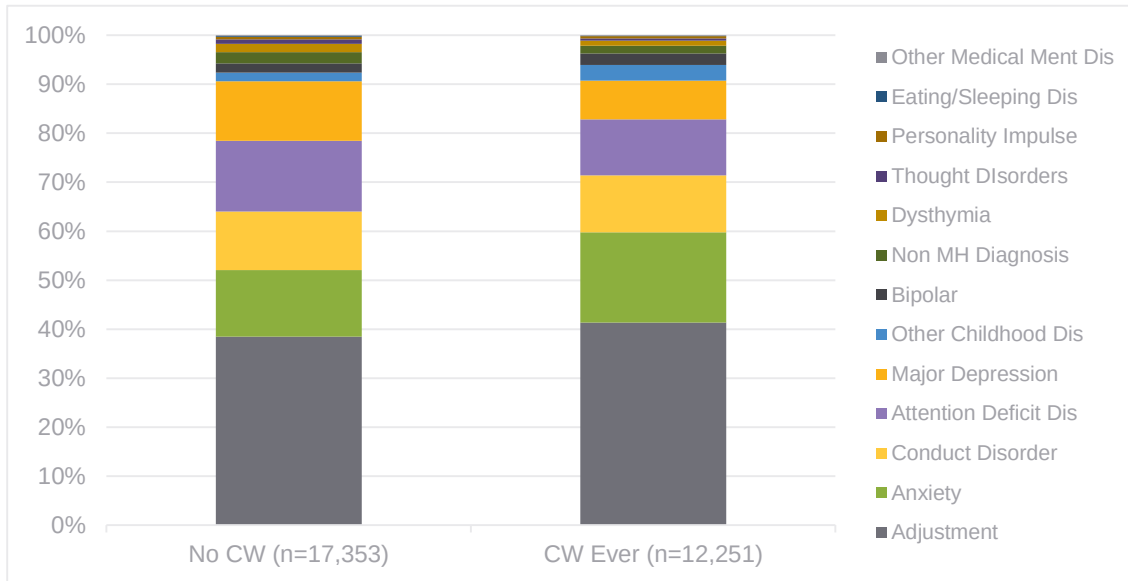


Figure C3. Diagnoses by Child Welfare Indication



APPENDIX D: CCAR TOOL

Figure D1. CCAR Outcome Section Image



CCAR Outcome Section

School Is Individual School Age? ☐ No ☐ Yes <i>Complete questions if of School Age</i> <u>In the last 12 months, has the child:</u> <table style="width: 100%;"> <tr> <td style="width: 50%;"> Been expelled from school? ☐ No ☐ Yes </td> <td style="width: 50%;"> Been suspended from school? ☐ No ☐ Yes </td> </tr> <tr> <td> Has unexcused absences from school? ☐ No ☐ Yes </td> <td> Is child currently passing all his/her classes? ☐ No ☐ Yes </td> </tr> </table> Has the individual attended school in the past 3 months? ☐ No ☐ Yes	Been expelled from school? ☐ No ☐ Yes	Been suspended from school? ☐ No ☐ Yes	Has unexcused absences from school? ☐ No ☐ Yes	Is child currently passing all his/her classes? ☐ No ☐ Yes	Child Younger than 6 Is the child less than 6 years old? ☐ No ☐ Yes <i>Complete Questions if less than 6 years old</i> <u>Is the child at a developmentally appropriate level for the following?</u> <table style="width: 100%; font-size: x-small;"> <tr> <td style="width: 33%;"> Talking/Communication ☐ No ☐ Yes </td> <td style="width: 33%;"> Physical/Motor Movements ☐ No ☐ Yes </td> <td style="width: 33%;"> Hearing/Seeing ☐ No ☐ Yes </td> </tr> <tr> <td> Learning/Cognition ☐ No ☐ Yes </td> <td> Playing/Interacting ☐ No ☐ Yes </td> <td> Self-Help Skills ☐ No ☐ Yes </td> </tr> </table> Is child's readiness for school developmentally appropriate? ☐ No ☐ Yes	Talking/Communication ☐ No ☐ Yes	Physical/Motor Movements ☐ No ☐ Yes	Hearing/Seeing ☐ No ☐ Yes	Learning/Cognition ☐ No ☐ Yes	Playing/Interacting ☐ No ☐ Yes	Self-Help Skills ☐ No ☐ Yes
Been expelled from school? ☐ No ☐ Yes	Been suspended from school? ☐ No ☐ Yes										
Has unexcused absences from school? ☐ No ☐ Yes	Is child currently passing all his/her classes? ☐ No ☐ Yes										
Talking/Communication ☐ No ☐ Yes	Physical/Motor Movements ☐ No ☐ Yes	Hearing/Seeing ☐ No ☐ Yes									
Learning/Cognition ☐ No ☐ Yes	Playing/Interacting ☐ No ☐ Yes	Self-Help Skills ☐ No ☐ Yes									
History/Current Victimization <i>Now or Ever</i> ☐ Sexual Abuse ☐ Neglect ☐ Physical Abuse ☐ Verbal Abuse ☐ None	History of Mental Health Services <i>Click all that apply</i> ☐ Inpatient ☐ Other 24-Hour ☐ Partial Care ☐ Outpatient ☐ None										
Previous/Concurrent Services <i>Click all that apply</i> ☐ Juvenile Justice ☐ Adult Corrections ☐ Developmental Disabilities ☐ Special Education ☐ Substance Abuse ☐ None ☐ Child Welfare	Current Non-Prescription Substance Use <i>Click all that apply</i> ☐ Tobacco ☐ Heroin ☐ Hallucinogens ☐ Alcohol ☐ Other Opiates/Narcotics ☐ Inhalants ☐ Marijuana ☐ Barbiturates/Sedatives/Tranquilizers ☐ None ☐ Cocaine/Crack ☐ Amphetamines/Stimulates										



CCAR Outcome Section Domain Scales

Physical Health Rating

Extent to which a person's physical health or condition is a source of concern.

- ☐ 1. No physical problems that interfere with daily living.
- ☐ 2
- ☐ 3. Presence of occasional or mild physical problems that may interfere with daily living.
- ☐ 4
- ☐ 5. Frequent or chronic physical health problems.
- ☐ 6
- ☐ 7. Incapacitated due to medical/physical health, and likely to require inpatient or residential health care.
- ☐ 8
- ☐ 9. Presence of critical medical condition requiring immediate inpatient or residential health care treatment.

Legal Rating

Extent to which a person is involved in the criminal justice system.

- ☐ 1. No legal difficulties.
- ☐ 2
- ☐ 3. Occasional legal difficulties.
- ☐ 4
- ☐ 5. Frequent legal difficulties.
- ☐ 6
- ☐ 7. May be in confinement or at risk of confinement due to illegal activity.
- ☐ 8
- ☐ 9. Continuously at risk for illegal behavior. Likely to be in confinement or with current serious charges pending.

Suicide/Danger to Self Rating

Extent to which a person experiences self-harming thoughts and/or behaviors.

- ☐ 1. No indication of self-destructiveness or self-endangerment.
- ☐ 2
- ☐ 3. Self-harmful tendencies are evident from speech and/or previous behavior, and person may experience harmful thoughts with minimal danger to self.
- ☐ 4
- ☐ 5. Self-harmful thoughts and/or actions are present and are of serious concern.
- ☐ 6
- ☐ 7. Self-harmful thoughts and/or actions are persistent, affecting most aspects of daily functioning.
- ☐ 8
- ☐ 9. Requires immediate intervention to prevent suicide or physical self-injury.

Psychosis Rating

Extent to which a person experiences delusional, disorganized and irrational thought processes.

- ☐ 1. No evidence of thought difficulties.
- ☐ 2
- ☐ 3. Occasional odd thought processes.
- ☐ 4
- ☐ 5. Frequent substitution of fantasy for reality, isolated delusions or infrequent hallucinations.
- ☐ 6
- ☐ 7. Persistent thought disturbance, frequent hallucinations or delusions. Communication is highly impaired.
- ☐ 8
- ☐ 9. Thought processes are disorganized and tangential, resulting in persistent disruption in communication. Extreme disconnection from reality.

Self Care/Basic Needs Rating

Extent to which mental health symptoms impact a person's ability to care for self and provide for needs.

- ☐ 1. Able to care for self and provide for own needs.
- ☐ 2
- ☐ 3. Occasional assistance required in caring for self and obtaining basic needs.
- ☐ 4
- ☐ 5. High levels of assistance needed in caring for self and obtaining basic needs.
- ☐ 6
- ☐ 7. Unable to care for self and obtain basic needs in safe and sanitary manner.
- ☐ 8
- ☐ 9. Gravely disabled and in extreme need of complete supportive care.

Security/Supervision Rating

Extent to which the person is in need of increased supervision.

- ☐ 1. No special security or supervision precautions needed.
- ☐ 2
- ☐ 3. Occasional behavior problems are present and require low levels of security and supervision.
- ☐ 4
- ☐ 5. Requires moderate levels of security and supervision due to intermittent high-risk and/or dangerous behaviors.
- ☐ 6
- ☐ 7. Close supervision, seclusion, suicide watch, or controlled medication administration may be necessary due to severe behavioral problems. Walkaway/escape potential may be high.
- ☐ 8
- ☐ 9. Requires constant supervision or secure environment due to behaviors that are likely to result in injury to self or others.

Aggression/Danger to Others Rating

Extent of aggressiveness in interactions with others.

- ☐ 1. Exhibits no aggressiveness towards others.
- ☐ 2
- ☐ 3. Occasional low-level aggressive behavior toward others.
- ☐ 4
- ☐ 5. Occasional major or frequent minor aggressive behavior which is perceived as dangerous.
- ☐ 6
- ☐ 7. Repeated major aggressive behavior that is problematic and is hostile, threatening and dangerous.
- ☐ 8
- ☐ 9. Continuously aggressive behavior that is intended to inflict injury or pain, verbal attacks and/or demonstrates imminent danger to others.

Cognition Rating

Extent to which a person performs cognitive tasks and experiences symptoms such as, but not limited to, confusion, poor problem solving, and impaired judgment.

- ☐ 1. No evidence of impaired cognitive capacity.
- ☐ 2
- ☐ 3. Occasional incidences of poor judgment or memory loss may occur.
- ☐ 4
- ☐ 5. Cognitive process are persistently impaired and may exhibit impaired functioning.
- ☐ 6
- ☐ 7. Person may be unable to function independently due to significantly impaired cognitive processes.
- ☐ 8
- ☐ 9. Impaired cognitive processes result in inability to care for self.



CCAR Outcome Section Domain Scales

Attention Rating

Extent to which a person experiences attention issues such as, but not limited to, distractability, inability to concentrate, and restlessness.

☐ 1. No disruption of daily activities. Issues are temporary, appropriate and do not impact functioning.

☐ 2

☐ 3. May persist beyond situational event, but not debilitating.

☐ 4

☐ 5. Persistent, low-level or occasionally moderate, impacts daily functioning.

☐ 6

☐ 7. Persistent and incapacitating, affecting most aspects of daily functioning.

☐ 8

☐ 9. Person is completely incapacitated by and is seemingly incapable of responding appropriately.

Manic Issues Rating

Extent to which a person experiences manic symptoms such as, but not limited to, excessive activity level, elevated mood, and decreased need for sleep.

☐ 1. No disruption of daily activities. Issues are temporary, appropriate and do not impact functioning.

☐ 2

☐ 3. May persist beyond situational event, but not debilitating.

☐ 4

☐ 5. Persistent, low-level or occasionally moderate, impacts daily functioning.

☐ 6

☐ 7. Persistent and incapacitating, affecting most aspects of daily functioning.

☐ 8

☐ 9. Person is completely incapacitated by and is seemingly incapable of responding appropriately.

Anxiety Issues Rating

Extent to which a person experiences anxiety symptoms such as, but not limited to, nervousness, fearfulness and tension.

☐ 1. No disruption of daily activities. Issues are temporary, appropriate and do not impact functioning.

☐ 2

☐ 3. May persist beyond situational event, but not debilitating.

☐ 4

☐ 5. Persistent, low-level or occasionally moderate, impacts daily functioning.

☐ 6

☐ 7. Persistent and incapacitating, affecting most aspects of daily functioning.

☐ 8

☐ 9. Person is completely incapacitated by and is seemingly incapable of responding appropriately.

Depressive Issues Rating

Extent to which a person experiences depressive symptoms such as, but not limited to, sadness, worrying, irritability and agitation.

☐ 1. No disruption of daily activities. Issues are temporary, appropriate and do not impact functioning.

☐ 2

☐ 3. May persist beyond situational event, but not debilitating.

☐ 4

☐ 5. Persistent, low-level or occasionally moderate, impacts daily functioning.

☐ 6

☐ 7. Persistent and incapacitating, affecting most aspects of daily functioning.

☐ 8

☐ 9. Person is completely incapacitated by and is seemingly incapable of responding appropriately. Impaired functioning and requires immediate treatment.

Alcohol Use Rating

Extent to which a person's use of alcohol impairs daily functioning.

☐ 1. No impairment of general functioning due to alcohol use.

☐ 2

☐ 3. Occasional difficulties in functioning due to alcohol use.

☐ 4

☐ 5. Frequent difficulties in functioning due to alcohol use.

☐ 6

☐ 7. Significantly impaired functioning due to alcohol use. Alcohol use dominates life to the exclusion of other activities.

☐ 8

☐ 9. Constantly debilitated due to alcohol use, with no regard for basic needs or safety of self and others.

Drug Use Rating

Extent to which a person's use of legal or illegal drugs impairs daily functioning.

☐ 1. No impairment of general functioning due to drug use.

☐ 2

☐ 3. Occasional difficulties in functioning due to drug use.

☐ 4

☐ 5. Frequent difficulties in functioning due to drug use.

☐ 6

☐ 7. Significantly impaired functioning due to drug use. Drug use dominates life to the exclusion of other activities.

☐ 8

☐ 9. Constantly debilitated due to drug use, with no regard for basic needs or safety of self and others.

Family Rating

Extent to which issues within the individual's identified family and family relationships are problematic.

☐ 1. Family relationships are not of current concern.

☐ 2

☐ 3. Occasional friction or discord in family relationships.

☐ 4

☐ 5. Frequent disagreements or turbulence with family members.

☐ 6

☐ 7. Extensive disruption in family functioning which has resulted in out of home placement or estrangement.

☐ 8

☐ 9. Family members are at considerable personal risk and require formal external supportive services.

Interpersonal Rating

Extent to which a person establishes and maintains relationships with others.

☐ 1. Demonstrates healthy relationships with others.

☐ 2

☐ 3. Some difficulty developing or maintaining healthy interpersonal relationships.

☐ 4

☐ 5. Inadequate relational skills resulting in tenuous and strained relationships.

☐ 6

☐ 7. Markedly impaired relational skills resulting in poor relationship formation and maintenance.

☐ 8

☐ 9. Interpersonal relationships are virtually nonexistent.

Socialization Rating

Extent to which a person's conduct deviates cultural and social norms.

☐ 1. Generally conforms to social norms and rules.

☐ 2

☐ 3. Occasionally violates rights of others, social norms, and/or rules.

☐ 4

☐ 5. Frequently violates rights of others, social norms, and/or rules.

☐ 6

☐ 7. No regard for rules, rights of others and seriously disruptive to others.

☐ 8

☐ 9. Complete disregard for rights of others, social norms, and/or rules resulting in social destructiveness and dangerousness to others.



CCAR Outcome Section Domain Scales

Role Performance Rating Extent to which a person adequately performs his/her occupational role. NOTE: Rate individual's current primary role (e.g. worker, caregiver, student) as marked on the Administrative Section ☐ 1. Performs comfortably and completely in role. ☐ 2 ☐ 3. Occasional disruption of role performance. ☐ 4 ☐ 5. Frequent disruption of role performance. ☐ 6 ☐ 7. Severe disruption of role performance. Attempts at functioning are ineffective. ☐ 8 ☐ 9. Productive functioning is absent and currently inconceivable.	Overall Symptom Severity Rating Rate the severity of the person's mental health symptoms. ☐ 1. No symptoms are present for this person. ☐ 2 ☐ 3. Symptoms may be intermittent or may persist at a low level. ☐ 4 ☐ 5. Symptoms are present which require formal professional mental health intervention. ☐ 6 ☐ 7. Significant symptoms affecting multiple domains exist, often requiring external intervention. ☐ 8 ☐ 9. Symptoms are profound and potentially life-threatening.
Social Support Rating Extent to which a person has relationships with supportive people who contribute to recovery. ☐ 1. Supportive relationships outside of service providers AND actively participates in maintaining them. ☐ 2 ☐ 3. Supportive relationships outside of service providers. ☐ 4 ☐ 5. Only meaningful relationships with service providers AND other receiving services. ☐ 6 ☐ 7. Only meaningful relationships are with service providers. ☐ 8 ☐ 9. No meaningful relationships (or relationships that are not constructive) AND person wants or could clearly benefit from them.	Hope Rating Extent to which a person is optimistic about future outcomes. ☐ 1. Openly expresses hope for the future AND is making efforts to achieve better outcomes. ☐ 2 ☐ 3. Openly expresses hope for the future, but is not currently making efforts that would lead to better outcomes. ☐ 4 ☐ 5. Expresses both positive and negative attitudes with regards to future outcomes. ☐ 6 ☐ 7. Does not express hope for the future, but may be convinced that there is opportunity for better outcomes. ☐ 8 ☐ 9. Actively expresses hopelessness about future change.
Empowerment Rating (mark 1 if less than 12 years old) Extent to which a person uses available resources that contribute to personal health, welfare and recovery. This includes knowledge and understanding of symptoms, treatment options and resource alternatives. ☐ 1. Actively engages in planning and activities to assure optimal personal health, welfare and recovery. ☐ 2 ☐ 3. Is aware of some available resources and generally acts to access them to assure personal health, welfare and recovery. ☐ 4 ☐ 5. Does not respond to signs and symptoms that may reduce personal health, welfare and recovery. ☐ 6 ☐ 7. Ignores or rejects offers of resources or assistance to assure personal health, welfare and recovery. ☐ 8 ☐ 9. Requires intervention to assure recovery.	Activity Involvement Rating Extent to which a person participates in positive activities. ☐ 1. High involvement in a variety of positive activities that are self, other and community focused. ☐ 2 ☐ 3. Involvement in a variety of positive activities that includes others. ☐ 4 ☐ 5. Involvement in a variety of positive activities, but rarely includes others. ☐ 6 ☐ 7. Engages in few, in any, positive activities and none with others. ☐ 8 ☐ 9. No identified positive activities.
Overall Recovery Rating Extent to which a person is involved in the process of getting better and developing/restoring /maintaining a positive and meaningful sense of self. ☐ 1. Views self positively with the knowledge that setbacks may occur AND is able to actively pursue and access resources to support recovery with a sense of empowerment and hopefulness about future outcomes. ☐ 2 ☐ 3. Hopeful about future outcomes AND is actively participating and using resources to promote recovery. ☐ 4 ☐ 5. Expresses hopefulness about future outcomes AND is willing to begin to engage in using available resources to promote recovery. ☐ 6 ☐ 7. Expresses a mixture of hopefulness and hopelessness about future outcomes and is interested in discussing available options and resources to aid in recovery. ☐ 8 ☐ 9. Entrenched in symptoms, expresses hopelessness about future outcomes AND does not actively engage in using available resources that might promote recovery.	Overall Level of Functioning Rating Extent to which a person is able to carry out activities of daily living, despite the presence of mental health symptoms. ☐ 1. Functioning well in most activities of daily living. ☐ 2 ☐ 3. Adequate functioning in activities of daily living. ☐ 4 ☐ 5. Limited functioning in activities of daily living. ☐ 6 ☐ 7. Impaired functioning that interferes with most activities of daily living. ☐ 8 ☐ 9. Significantly impaired functioning, may be life threatening.

Table D1. CCAR Domain Descriptions

	CCAR Domain Description
<i>Physical Health</i>	Extent to which a person's physical health or condition is a source of concern
<i>Self-Care</i>	Extent to which mental health symptoms impact a person's ability to care for self and provide for needs
<i>Legal</i>	Extent to which a person is involved in the criminal justice system
<i>Need for Supervision</i>	Extent to which the person is in need of increased supervision
<i>Suicide/Self Harm</i>	Extent to which a person experiences self-harming thoughts and/or behaviors
<i>Aggression</i>	Extent of aggressiveness in interactions with others
<i>Psychosis</i>	Extent to which a person experiences delusional, disorganized and irrational thought processes
<i>Cognition</i>	Extent to which a person performs cognitive tasks and experiences symptoms such as, but not limited to, confusion, poor problem solving, and impaired judgment
<i>Attention</i>	Extent to which a person experiences attention issues such as, but not limited to, distractibility, inability to concentrate, and restlessness
<i>Mania</i>	Extent to which a person experiences manic symptoms such as, but not limited to, excessive activity level, elevated mood, and decreased need for sleep
<i>Anxiety</i>	Extent to which a person experiences anxiety symptoms such as, but not limited to, nervousness, fearfulness, and tension
<i>Depression</i>	Extent to which a person experiences depressive symptoms such as, but not limited to, sadness, worrying, irritability and agitation
<i>Alcohol Use</i>	Extent to which a person's use of alcohol impairs daily functioning
<i>Drug Use</i>	Extent to which a person's use of legal or illegal drugs impairs daily functioning
<i>Problematic Family Relationships</i>	Extent to which issues within the individuals identified family and family relationships are problematic
<i>Interpersonal Relationships</i>	Extent to which a person establishes and maintains relationships with others
<i>Socialization</i>	Extent to which a person's conduct deviates cultural and social norms
<i>Role Performance</i>	Extent to which a person adequately performs his/her occupational role
<i>Overall Symptom Severity</i>	Rate the severity of the persons mental health symptoms
<i>Empowerment</i>	Extent to which a person uses available resources that contribute to personal health, welfare, and recovery
<i>Activity Involvement</i>	Extent to which a person participates in positive activities
<i>Social Supports</i>	Extent to which a person has relationships with supportive people that contribute to recovery
<i>Hope</i>	Extent to which a person is optimistic about future outcomes
<i>Recovery</i>	Extent to which a person is involved in the process of getting better and developing restoring/maintaining a positive and meaningful sense of self
<i>Overall Level of Functioning</i>	Extent to which a person is able to carry out activities of daily living despite the presence of mental health symptoms

APPENDIX E: SYSTEM OVERLAP ANALYSIS DESCRIPTION

Colorado Child Welfare High Utilizers: Statewide Overlap with Juvenile Justice, Substance Abuse and Mental Health Services

How Was the Sample Selected?

The Colorado State Division of Child Welfare (DCW) provided data for the top 20% of children in Colorado who generated the highest expenditures in Child Welfare in FY2011-2012. The sample was comprised of 1,881 children.

- Each child had DCW expenditures that exceeded \$21,000.00 in the FY2011-2012.
- The median annual cost per child to Child Welfare for these 1881 children was \$35,394.00.
- The maximum cost per child was \$183,000.00, for a child who spent 366 days (leap year) in a residential child care facility at a cost of \$500/day.

Who Were These Children?

- Gender: 63.6% Male (n=1197), 36.4% Female (n=684).
- Ethnicity: 69.0% Not Hispanic (n=1297), 27.6% Hispanic (n=519)¹.
- Race: 77.1% White (n=1450), 13.8% African American (n=260), 6.4% Multi-Racial (n=120), 0.4% Hawaiian (n=8), 0.6% Asian (n=12)².
- Age: Children ranged in age from under 1 year old to 21 years old. Mean = 13.9, Median = 15.0.
- Diagnosis: See Table D1.

Table E1. Mental Health Diagnosis for Colorado Child Welfare High Utilizers Who Were Also Served in the Public Mental Health System.

Diagnosis at Admission to MH Services ³	Frequency	Percent
Adjustment	575	33.3
Anxiety	265	15.3
Conduct Disorder	261	15.1
Attention Deficit Disorder	215	12.4
Major Depression	120	6.9
Other Childhood Disorder	63	3.6
Other	229	13.3
Total	1728	100.0

¹ Ethnicity data were missing for 65 children.

² Race data were missing for 23 children.

³ Diagnoses came from admission CCAR (Colorado Client Assessment Record – clinical assessment conducted for all clients served in the public mental health system)

Analysis Approach

Historical data that included any case open on July 1, 2006 or later was obtained from Division of Youth Corrections (DYC) and Office of Behavioral Health (OBH) (mental health and substance data). These data were then merged with the data from Child Welfare to determine the overlap between child welfare, juvenile justice, and mental health services for these 1881 children.

Findings

- The majority of children from the child welfare sample (91.9%, 1728 children) had received mental health evaluation (CCAR) or services (Encounter).
- Of those receiving mental health services or evaluation, 82.8% (1429 children) received both evaluation and services (CCAR and Encounter), and 14.8% (256 children) only received evaluation (CCAR only), an additional 2.4% (41 children) only received services (encounter) no evaluation (CCAR).
- Almost half (46.4%, 873 children) of the children in the sample were involved in the juvenile justice system since FY2005-2006.
- Of those involved in the juvenile justice system, 79.4% (693 children) were only placed in detention, and 20.4% (178 children) were both placed in detention and committed to DYC. Two youth (.02%) were committed to DYC with no prior detentions.
- Only 6.3% (119 children) of the Child Welfare sample did not overlap with at least one of the other three service populations (mental health, juvenile justice, substance abuse).
- Eighty-one of the children (68.1% of the 119) who did not overlap with the mental health, substance abuse, or juvenile justice population were under the age of 10, so they were not eligible for DYC services under most circumstances. Additionally, 4 individuals were over the age of 18 in the most recent fiscal year.
- Fourteen percent (266 children) were involved in all systems (mental health, substance abuse, and juvenile justice, in addition to child welfare).

APPENDIX F: CCAR SCORES BY NUMBER OF SYSTEMS

Figure F1. Clinically Elevated Admission CCAR Scores by Number of Systems

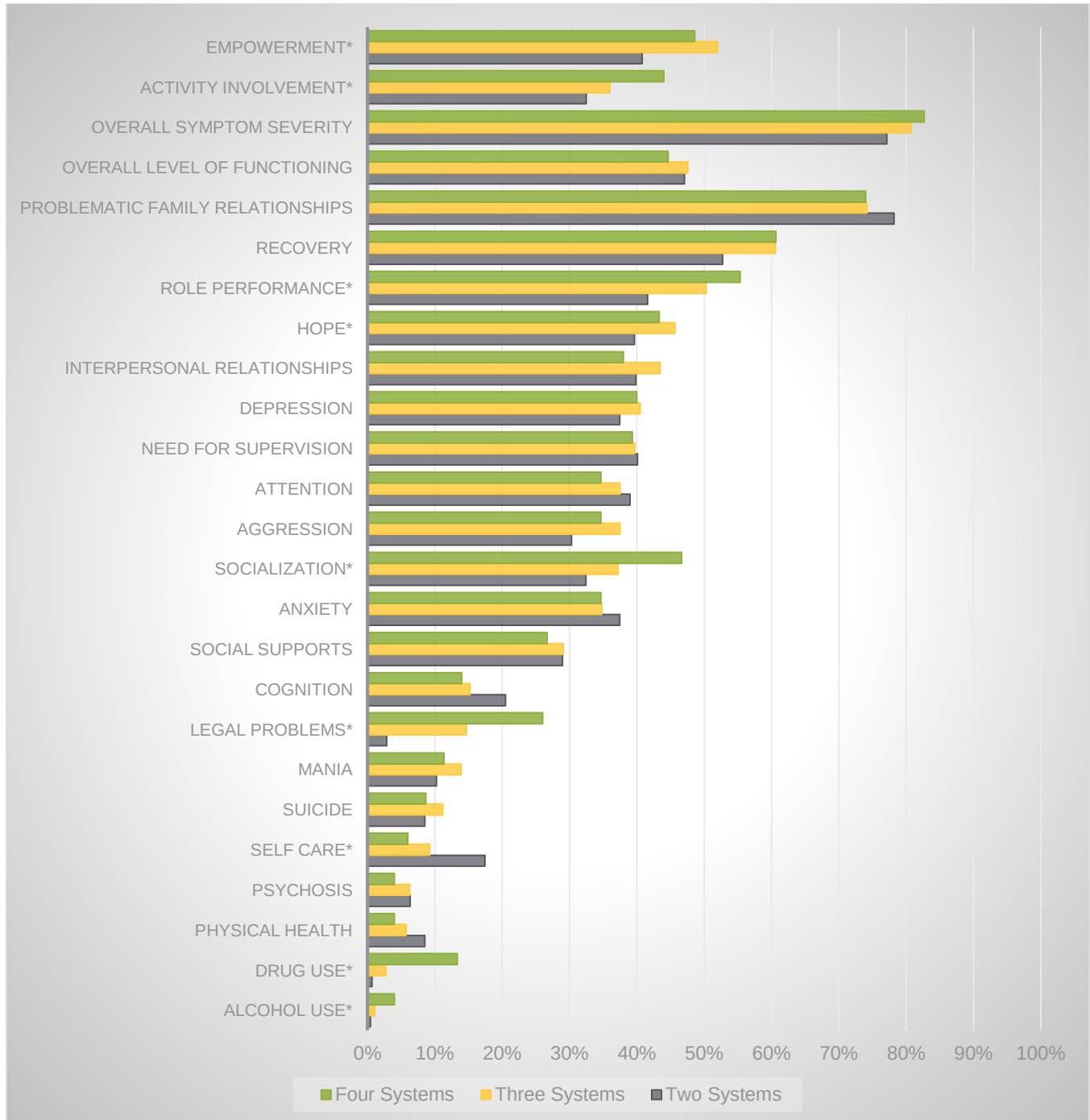
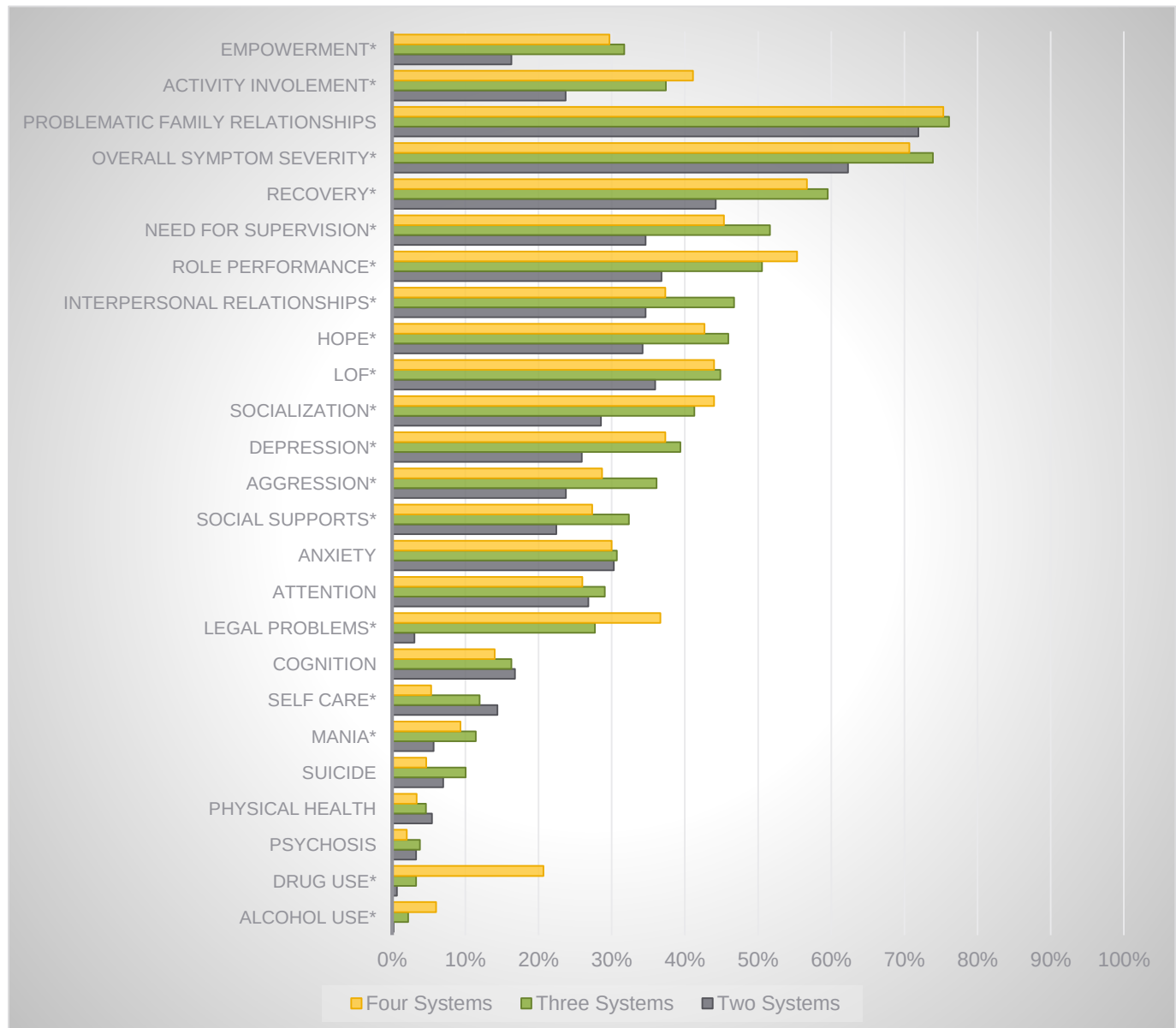
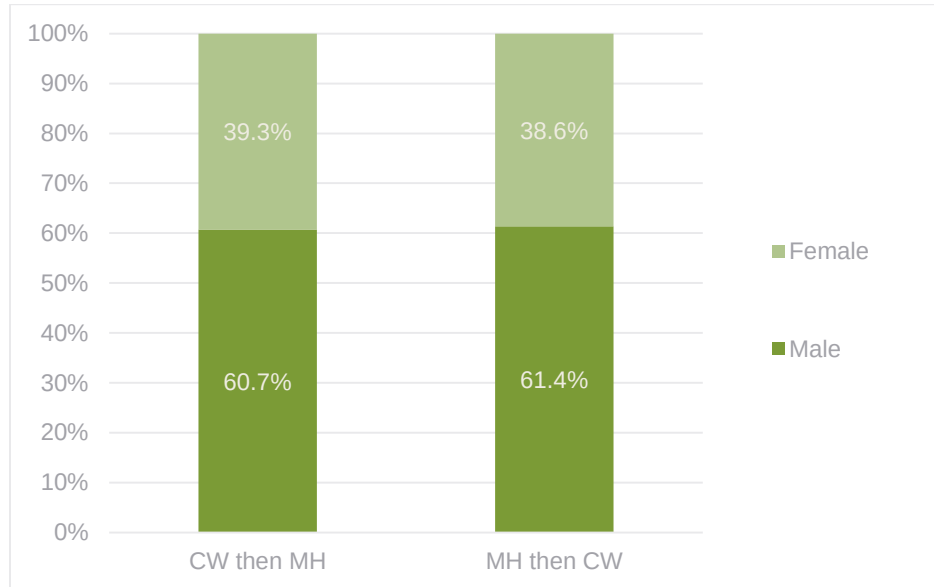


Figure E2. Clinically Elevated Discharge CCAR Scores by Number of Systems



APPENDIX G. DEMOGRAPHICS BY SYSTEM ORDER

Figure G1. Gender by System Order



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APPENDIX H. CCAR SCORES BY SYSTEM ORDER

Figure H1. Percent of Clinically Significant Admission CCAR Scores by System Order

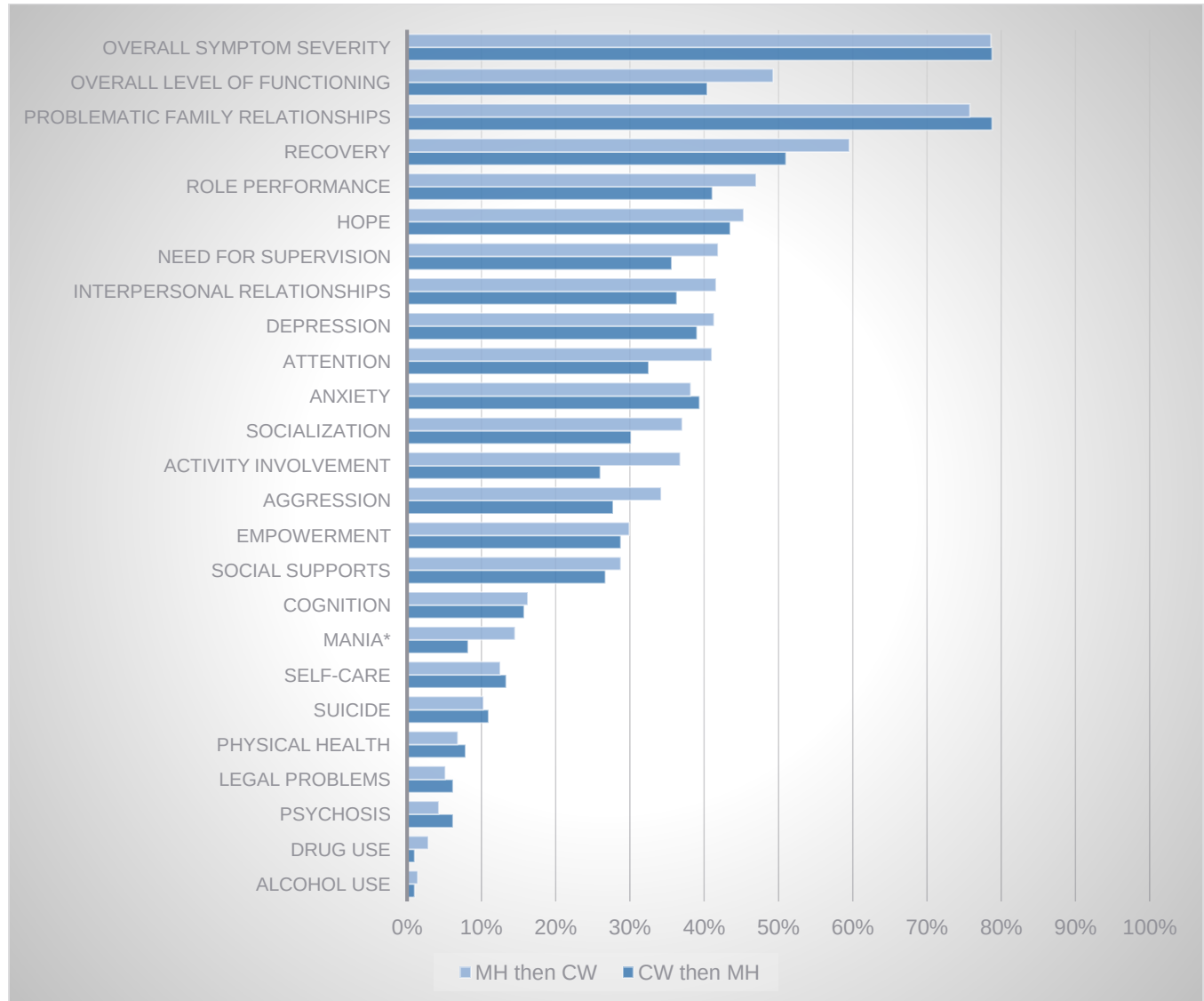
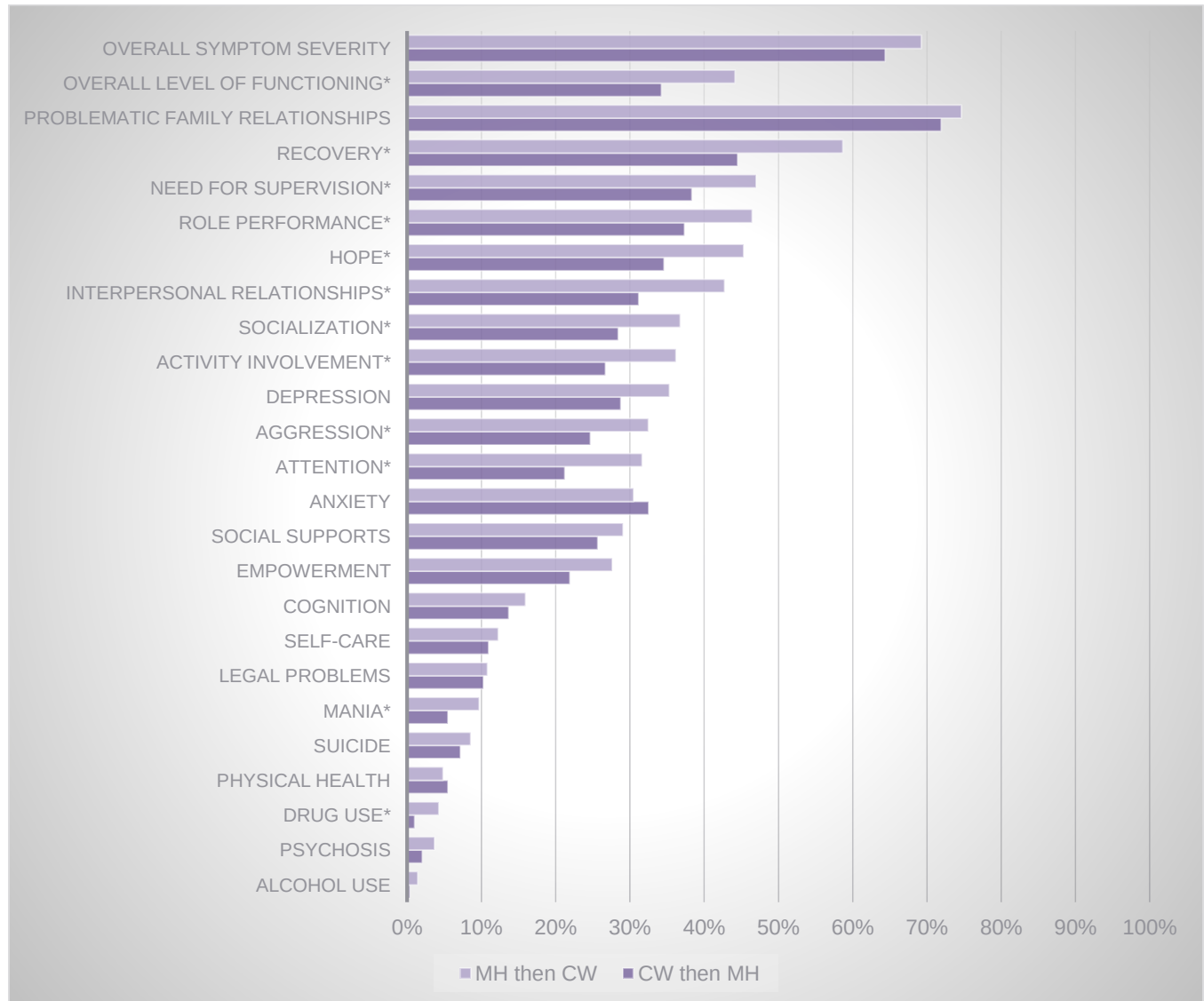
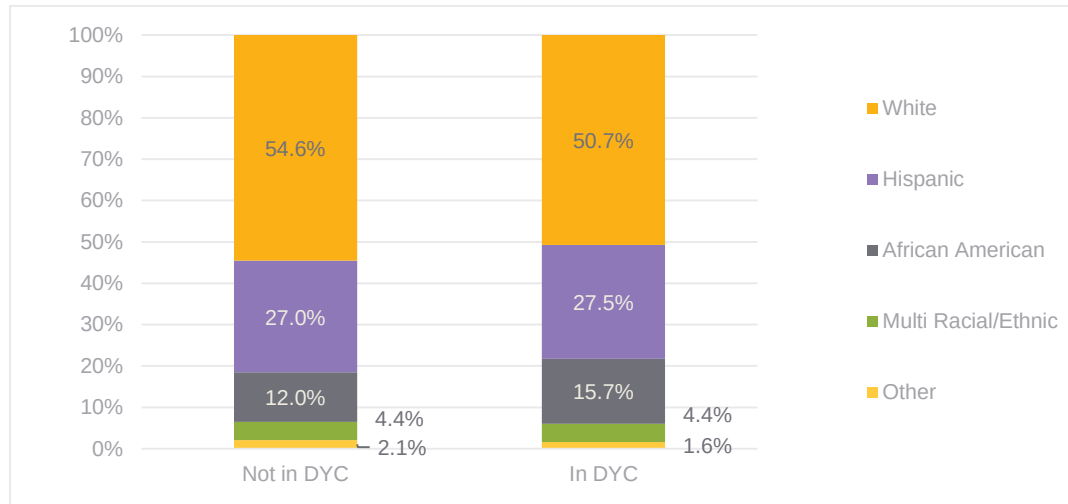


Figure H2. Clinically Significant Discharge CCAR Scores by System Order



APPENDIX I. DEMOGRAPHICS BY DYC INVOLVEMENT

Figure I1. Race/Ethnicity by DYC Involvement



APPENDIX J. CCAR SCORES BY DYC INVOLVEMENT

Figure J1. Clinically Significant CCAR Admission Scores by DYC Involvement

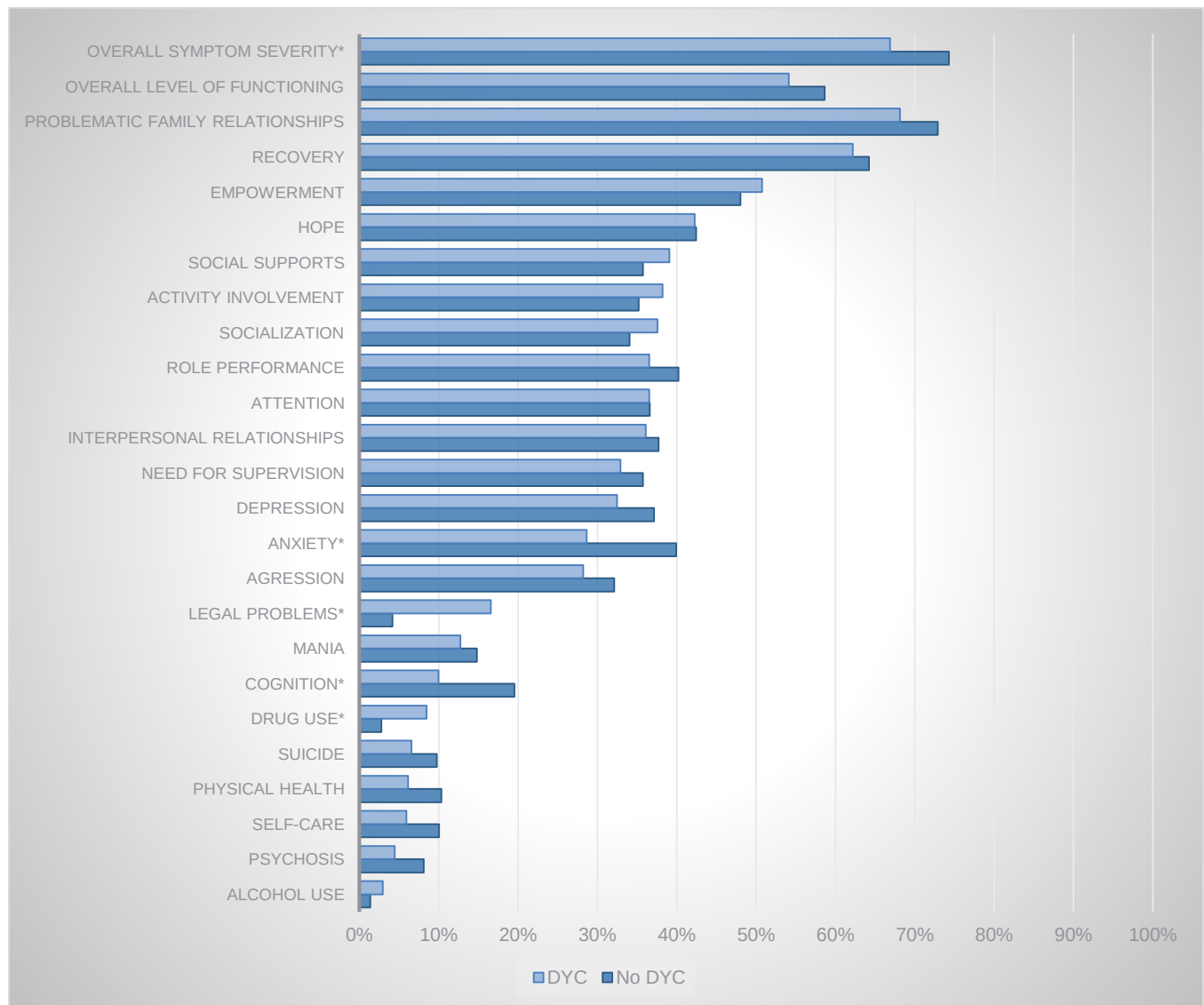
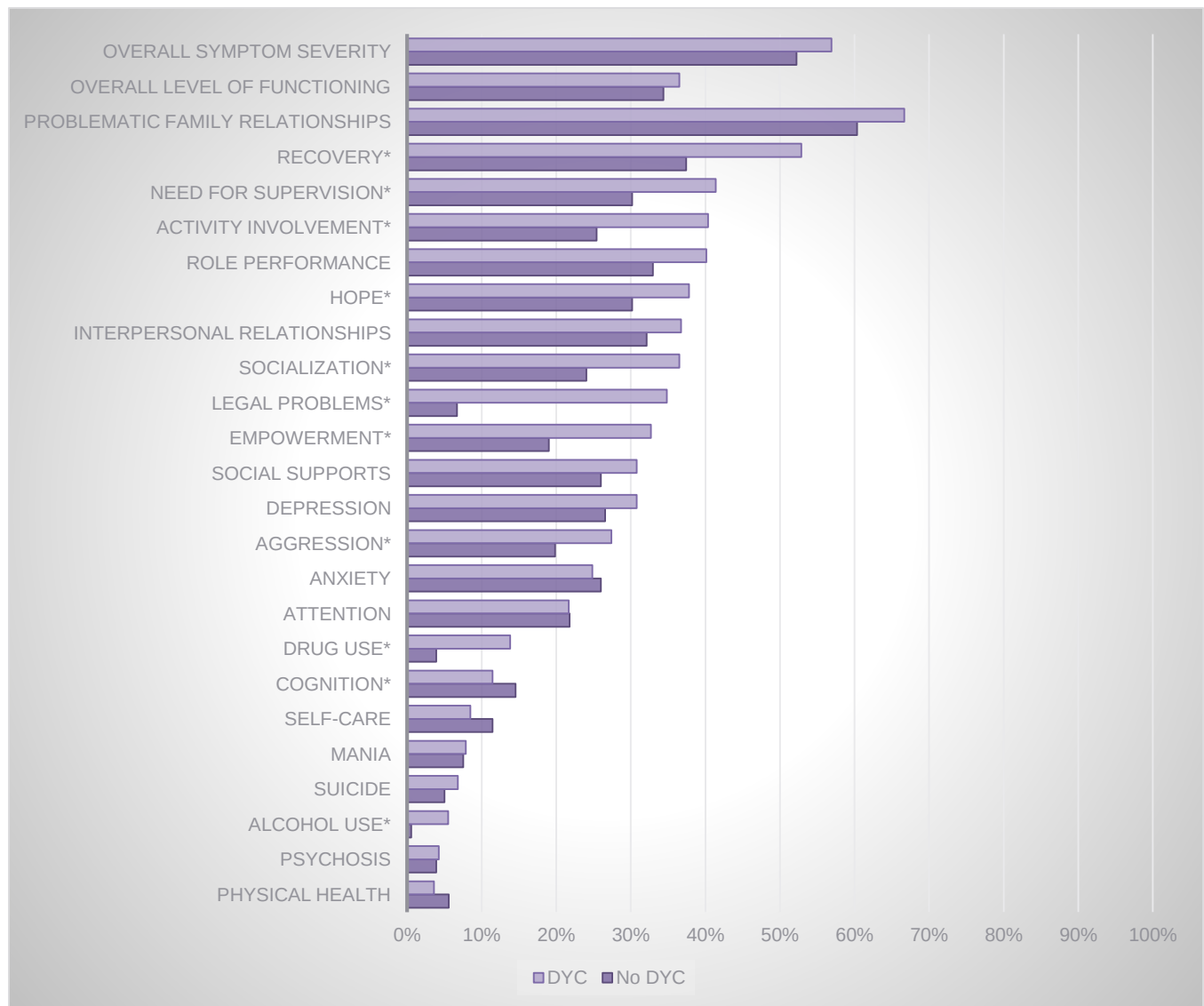


Figure J2. Clinically Significant CCAR Discharge Scores by DYC Involvement



APPENDIX K. LOGISTIC REGRESSION

Analysis Approach

Clients from the Child Welfare high utilizer sample that had matching CCAR records were selected initially. Since DYC typically does not serve children age 10 and under, clients were selected who had reached age 11 by the end of the study period (FY12-13). The resulting sample size was 1097; 696 without DYC involvement, and 401 with DYC. SPSS software was utilized for the analysis. Logistic Regression allowed us to identify significant factors related to the binary outcome of DYC involvement (yes/no). Event prediction was based on DYC involvement/yes=1. Factors were entered in three blocks (demographics, system order, CCAR admission factors), with Forward Stepwise selection within blocks, with a criteria of $p=.05$.

Table L.1: Logistic Regression Results Predicting DYC Involvement

FACTOR	Parameter	Wald Statistic	Significance
GENDER(1)	-.543	16.199	.000
ETHNICITY		6.696	.082
ETHNICITY(1)	1.433	6.693	.010
ETHNICITY(2)	-20.093	.000	1.000
ETHNICITY(3)	1.355	6.175	.013
cwmhorder(1)	-.277	4.283	.038
domainSelfCareBasicNeeds	-.112	5.244	.022
domainLegal	.173	9.550	.002
domainCognition	-.104	6.628	.010
domainEmpowerment	.057	6.557	.010
Constant	-1.601	8.030	.005