SCHOOL OF SOCIAL WORK
COLORADO STATE UNIVERSITY

Collaborative Management Program (CMP) Evaluation Report

State Fiscal Year 2019

Submitted to the Division of Child Welfare, Colorado Department of Human Services

COLORADO
CDHS
Office of Children, Youth & Families
Division of Child Welfare

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Research for Results

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Collaborative Management Program Evaluation State Fiscal Year 2019 Report

Executive Summary

The Division of Child Welfare (DCW) in the Office of Children, Youth, and Families at the Colorado Department of Human Services (CDHS) contracted with the Social Work Research Center (SWRC) in the School of Social Work at Colorado State University (CSU) and 2M Research (2M) to serve as the evaluation team to conduct the evaluation of the Collaborative Management Program (CMP) in Colorado. Although the Collaborative Management Program underwent preliminary evaluation from 2004-2014, the State Fiscal Year 2019 (SFY19) report presents the methods, findings, and implications of the first full-scale implementation of the CMP evaluation. This year's report builds on SFY15 (planning year), SFY16 (pilot year), and SFY17-18 (implementation years) in which the process, outcome, and cost evaluations were developed, tested, and implemented.

Overview

In 2004, the Colorado General Assembly passed House Bill 04-1451 (referred to as HB 1451) to establish optional collaborative management programs at the county level that would improve outcomes for children, youth, and families involved with multiple agencies. The CMP population is considered to be at higher risk for negative outcomes in the juvenile justice, child welfare, health/mental health, and education systems. For example, the prior Division of Youth Services (DYS) involvement rate in SFY19 for youth from the CMP population was 7.2 percent compared to 2.7 percent for youth from the overall child protection population in Colorado. Furthermore, 2.9 percent of CMP involved youth had a prior adoption compared to 1.3 percent for youth from the overall child protection population.

To determine if CMP is working as designed, the evaluation seeks to answer the following key questions:

1. Is CMP meeting legislative intent in key population, systems, services, and outcome components?
2. Are CMP structures/processes improving cross-agency collaborations at the local level?
3. What are the outcomes for CMP involved children/youth?
4. Which CMP models/components are most effective?
5. Is there cost effectiveness associated with CMP?
6. What is the family experience with CMP?

Collectively, the results of the process, outcome, and cost evaluations provide an understanding of CMP and enable the evaluation team to answer the identified evaluation questions. Each component also addresses other relevant evaluation questions to explore how CMP is implemented at the county level, and to better understand the contextual and practice factors contributing to child/youth and system outcomes.

Process Evaluation

The process evaluation examines the implementation of CMP to provide practitioners, policymakers, and stakeholders with essential information about how site-level CMPs are working together to achieve the goals and outcomes outlined in the legislation. The evaluation team utilizes quantitative and qualitative methods that build upon previous CMP process measures. In addition, the process evaluation explores program successes and challenges, and provides contextual information for interpreting the results of the outcome and cost evaluations.

The process evaluation examines three key topic areas related to CMP implementation: (1) collaborative structures and processes; (2) systems integration; and (3) family engagement. The design for the process evaluation consists of primary and secondary data collection and analysis to track process measures and metrics for Interagency Oversight Group (IOG) and Individualized Services and Support Team (ISST) implementation, coordinated service provision, family engagement experience, and interagency collaboration. In SFY19, the evaluation team implemented new surveys to ensure that the most reliable and valid data are being collected to capture the key processes of CMP.

The following summarizes the results for the CMP process measures:

- 100% of CMPs achieved the goal of having 75% of their agencies contribute resources.
- Family participation in IOGs was achieved by 100% of CMPs.
- The use of evidence-based practices was achieved by 97% of CMPs.
- 88% of CMPs achieved the goal of using Continuous Quality Improvement (CQI) by IOGs.
- Attendance by mandatory members of the IOGs was achieved by 50% of CMPs.

In addition to these key process measures on IOGs and systems collaboration, a Family Voice Survey was administered to capture family experience with ISST meetings, a core family engagement activity of CMP. Survey administration featured purposeful sampling and a web-based platform that rested on the principles of access and inclusion. CMP sites acted as the recruitment interface for survey administration. Specifically, CMP site coordinators and meeting facilitators served as trusted community partners to introduce families to the survey and invite their participation. CMP sites were provided an onboarding webinar, technical documentation, recruitment templates, and ongoing technical assistance by the evaluation team to support survey recruitment. The Family Voice Survey was administered to 422 caregivers who participated in an initial or review ISST meeting. As averaged across all initial family meeting survey statements, 79% of participants agreed with statements of positive expectation, experience, and effect. For the review family meeting survey, 87% of participants agreed with statements of positive communication, collaboration, and impact.

Outcome Evaluation

In combination with the process and cost evaluations, the SFY19 outcome evaluation is designed to answer critical questions about the various populations served by CMP and to determine whether the program is effective in improving outcomes of clients involved in multiple systems. The SFY19 outcome

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evaluation employed a two-part evaluation design. The evaluation team first used a non-experimental, descriptive research design to provide preliminary insight into outcomes across multiple client subpopulations, while using a more rigorous quasi-experimental research design (QED) to examine the program's effectiveness in improving child welfare, health/mental health, and juvenile justice outcomes. The evaluation team utilized a similar period of analysis for both research designs, consisting of children/youth who were initially served by CMP in SFY18, and then outcomes were examined one year later using data on the performance measures collected in SFY19.

Overall, for this higher risk population, the program appears to have moderate to high levels of success in performance measures across the four CMP domains. Among CMP clients involved with the child welfare system, the program appears to have high levels of success in increasing safety, preventing subsequent involvement, and keeping clients in their homes, but more moderate success in achieving placement stability and establishing permanency. For CMP clients involved with the juvenile justice system, the program appears to have high levels of success in decreasing commitments to DYS and preventing involvement with the juvenile justice system, but more moderate success in increasing successful involvements with the juvenile justice system. For the health/mental health domain, the program had moderate levels of success in decreasing substance abuse. The program demonstrated more limited success in decreasing problem severity and in increasing the health of children/youth. Finally, the program was associated with high levels of success in increasing school stability, but more moderate levels of success in decreasing disciplinary problems at school, increasing academic achievement, and increasing school attendance.

The QED enabled the evaluation team to more thoroughly examine the descriptive findings. The evaluation team employed a matched design of CMP clients involved with the child welfare, health/mental health, and juvenile justice systems. Overall, the findings provide evidence demonstrating that CMP is improving outcomes within each of these three domains. Within the child welfare domain, CMP clients were found to be significantly less likely to have a subsequent founded assessment ($p < 0.05$). Within the health/mental health domain, CMP clients were significantly more likely to have established linkages to substance use and mental health providers ($p < 0.001$). Within the juvenile justice domain, CMP clients were significantly less likely to become involved with the juvenile justice system ($p < 0.01$). Together, the findings provide evidence indicating that CMP is accomplishing its stated goal of improving outcomes for children and youth involved with multiple systems.

Cost Evaluation

Similar to the quasi-experimental outcome evaluation, the evaluation team conducted a cost comparison between CMP-involved children/youth and the comparison group of children/youth in CMP counties who were eligible, but who did not receive an ISST meeting. Specifically, service and out-of-home (OOH) placement costs during involvement with CMP and costs up to one year following exit of the program were collected for both the treatment and comparison groups. For costs during involvement, CMP was significantly related to higher costs totaling $1,999. For one-year follow-up costs, CMP youth had $1,689 less in costs, with the result trending toward statistical significance ($p = .08$).

Conclusions

Outcome Evaluation: This year's evaluation continued to build on previous evaluations and the overall analytical rigor of the evaluation was increased by expanding the quasi-experimental research design to the juvenile justice domain. The results of the descriptive, non-experimental evaluation demonstrate that, for this higher risk population, CMP appears to have varying degrees of success in achieving performance measures across the four program domains for children within one year of entering the program. Across the domains, the program appears to have more moderate to high levels of success within the child welfare, juvenile justice, and education domains. In contrast, the program appears to have more limited to moderate levels of success in achieving health/mental health performance goals. Although these findings provide insight into the effectiveness of the program, they should be interpreted with caution because of the limitations inherent to the non-experimental, descriptive evaluation. The results of the QED across the child welfare, health/mental health, and juvenile justice domains indicate mixed but promising effectiveness in improving client outcomes. Most notably, a statistically significant difference in favor of CMP clients was found in each domain with CMP clients being less likely to have a founded assessment and be involved with the juvenile justice system, and more likely to have established linkages to substance use and mental health providers. However, there was a small negative effect on child welfare re-involvement and placement stability outcomes and a neutral effect on decreasing problem severity and substance abuse.

Process Evaluation: Collectively, findings from the Family Voice Survey illuminate how CMP enacts the guiding principles of trauma-informed care—safety, trust, collaboration, peer support, root issues, and empowerment—and exemplifies integrated service delivery to strengthen families and communities in sustainable, holistic, and meaningful ways. Alongside overwhelmingly positive results are four key areas for practice growth: (1) Advancing integration of family cultural contexts into CMP practice; (2) Investing in innovative mediums to provide families copies of their plans in timely, user-friendly ways; (3) Enhancing coordination across CMP stakeholders to reduce experiences of duplication and repetition for families; and (4) Attending to the interplay of micro- and macros- service delivery issues during ISST engagement.

Cost Evaluation: Overall, the results of the cost evaluation analyses suggest that youth who incur costs have profiles characterized by higher risk. Moreover, youth who have higher risk profiles tend to have higher costs, and are more likely to be enrolled in the CMP. While these youth may not be less likely to reengage the system in the future, their trajectories of costs appear to be abetted by benefiting from a more holistic and collaborative approach between agencies and families. As such, the reduction in one-year costs may indicate substantial improvements in youths' overall welfare as a result of CMP engagement.

Collaborative Management Program Evaluation State Fiscal Year 2019 Report

1. Overview

The Division of Child Welfare (DCW) in the Office of Children, Youth, and Families at the Colorado Department of Human Services (CDHS) contracted with the Social Work Research Center (SWRC) in the School of Social Work at Colorado State University (CSU) and 2M Research (2M) to serve as the evaluation team to conduct the evaluation of the Collaborative Management Program (CMP) in Colorado. Although the Collaborative Management Program underwent preliminary evaluation from 2004-2014, the State Fiscal Year 2019 (SFY19) report presents the methods, findings, and implications of the first full-scale implementation of the CMP evaluation. This year's report builds on SFY15 (planning year), SFY16 (pilot year), and SFY17-18 (implementation years) in which the process, outcome, and cost evaluations were developed, tested, and implemented.

1.1. CMP Program

In 2004, the Colorado General Assembly passed House Bill 04-1451 (referred to as HB 1451) to establish optional collaborative management programs at the county level that would improve outcomes for children, youth, and families involved with multiple agencies. The CMP population is considered to be at higher risk for negative outcomes in the juvenile justice, child welfare, health/mental health, and education systems. For example, the prior Division of Youth Services (DYS) involvement rate in SFY19 for youth from the CMP population was 7.2 percent compared to 2.7 percent for youth from the overall child protection population in Colorado. Furthermore, 2.9 percent of CMP involved youth had a prior adoption compared to 1.3 percent for youth from the overall child protection population.

The General Assembly determined that the "development of a uniform system of collaborative management is necessary for agencies at the state and county levels to effectively and efficiently collaborate to share resources or to manage and integrate the treatment and services provided to children and families who benefit from multi-agency services."[1] The legislative intent of HB 1451 was to address the increasing number of families served by more than one agency or system, which has placed significant demands on agencies' resources. The resulting CMP is designed to improve both the quality and cost-effectiveness of interventions for Colorado children, youth, and families involved with multiple governmental programs and community agencies stemming from contact with the health/mental health, education, child welfare, and juvenile justice systems.

The legislation reflects a long history of system reform in Colorado based on Systems of Care principles. Core elements include community collaboration, family involvement in service planning and delivery, and culturally appropriate services tailored to the unique needs of different populations. These elements are used to engage stakeholders outside state and local government in consensus-oriented

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[1] Colorado Revised Statute, Title 24, Article 1.9. (2010).

efforts to manage public resources and collectively solve problems. In part, community collaboration has become a hallmark of social services reform in Colorado due to research indicating its effectiveness in engaging diverse disciplines to address issues that have multiple causes and solutions.[2] The specific goals of the legislation are to:

1. develop a uniform system of collaborative management that includes the input, expertise, and active participation of parent advocacy or family advocacy organizations
2. reduce duplication and eliminate fragmentation of services provided to children or families who would benefit from integrated multi-agency services
3. increase the quality, appropriateness, and effectiveness of services delivered to children or families who would benefit from integrated multi-agency services
4. encourage cost sharing among service providers
5. lead to better outcomes and cost-reduction for the services provided to children and families in the child welfare system, including the foster care system

For those counties/communities choosing to participate in CMP, the legislation requires the development of local collaborative management structures and processes that bring together agencies and service providers. Local stakeholders participate in CMP through membership in an Interagency Oversight Group (IOG). To be eligible to receive earned incentive funding in support of the collaboration, the statute requires that IOGs:

1. include all 10 mandatory partners: county departments of human/social services, local judicial districts, health departments, school districts, community mental health centers, behavioral health organizations, probation departments, DYS, domestic violence service providers, and managed service organizations for the treatment of drugs and alcohol
2. establish a collaborative process that addresses risk sharing, resource pooling, performance expectation, outcome monitoring, and staff training
3. implement Individualized Services and Support Teams (ISST) through which integrated services are delivered to children and families who would benefit from integrated multi-agency services

1.2. CMP Evaluation

Research has demonstrated that interagency collaboration yields important benefits including: increased probability of improvement in child, youth, and family outcomes; maximization of available resources for the provision of services; increased coordination within and among service delivery systems; and shared responsibility across systems and service providers.[3] In 2008, House Bill 08-1005 outlined specific reporting requirements for local CMPs and authorized an annual external evaluation of the CMP. The legislation requires that local sites report on the: (a) number of children and families served through their Individualized Service and Support Teams and the outcomes of the services provided; (b) estimated costs and cost-shifting or cost-savings related to CMP efforts; and (c)

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[2] U.S. Department of Health and Human Services. (2010). *Guiding principles of systems of care*.
[3] California Department of Education. (2007). *Handbook on developing and evaluating interagency collaboration in early childhood special education programs.*

information relevant to improving the delivery of services to persons who would benefit from multi-agency services. To determine if the CMP is working as designed, the evaluation seeks to answer the following key questions:

1. Is CMP meeting legislative intent in key population, systems, services, and outcome components?
2. Are CMP structures/processes improving cross-agency collaborations at the local level?
3. What are the outcomes for CMP involved children/youth?
4. Which CMP models/components are most effective?
5. Is there cost effectiveness associated with CMP?
6. What is the family experience with CMP?

2. Process Evaluation

The process evaluation examines the implementation of CMP to provide practitioners, policymakers, and stakeholders with essential information about how site-level CMPs are working together to achieve the goals and outcomes outlined in the legislation. The evaluation team utilizes quantitative and qualitative methods that build upon previous CMP process measures. In addition, the process evaluation explores program successes and challenges, and provides contextual information for interpreting the results of the outcome and cost evaluations.

2.1. Process Evaluation Plan

The process evaluation examines three key topic areas related to CMP implementation: (1) collaborative structures and processes; (2) system integration; and (3) family engagement. The design for the process evaluation consists of primary and secondary data collection and analysis to track process measures and metrics for IOG and ISST implementation, coordinated service provision, family engagement experience, and interagency collaboration. The primary data sources for the process evaluation are the Efforts to Outcomes (ETO) database, Memoranda of Understanding (MOUs), Trails, and family voice surveys.

2.1.1. Examining Factors of Collaboration in CMP

For SFY19, collaboration was advanced and measured by the evaluation team's engagement in four primary initiatives: (1) Child Welfare & Education Integration Project; (2) CMP Practice Committee activities; (3) CMP and Colorado's Trauma Informed System of Care (COACT) family assessment collaborations; and (4) CMP Family Voice Survey.

Child Welfare & Education Integration Project: The Child Welfare and Education Integration project is coordinated by CDHS to develop a more holistic set of child-level educational data to better inform decision-making and improve cross-systems coordination. The evaluation team has contributed to this project by sharing lessons learned in accessing data across human service systems for the CMP evaluation. As education is the one system in which CPM data has not yet been secured, the project offers an opportunity for collaboration regarding data sharing and use. The evaluation team will continue to participate in the project during the next fiscal year.

CMP Practice Committee: The evaluation team is working with the CMP Practice Committee to disseminate county-specific findings from the Collaboration Survey to inform practice at the local level. The counties plan to use the results to enhance collaboration of mandated partners in their IOGs and enhance services and meetings provided to multi-system involved youth and their families.

CMP and COACT Family Assessment Collaborations: The evaluation team has initiated conversations with evaluation representatives from COACT, housed in the CDHS Office of Behavioral Health, regarding family assessment collaboration potentials. Briefly, COACT[4] is a system of care that wraps around children and youth with behavioral health challenges and their families, building from existing infrastructure such as CMP. Because of the shared foundation of goals and complementary approaches between CMP and COACT, evaluation representatives from CMP and COACT began exploring opportunities to elevate both programs through collaborative family assessment activities. For example, the evaluators are actively discussing ways to use findings emerging from family assessments in each program to better understand and amplify family experiences of mental and behavioral health in Colorado. The evaluators are also exploring the potential to implement shared family engagement measures in each program, to more holistically assess family experience within and across complementary systems in the state.

CMP Family Voice Survey: This year, a key process evaluation activity that speaks to the centrality of collaboration in CMP was the Family Voice Survey. Here, families were situated as full partners in both the practice and evaluation of CMP. Complete results of the Family Voice Survey are included in Section 2.2 of this report.

The CMP Family Voice and Choice Committee served as a key collaborating partner in both CMP and COACT joint efforts and in the CMP Family Voice Survey. The CMP Family Voice and Choice Committee is comprised of CMP coordinators, family representatives, and stakeholders from other intersecting programs. This committee works to ensure the centrality of family voice and choice in the planning and delivery of programs, services, and practices.

Collectively, these four collaboration activities add depth to findings from collaboration surveys administered in previous evaluation years, illuminating the layered dimensions of CMP collaboration experiences and outcomes. Additionally, these activities help to expand stakeholder representation in measurements of collaboration and in using findings to inform practice changes. Taken together, what emerges is a holistic picture of the vital role every CMP partner plays in advancing positive impact for children, youth, and families served.

2.1.2. Assessing System Integration

System improvements that result in streamlined, coordinated, and high-quality services for families are at the heart of the CMP approach. Given the complexity of systems, the variation in local approaches, and the voluntary nature of the program, statewide progress in these areas can be difficult to quantify. Process measures developed for the CMP evaluation are applied as proxy indicators to assess systems

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[4]To learn more, visit: https://coactcolorado.org/

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integration. These data are used to address the question of whether CMPs are affecting positive changes throughout their social service delivery systems. Each CMP was required to meet three of the following six process measures to receive the meaningful minimum established by DCW: However, the cost sharing process measure was not reported for SFY19 due to data collection limitations.

1) **IOG meeting attendance**. Members of the IOG will be present at 75% of the meetings in a fiscal year. Sign-in sheets and meeting minutes will confirm attendance.
2) **Family agency or member participation on the IOG as a voting member**. A voting family agency or member will attend 50% of all IOG meetings held within the fiscal year. Sign-in sheets and meeting minutes will confirm attendance.
3) **Seventy-five percent (75%) of the agencies contribute resources at service level, either in-kind or actual monies**. Memorandum of Understanding (MOU) will show that 75% of the agencies listed in the Funding Resources Table are contributing in-kind or actual monies.
4) **Use of evidence-based or evidence-informed practices.** At least one evidence based, or evidence informed practice will be implemented under the IOG, as reflected in the expenditures section of the annual report.
5) **Process of continuous quality improvement (CQI) used by the IOG.** IOG will meet no less than quarterly and meeting minutes will reflect the continuous quality improvement practices used to inform and improve efforts.
6) **Evidence of cost-sharing among IOG members.** Cost-sharing will be reflected in the expenditures section of the annual report.

2.1.3. Evaluating Family Engagement

Family experience is a crucial measurement of CMP impact, as families are the focal partner of both program intent and success. Yet, despite a shared desire across CMP stakeholders for family engagement data, eliciting family voice in evaluation is a well-known and persistent challenge requiring novel solutions.[5] To address this challenge and ensure every CMP family has an opportunity to be meaningfully heard, the evaluation team worked with DCW staff, CMP site coordinators, and the CMP Family Voice and Choice Committee to develop and administer a data collection approach that leverages innovative practices for access and inclusion in family engagement research.

2.2. Process Evaluation Results

Results from the process measures and collaboration survey are presented in this section of the report.

2.2.1. Process Measures Achievement

Table 1 presents a summary of the percentage of CMP sites meeting the process measures they selected in their MOUs. The contribution of resources at the service level by seventy-five percent of agencies was achieved by 100 percent of CMPs that selected that process measure; family participation in IOGs was

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[5] National Research Council. (2014). *New directions in child abuse and neglect research*. Washington, DC: The National Academies Press. https://doi.org/10.17226/18331

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achieved by 100 percent of CMPs; the use of evidence-based practices was achieved by 97 percent of CMPs; the use of CQI by IOGs was achieved by 88 percent of CMPs; and attendance by mandatory members of the IOGs was achieved by 50 percent of CMPs. The overall high level of achievement for process measures was consistent from SFY18 to SFY19.

Table 1: *SFY19 Process Measures Achieved by CMPs*

	CMPs Achieving	
Process Measures	**Number**	**Percent (%)**
Seventy-five percent (75%) of the agencies contribute resources at service level, either in-kind or actual monies (*n* = 38)	38	100.0
Family agency or member participation on the IOG as a voting member (*n* = 33)	33	100.0
Use of evidence-based or evidence-informed practices (*n* = 31)	30	96.8
Process of CQI used by the IOG (*n* = 34)	30	88.2
IOG meeting attendance (*n* = 30)	15	50.0

2.2.2. Family Voice Survey

The Family Voice process evaluation activity employed survey methodology and purposeful sampling[6] to elicit family experiences with ISST meetings[7], a core family engagement activity of CMP. Data collection occurred over a 12-month period, with all families participating in an initial or review ISST meeting between April 1, 2019 and March 20, 2020[8] invited to take the survey. An "initial meeting" was defined as the first ISST meeting the family attended within the CMP structure. "Review meetings" were defined as subsequent ISST meetings the family attended as part of their ongoing engagement with CMP. Each meeting type (initial versus review) received its own survey version that reflected questions specific to an initial ISST meeting experience compared to an ongoing ISST meeting experience. The primary caregiver, or target youth for older youth-centered ISST meetings, were eligible to complete the survey on behalf of their family.

Survey administration occurred through a comprehensive approach that rested on the principles of access and inclusion. CMP sites acted as the recruitment interface for survey administration. Specifically, CMP site coordinators and meeting facilitators served as trusted community partners to introduce families to the survey and invite their participation. CMP sites were provided an onboarding webinar,

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[6] Palinkas, L. A., Horwitz, S. M., Green, C.A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed methods implementation research. *Administration and Policy in Mental Health and Mental Health Services Research, 42*(5), 533-544. doi: 10.1007/s10488-013-0528-y

[7] ISST meetings are referred to as "family meetings" in the Family Voice Survey.

[8] Data collection was initially scheduled to close on 3/31/2020 to account for a full 12-month period; however, due to the COVID-19 global pandemic, data collection ended 10-days early.

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technical documentation, recruitment templates, and ongoing technical assistance by the evaluation team to support survey recruitment.

Following an ISST meeting, the family meeting facilitator, family advocate, or site coordinator would recruit families for survey participation using a postcard recruitment visual aid (Exhibit A, below). The recruitment postcard served as an administration touchpoint for families and included multiple routes for accessing the survey. A family could access the survey by typing in a short web address to an internet browser on a phone, tablet, or computer; by scanning a QR code using a free QR scanner app; or by texting a short code to a five digit number to receive the survey link in a text response. In addition, if a family did not have access to the internet or other technology, or if they otherwise needed hands-on support for survey participation, each CMP site provisioned a tablet or computer for families to take the survey on-site following ISST meeting completion. CMP sites were also encouraged to follow-up with families using standard communication means (email, phone, text) to remind them of the survey invitation; families were asked to complete the survey within two to three weeks of the meeting experience. These multiple routes and use of visual aids with reminders were critical to ensuring all families had an access point that best suited their needs and preferences.

Exhibit A: *Family Voice Survey Recruitment Postcards*

Survey access and inclusion in design was further bolstered by integrating linguistic and literacy considerations into survey instrumentation development. Survey statements were developed using a cognitive interviewing process[9] to ensure language resonated with families and was understandable to diverse participants with varying literacy levels. In addition, all survey materials were available in both English and Spanish.

Finally, in commitment to family-centered evaluations that respect family time, a low burden design approach was employed, wherein the survey took only five to fifteen minutes to

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[9] Willis, G. (2018). Cognitive interviewing in survey design: State of the science and future directions. In D. Vannette & J. Krosnick (Eds.), *The Palgrave Handbook of Survey Research* (pp. 103-107). London: Palgrave Macmillan, Cham. DOI: https://doi.org/10.1007/978-3-319-54395-6_14

complete, depending on how many narrative comments the participant wished to share. Additionally, a participant incentive in the form of a $10.00 gift card[10] was used to promote adequate sample sizes and as an expression of gratitude for sharing familial lived experiences.

Close-ended survey questions were descriptively analyzed[11] using a 6-point Likert scale of agreement with an option to not disclose ("I prefer not to answer"). Thematic and content analysis[12] was applied to narrative responses.

Response Rates

A total of 422 surveys[13] were collected during the 12-month data collection period (*n* = 203 initial family meeting surveys; *n* = 219 review family meeting surveys). Figure 1 and Figure 2 (on the following page) demonstrate trends in initial and review survey responses by month, respectively. Survey trends reflected periods of program flow and greater service engagement, where survey responses peaked during the school year (when more ISST meetings are conducted) and dropped off in the summer (when ISST meeting engagement slows down). Ninety-two percent of current CMP sites[14] were represented in the survey dataset, with 80.5% site representation in the initial family meeting survey and 75.0% site representation in the review family meeting survey. County-specific results for CMP sites that achieved a response rate of >10 surveys will be made available to CMP sites.

Figure 1: *Initial Family Meeting Survey Response Trends*

Initial Family Meeting Survey Responses by Month

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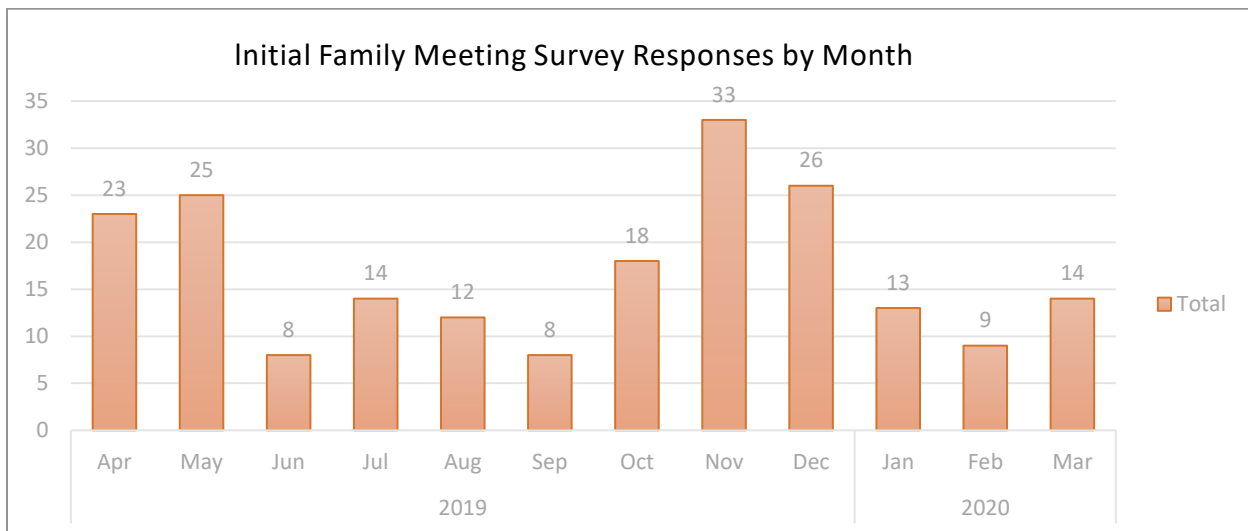
[10] Because this was a statewide evaluation, families were able to choose a gift card to Kroeger, Safeway, or Walmart, reflecting store availability in varying geographic areas of Colorado.
[11] Sirkin, M. R., 2005. *Statistics for the Social Sciences* (3rd ed). Thousand Oaks, CA: Sage Publications.
[12] Creswell, J. & Poth, C. (2018). *Qualitative inquiry & research design.* Thousand Oaks, CA: Sage Publications, Inc.
[13] At this time, a response rate of surveys received in comparison to total ISST meetings conducted in the same 12-month data collection period are not available.
[14] Site representation rates were calculated using a denominator of all CMP counties currently participating in the program at survey end, March 2020. One survey respondent indicated "I don't know/Unsure" for the CMP county question; this respondent is included in survey findings and total response rates, but not site representation calculations.

Figure 2: *Review Family Meeting Survey Response Trends*

Review Family Meeting Surveys by Month

Apr: 13
May: 19
Jun: 17
Jul: 8
Aug: 13
Sep: 4
Oct: 20
Nov: 41
Dec: 36
Jan: 20
Feb: 18
Mar: 10

2019 | 2020

Legend: Total
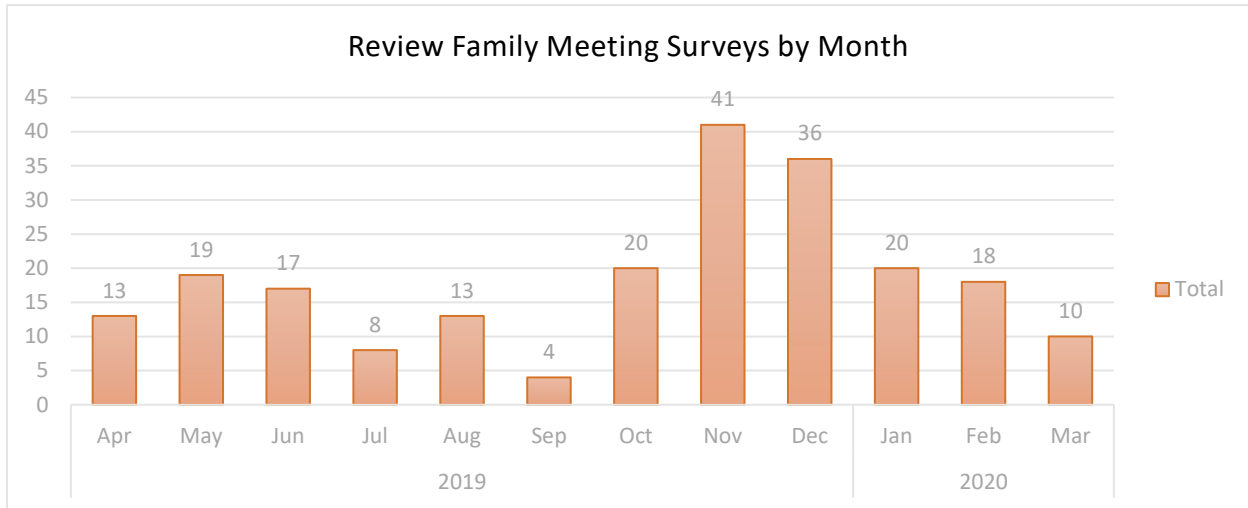
Initial Meeting Survey Results

The initial family meeting survey included 19 close-ended statements of family meeting experience and one open-ended question that invited families to provide broad narrative feedback. Initial survey findings are divided into three domains that reflect how a family would move through their first ISST meeting: before meeting expectations, during meeting experiences, and after meeting effects. As averaged across all initial family meeting survey statements, 79% of participants agreed with statements of positive expectation, experience, and effect.

Before meeting expectations. Before meeting expectations were represented by three survey statements. As illustrated in Figure 3, 83% of participants said the family meeting was explained to them, 82% felt they were encouraged to attend, and 77% indicated the meeting was planned with their family's scheduling needs in mind.

Figure 3: *Initial Survey Findings: Before Meeting Expectations*

The purpose of the family meeting was explained to me and my family. — 14.3% / 69.0%

My family and I were encouraged to attend the family meeting. — 7.9% / 74.9%

The family meeting was planned with my family's scheduling needs in mind. — 12.3% / 65.0%

Legend:
- I prefer not to answer
- Strongly disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Strongly agree
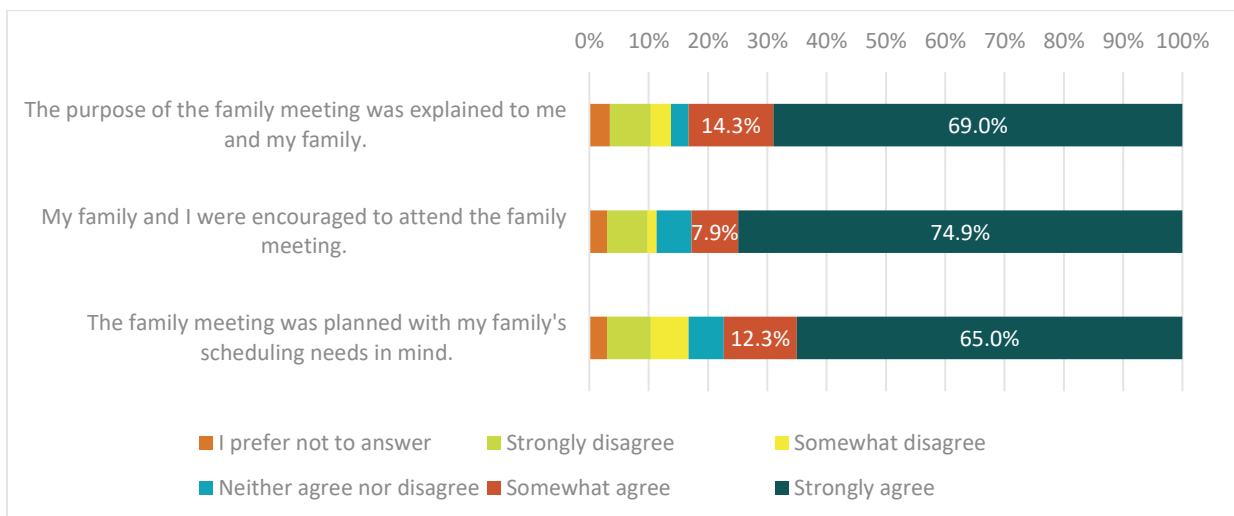
During meeting experiences. During meeting experiences were represented by ten survey statements. As illustrated in Figure 4, the majority of participants felt their ideas were heard (78%), they were able to ask questions (85%), they were given time to talk things important to their family (81%), they were comfortable expressing themselves (78%), and things were explained to them in an understandable way (86%). In addition, participants majorly reported that family strengths (76%), family concerns (84%), and service options (77%) were included in meeting discussions. Conversely, only 56% of participants said that their family's cultural needs were included in the dialogue. Finally, 81% of families indicated that they participated in goal development during the meeting.

Figure 4: *Initial Survey Findings: During Meeting Expectations*
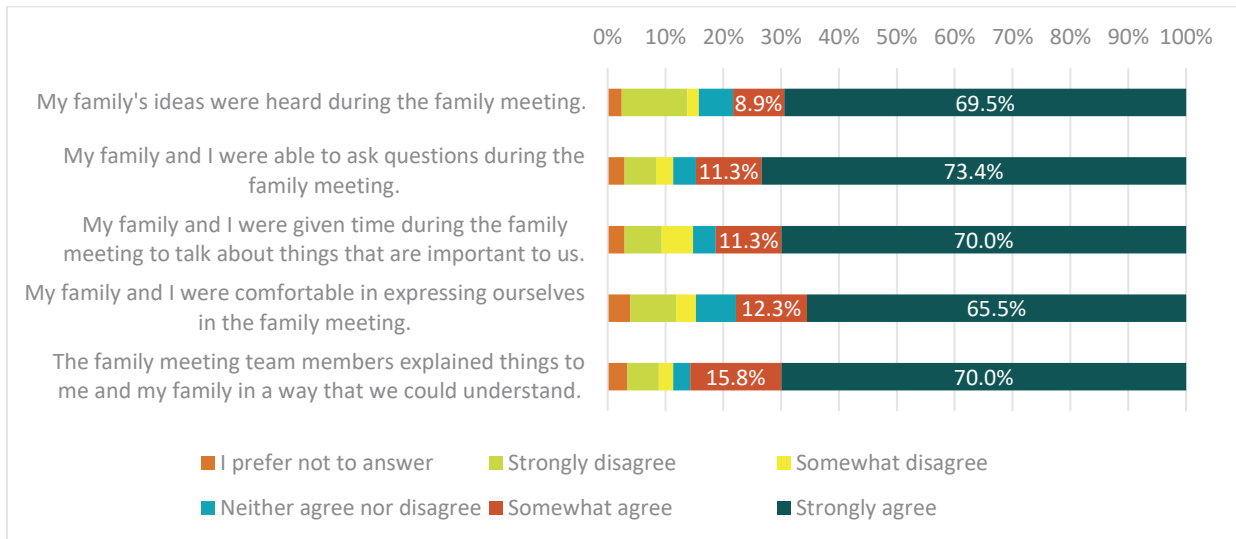

Figure 4: *Initial Survey Findings: During Meeting Expectations (cont.)*
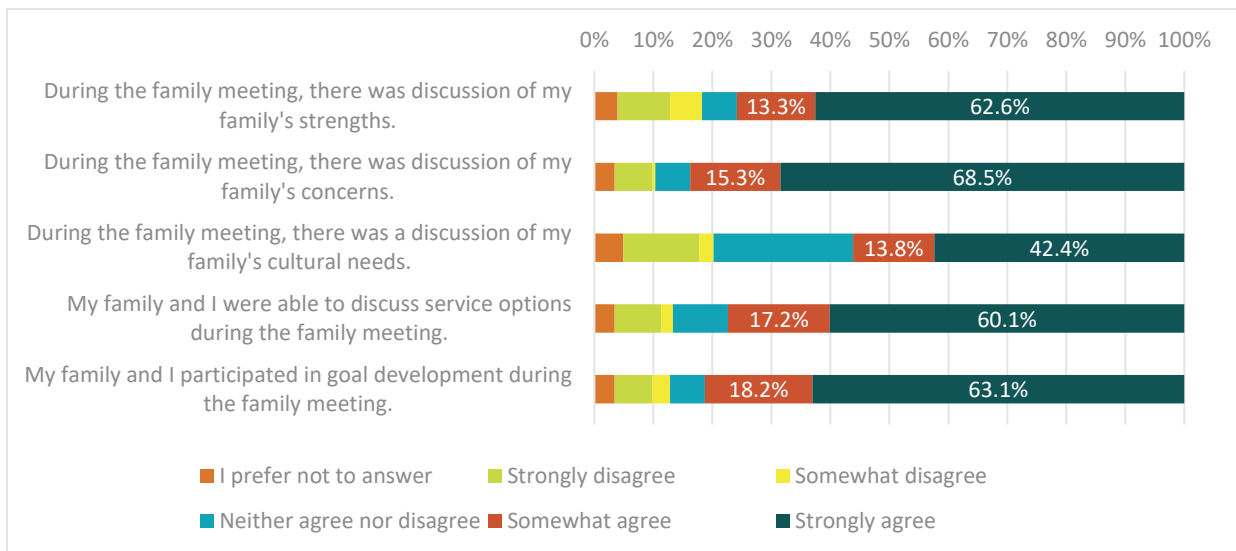
After meeting effects. After meeting effects were represented by six survey statements. As illustrated in Figure 5, 77% said that next steps were developed with their family's strengths in mind and 81% agreed that next steps could be carried out by their family. Following, 78% felt they left the meeting with a clear understanding of what was expected of them and 78% felt they had a clear understanding of what was expected of other team members. In terms of post-meeting follow-up, the majority of families indicated they knew who to contact with questions (84%), but only 68.5% said they received a copy of their plan.

Figure 5: *Initial Survey Findings: After Meeting Effects*
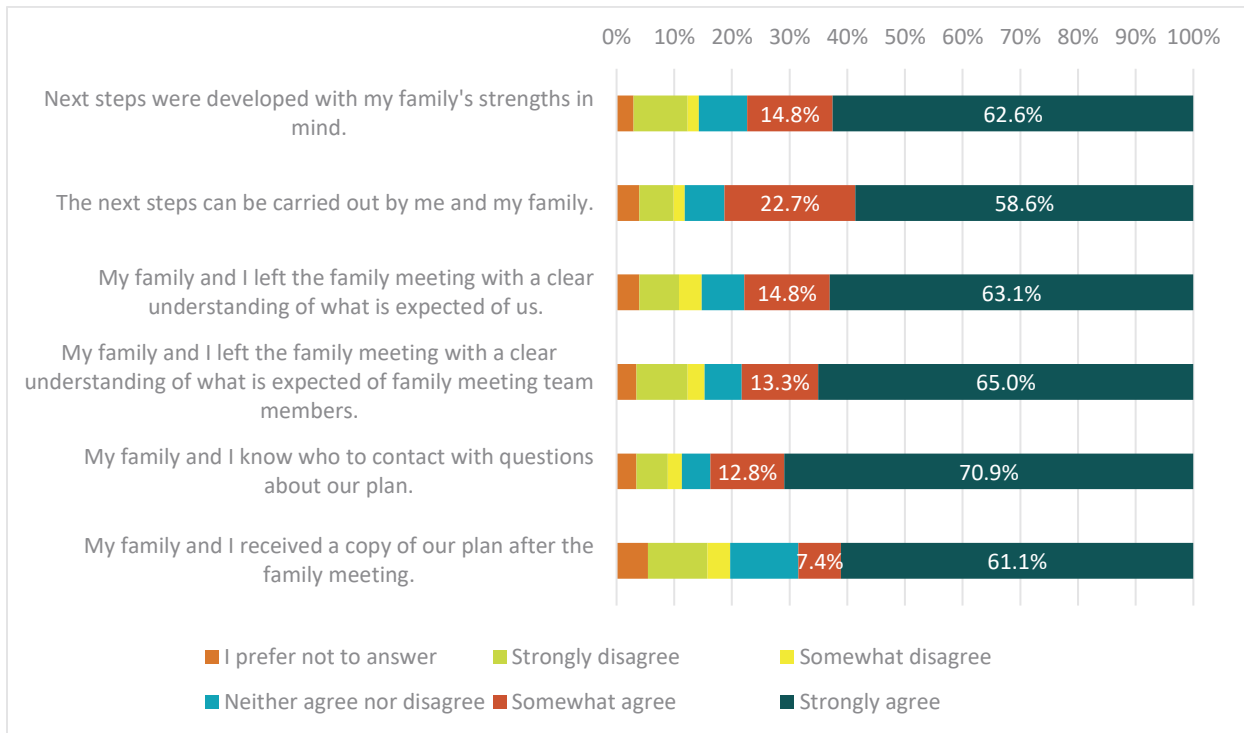
Initial survey qualitative themes: Three themes emerged from the analysis of broad narrative feedback received on the initial survey: (1) Expanded understanding of options, resources, and services; (2) Confidence-building and strength-based development; and (3) Initial confusion with limitations in meeting structure. In the first theme, participants spoke to the ways in which the initial ISST meeting experience revealed to them expansive options, resources, and services that could support their family. For many families, they were unaware of community-level and system-level supports available to address complex needs and support their caregiving. As such, CMP served as a first entry point into prevention and intervention practices for family strengthening and positive youth development. One participant remarked, "The group is amazing, thoughtful, and they get things done for families in need. I would recommend this team to any family I know that needs the extra help" while another stated, "I am thankful for the services that are provided to help out us as parents and make our kids better." This first theme also revealed the importance of skilled facilitation and coordination in services, which participants consistently commented on as a strength of the program.

In the second theme, families expressed deep appreciation for the ways in which ISST partners created welcoming environments that nurtured their confidence and focused on bolstering their strengths rather than deficits. Here, participants spoke specifically to the importance of creating comfortable spaces that feel non-judgmental and strength-based. As one participant said, "All present were friendly and helpful. We felt at ease, and I commend the [facilitators] for their professionalism and knowledge." Another participant explained, "[My facilitator] is a wonderful sweet and strong woman. She makes me feel that she cares about my family's safety and well-being when I have no one else. She is helping me take the baby steps when I'm scared and overwhelmed. I am strong and she helps me see that in my low times."

In the third theme, narratives revealed how there is some confusion about the purpose of the ISST meeting and the structure of the CMP program in coordinating across systems. For instance, some participants remarked that they did not understand why so many people were involved at the very onset and how the sheer number of partners that attend ISST meetings can feel overwhelming (even when the meeting was experienced overall as positive). Others described how the very nature of complex needs and family-centered planning necessitates more time and effort than the initial ISST meeting allowed for. As one participant explained, "While time is always a consideration for both family members and team members, often the complexity of the issues requires more time to explore than is allowed."

Review Meeting Survey Results

The review family meeting survey included eight close-ended statements of family meeting experience and two open-ended questions that invited families to provide broad narrative feedback as well as specific narrative feedback on unmet needs. Review family meeting survey findings can be divided into three domains of effort: communication, collaboration, and impact. In total, 87% of participants agreed with statements of positive communication, collaboration, and impact.[15]

Communication. Communication experiences were represented by three survey statements. As illustrated in Figure 6 on the following page, 88% of participants said they were comfortable calling team members with questions, 85% said they received follow-up communication from team members since the first meeting, and 90% believed team members knew the progress their family had made on the co-developed plan.

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[15] As averaged across six of the eight review family meeting survey statements. Two statements on the review survey were inversely worded to demonstrate undesirable experiences; these were excluded from the aggregate analysis of agreement with statements of positive experience.

Figure 6: *Review Survey Findings: Communication*
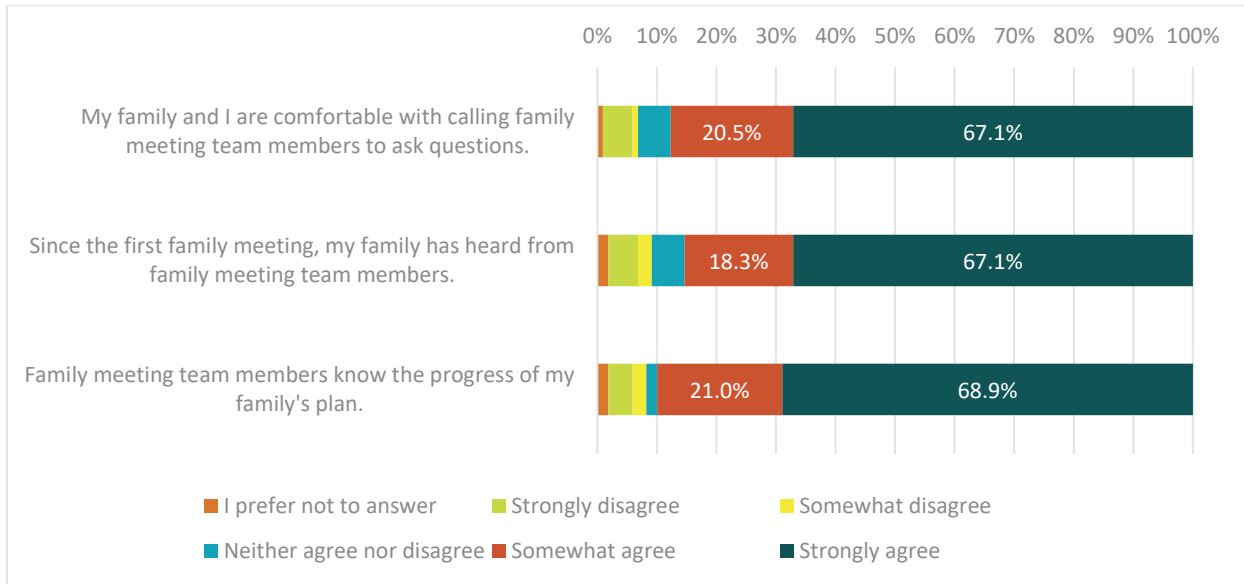
Collaboration. Collaboration experiences were represented by three survey statements. As illustrated in Figure 7, the vast majority of participants (85%) felt team members collaborated successfully in serving their family. Conversely, 53% indicated they had to update information about their family multiple times to different team members, while 47% indicated different team members asked their family to do the exact same task. These latter two results are categorized as undesirable experiences of duplication and repetition during team member collaboration processes.

Figure 7: *Review Survey Findings: Collaboration*
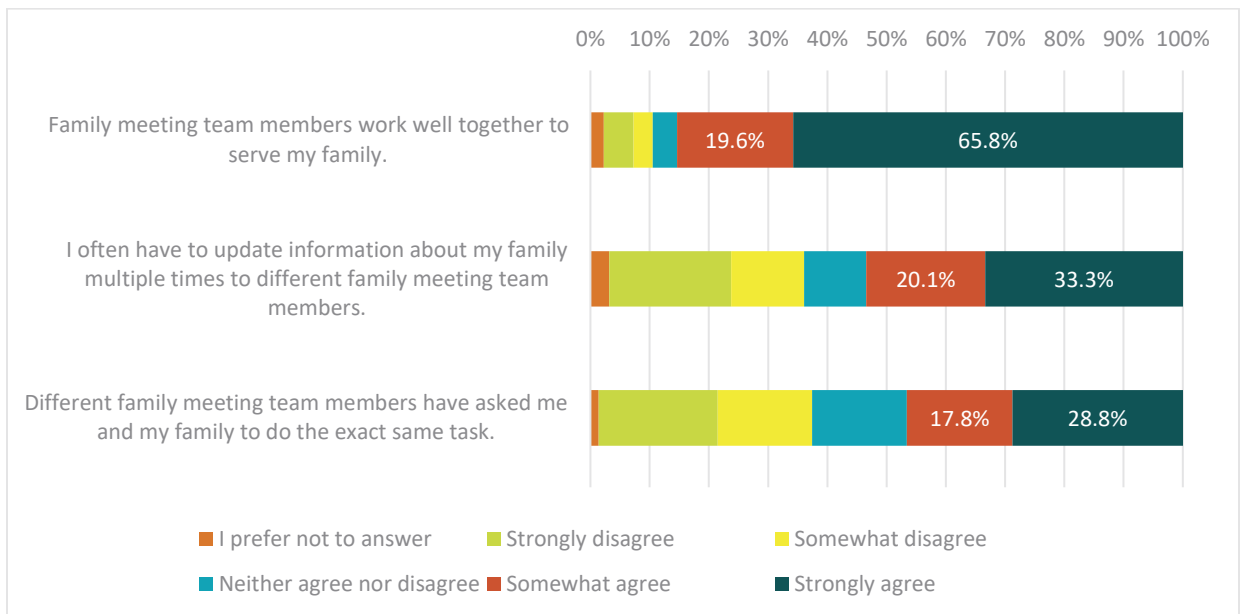
Impacts. Ultimate impacts of family engagement with ISST meetings, as a core CMP activity, were represented by two survey statements. As illustrated in Figure 8 on the following page, participants

majorly reported that engagement with ISST meetings was helpful to their family (84.9%) and that the co-developed plan had met their family's needs (85.4%).

Figure 8: *Review Survey Findings: Impact*
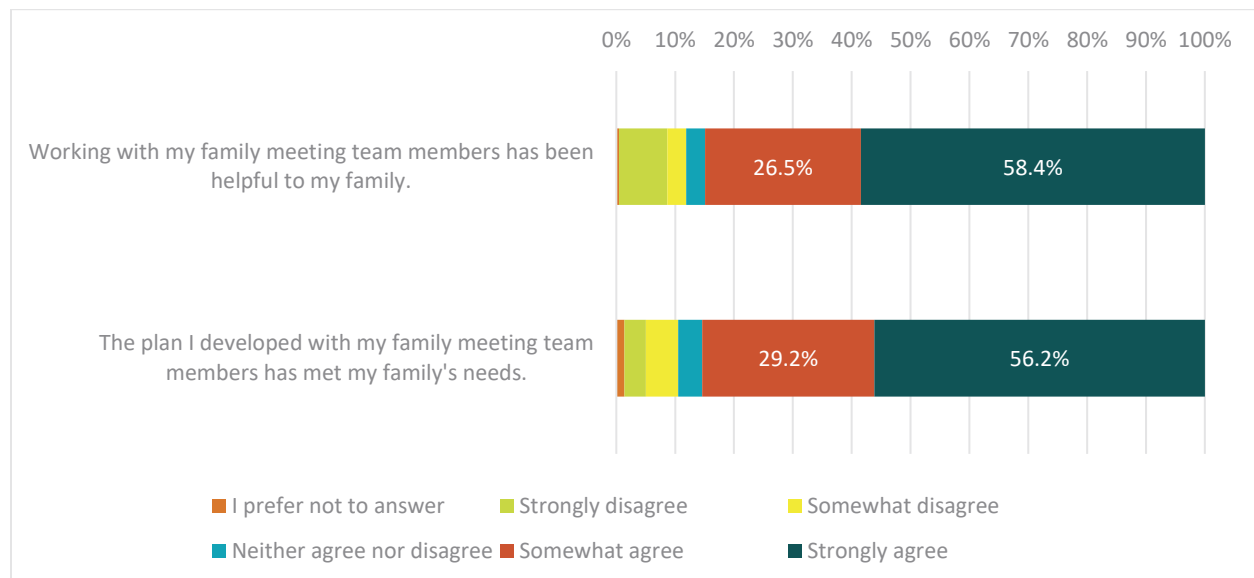
Unmet needs: If a family answered anything below "agreement" with the survey statement, "The plan I developed with my family meeting team members has met my family's needs," an open-ended question would display that asked the participant to "Please describe which needs were not met by the plan." Thirteen percent of participants indicated that the co-developed plan had not fully met their needs; analysis of their narrative responses revealed two overarching areas of unmet needs: (1) Follow-through by and communication across partners; and (2) Ongoing, complex needs without clear solutions. In the first theme, participants spoke to how some team members did not follow through with their stated commitments, allowing services to "fall through" and otherwise not being held accountable to the co-developed plan. For a small portion of families, confounding this issue was what participants experienced as "misleading" communication, where concerns raised by others either were not validated (by family perception) or where the premise of the meeting was not transparently outlined at the onset. In the second theme, participants expressed how some needs are so complex that immediate solutions are unclear, or the services/resources needed to address are unavailable in their locale. Narrative comments also revealed how families experience ongoing needs that may extend beyond the end of the plan developed during ISST engagement. As such, even when initial needs are met by the plan, new needs may emerge that necessitate continued program engagement or revised solutions.

Review survey qualitative themes: Three themes emerged from the analysis of broad narrative feedback received on the review survey: (1) Delivery of coordinated, individualized services; (2) Feelings of supportive care; and (3) Tensions between family needs and system response. In the first theme, participants spoke to the ways in which the ISST structure helped their family to navigate complex needs by tailoring service coordination and resource connection to their specific family context. As one participant said, "This is an amazing resource that has been extremely helpful in navigating my family

through a very difficult process. The level of care the team put together to help support my family is extraordinary." Another echoed, "Our son has had a very difficult time, but [our facilitator] has been able to locate and organize local resources to help his emotional health improve. If not for [CMP site] and [our facilitator], our family would be in real trouble."

In the second theme, families extensively remarked on an ethos of non-judgmental support they experienced in ISST meetings, underscored by feelings of being genuinely cared for and heard. One participant explained, "Team members are very caring. We feel like they [are] really sincere in words and actions to help our family" while another remarked "Our team is simply amazing. I am so blessed and thankful to be in this community. Having a child with severe needs, a lot of the normal family support falls off. So, the support we're getting is absolutely priceless and so very appreciated."

In the third theme, areas for improvement emerged as some families struggled with issues of sustained respect and inadequate system response. Specifically, a small portion of caregivers felt that at times, they were treated as a "criminal" or "child" and spoken to in a condescending, non-empathetic way. Others explained that the very thing that makes CMP so positively impactful—collaboration across multiple systems—also comes with inherent logistical and interpersonal challenges. For instance, on the logistical plane, some ISST meetings have a large proportion of phone callers that can cause difficulty in dialogue and coordination; on the interpersonal plane, large numbers of system representatives can feel overwhelming to a family and impede their ability to be truly heard. Such challenges are then amplified when structural barriers present during next steps planning and ISST dialogue. As one participant said, "Sometimes I feel my voice and frustration at the broken system is not heard. Being in 'crisis' is not an easy place to be and to have patience while time passes when it seems like nothing is been done or followed up on is so exhausting." Others described frustration with a lack of resources available or provided timely and where family-led solutions were needed: "[There is a] need to start hearing the family and their needs and making a plan based upon that instead of what they [agency partners] think the needs are. Also, if you have resources but none of them are available at the time they are needed what's the use."

Implications

Collectively, findings illuminate how CMP enacts the guiding principles of trauma-informed care[16]— safety, trust, collaboration, peer support, root issues, and empowerment—and exemplifies integrated service delivery[17] to strengthen families and communities in sustainable, holistic, and meaningful ways. Universal continuous quality improvement alongside targeted areas for practice growth will further advance these positive findings and situate CMP as a leading model for family-centered collaborative care practices that address the complex needs of multi-system-involved youth. In the words of one participant, "It [CMP] is so positive and life changing . . . "Thank you for helping my family."

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[16] Centers for Disease Control & Prevention (CDC) and Substance Abuse & Mental Health Services Administration (SAMSHA). (2018). *Six guiding principles to a trauma-informed approach*. Available at: https://www.cdc.gov/cpr/infographics/6_principles_trauma_info.htm

[17] Schweitzer, D. D., Pecora, P. J., Nelson, K., Walters, B., & Blythe, B. J. (2015). Building the evidence base for intensive family preservation services. *Journal of Public Child Welfare, 9*, 423-443.

3. Outcome Evaluation

In combination with the process and cost evaluations, the SFY19 outcome evaluation is designed to answer critical questions about the various populations served by CMP and to determine whether the program is effective in improving the outcomes of clients involved in multiple systems. CMP serves two distinct subpopulations, characterized by whether clients are served by a CMP prevention program (i.e., "Prevention population") or by a traditional CMP program (i.e., "ISST population"). The prevention population comprises children/youth who are served by CMP-prevention programs designed to prevent involvement in multiple systems. In contrast, the ISST population consists of children/youth who are dually involved in the child welfare, juvenile justice, education, or health/mental health systems and are served collaboratively through an ISST meeting structure.

Previous evaluations[18,19] have documented the difficulties in accessing outcome data for the prevention and ISST populations and the associated challenges in rigorously evaluating CMP. These difficulties have included enduring challenges in accessing outcome data across various domains and disparities in the ability to access data on comparison populations of children/youth who were eligible but not served by the program. Given these difficulties, the SFY19 outcome evaluation once again employed a two-part evaluation design. The evaluation team first used a non-experimental, descriptive research design to provide preliminary insight into outcomes across multiple client subpopulations, while using a quasi-experimental research design to examine the program's effectiveness in improving child welfare, health/mental health, and juvenile justice outcomes. The evaluation team utilized a similar period of analysis for both research designs consisting of children/youth who were served by CMP in SFY18, while the team examined outcomes one year later using data on the performance measures collected in SFY19.

The SFY19 outcome evaluation comprises five parts: (3.1) review of the SFY18 CMP performance measures; (3.2) overview of the outcome evaluation's design; (3.3) descriptive analyses of the CMP populations and the program performance measures; (3.4) detailed overview of the quasi-experimental research designs and the associated findings; and (3.5) discussion of next steps for subsequent outcome evaluations of the program.

3.1. Performance and Outcome Measures

Throughout the history of CMP, CDHS has used a collection of performance measures to examine the program's effectiveness. These performance measures were developed by CDHS and program stakeholders to examine the intermediate outcomes of children/youth in the ISST population who were served by the program under the four domains: child welfare, juvenile justice, education, or health/mental health. The SFY18 performance measures are presented in Table 2 on the following page.

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[18] Winokur, M., Holmquist-Johnson, H., Lee, C., Timpe, Z., Elgin, D. J., Smith, J., & Barbosa, J. (2017). *Collaborative Management Program evaluation state fiscal year 2016 evaluation report*.

[19] Winokur, M., Lee, C., Timpe, Z., Holmquist-Johnson, H., & Elgin, D. J. (2018). *Collaborative Management Program evaluation state fiscal year 2017 evaluation report*.

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Table 2: *SFY18 Performance Measures*

Performance Measure	Data Source(s)	# of CMPs Selecting
Child Welfare		
Increase safety of child and youth. Percent of CMP youth with no substantiated abuse finding after CMP services began.	Trails/ETO Data	**24**
Increase the number of children/youth who remain home. Percent of children/youth who remained safely in their home during CMP involvement.	Trails/ETO Data	**8**
Decrease number of children/youth involved with child welfare.[20] Percent of CMP children/youth with no new open involvements in Trails after CMP services began.	Trails/ETO Data	**8**
Increase placement stability of children/youth. Percent of CMP children/youth who experienced two or fewer moves while in out-of-home placement.	Trails/ETO Data	**2**
Increase permanency of children/youth involved in child welfare. Percent of CMP children/youth discharged to a permanent home (adoption, reunification, legal guardianship).	Trails/ETO Data	**1**
Juvenile Justice		
Increase successful involvement with juvenile justice system. Percent of CMP youth who successfully completed probation or parole.	Trails/ETO/Judicial Data	**6**
Decrease commitment to the Division of Youth Services. Percent of CMP youth diverted from being committed to the Division of Youth Correction.	Trails/ETO Data	**6**
Prevent involvement with juvenile justice system. Percent of children/youth who did not enter into detention due to CMP involvement while involved with the CMP.	Trails/ETO Data	**4**
Decrease children/youth involved with truancy court. Percent of CMP children/youth who were diverted from involvement with truancy court while involved in the juvenile justice system.	Trails/ETO Data	**0**
Health/Mental Health		
Increase children/youth's health. Percent of children/youth with established linkages to (a) primary care provider; (b) oral care provider; (c) substance abuse provider; (d) mental health provider; or e) health insurance provider.	Trails/ETO/OBH Data	**20**
Decrease problem severity. Percent of CMP children/youth with (a) decreased problem severity, and (b) improved level of functioning on Colorado Client Assessment Record (CCAR) or similar tool while involved with CMP services.	Trails/ETO/OBH Data	**1**
Increase psychological, social, cognitive, and physical functioning. Percent of children/youth with decreased concerns according to the Trauma Screening Tool.	Trails/ETO/OBH Data	**0**

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[20] New involvements were defined as a subsequent case (traditional or Family Assessment Response with services).

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Table 2: *SFY18 Performance Measures*

Performance Measure	Data Source(s)	# of CMPs Selecting
Increase wellbeing. Percent of families with improved MST outcome indicators or successful completion of mental health treatment.	Trails/ETO/OBH Data	0
Decrease substance abuse. Percent of children/youth who successfully completed 90-day inpatient substance abuse treatment or intensive outpatient treatment.	Trails/ETO/OBH Data	0
Education		
Increase school attendance. Percent of children/youth with improved school attendance rates while involved with CMP services.	Self-Reported by CMPs	19
Decrease disciplinary problems at school. Percent of children/youth with fewer disciplinary actions (referrals, suspensions, or expulsions) while involved with CMP services.	Self-Reported by CMPs	7
Increase academic achievement. Percent of children/youth with improved academic performance while involved with CMP services.	Self-Reported by CMPs	5
Increase school stability. Percent of children/youth who had two or fewer school moves while involved with CMP services.	Self-Reported by CMPs	3
Increase successful graduation rates. Percent of children/youth who remained in school or increase ability to graduate within four years.	Self-Reported by CMPs	0

In SFY18, CMPs were required to select from among 19 performance measures across the four domains that would be used to assess performance in achieving key intermediate outcomes for CMP clients. Across these 19 performance measures, the CMPs were required to select a minimum of three they would be required to meet. The difficulties in accessing performance data for all four CMP domains pose a formidable challenge to rigorously evaluating the program. As part of the SFY15 and SFY16 evaluations, the evaluation team conducted a series of interviews with CMP Site Coordinators, focusing on how CMPs collect, analyze, and report performance data. Throughout the interviews, CMP Site Coordinators conveyed that accessing performance data within the education domain continues to be a significantly challenging task. Most notably, the extent to which data within this domain are collected and reported is subject to considerable variance across the CMPs, with many CMPs unable to effectively measure educational performance outcomes. As the evaluation team has noted within previous evaluation plans, the challenges in accessing education data have resulted in the education domain receiving comparatively less attention than the other three domains. The cumulative effect of these data and reporting issues is a minimized ability to effectively evaluate the CMP program against all 19 of the performance measures.

3.2. Outcome Evaluation Design

As summarized in Table 3, the outcome evaluation is presented in three parts across Sections 3.3 through 3.5 of this report. The first part (Section 3.3) consists of a descriptive analysis of the CMP prevention and ISST populations. Section 3.4 then details the descriptive, non-experimental evaluation designs used to examine the outcomes of the ISST population via data on the SFY18 performance measures collected one year after the date of the ISST meeting. A non-experimental evaluation design does not rely on a comparison group for causal attribution of program impact but instead uses descriptive statistics to examine the outcomes of clients served by the program. The lack of a comparison group precludes causal inference on the program's effectiveness, but the analysis of outcomes provides preliminary evidence on changes in the performance outcomes of program clients. Given the ability to access data for CMP clients with child welfare, health/mental health, and juvenile justice involvements and comparable populations of children/youth who were eligible but not served by the program, the evaluation team used a quasi-experimental design (Section 3.5) to more rigorously evaluate the program's effectiveness at improving outcomes within the three domains.

Table 3: *Overview of the Outcome Evaluation*

Section 3.3: Descriptive Analysis of CMP Clients
A descriptive analysis of the client population served by CMP, consisting of two parts:
1. Prevention population
2. ISST population
Section 3.4: Descriptive, Non-Experimental Evaluation of the ISST Population
A description of the ISST population by the following:
1. Program domain
2. Performance measure outcomes
Section 3.5: Quasi-Experimental Evaluation of Child Welfare, Health/Mental Health Outcomes, and Juvenile Justice Outcomes
Quasi-experimental evaluations of child welfare, health/mental health, and juvenile justice outcomes, consisting of two parts:
1. Detailed overviews of the quasi-experimental designs
2. Quasi-experimental evaluations comparing the outcomes of children/youth served by CMP to comparison groups of children who were eligible but not served by the program

The population of children/youth included in the outcome evaluation was served by the program (via an initial ISST meeting) during SFY18, which ran from July 1, 2017, to June 30, 2018. Outcomes of CMP clients served in SFY18 were evaluated 1 year later during the period of SFY19 (July 1, 2018, to June 30, 2019) (hereafter referred to as "SFY19 CMP clients"). The evaluation datasets consisted of pertinent demographic and case information, along with the 19 performance measures, which were measured one year after the initial ISST meeting.

3.2.1. Data Collection

The population of clients served by CMP prevention programs was included within a separate section of the ETO database that was distinct from the population of clients included in the broader ETO and Trails

databases. More specifically, children/youth included in the ETO prevention database were at higher risk of involvement in multiple systems and were served by CMP prevention programs designed to prevent multisystem involvement. Collectively, these three databases provide the outcome evaluation data for the SFY19 evaluation.

The evaluation team extracted client-level administration data from the Trails and the ETO databases. Children/youth who were involved with child welfare were included within the Trails database, which serves as the State Administered Child Welfare Information System (SACWIS) and as the official case record for children served by the child welfare system. In contrast, the ETO database provides data for children/youth who were served by CMP but were not necessarily served by the child welfare system (and included within the Trails database). Some overlap between the two databases exists and a de-duplication process was used to remove clients represented within both databases.

In subsequent steps, the evaluation team organized, cleaned, and matched the administrative data. This multistep process involved matching and de-duplicating clients from the ETO and Trails databases, generating the outcome variables, constructing a comparison pool of children/youth who could serve as potential matches for CMP clients, and pulling the requisite variables for the matching process. An overview of this process is documented in **Appendix A**. Upon completion of this process, the evaluation team provided the combined evaluation dataset to the Colorado Judicial Department's Office of the State Court Administrator (Colorado Judicial) and DYS to obtain juvenile justice outcomes for CMP clients, as well as to the CDHS Office of Behavioral Health (OBH) to obtain health and mental health outcomes for CMP clients**.**

3.3. Descriptive Analysis of CMP Clients

The descriptive analysis of the population served by the CMP program is presented in two parts. The first part provides an overview of the client population served by CMP prevention programs, while the second describes the population of CMP clients served by an ISST meeting. In SFY19, 36 sites (representing 45 counties) participated in CMP.

3.3.1. Prevention Population

In SFY19, 4,700 children/youth were served by a CMP prevention program designed to prevent involvement in multiple systems. On the following page, Figure 9 shows that 54 percent of prevention population clients were male, and 46 percent were female. Figure 10 shows that the ages of prevention population clients at the time of entry ranged from less than 1 to 21, with a mean age of 11.

Figure 9: *Prevention Population by Gender (N = 4,318)[21]*

Transgender Female or Male
Percentage: 0.21%
Count: 9

Female
Percentage: 46.25%
Count: 1,997

Male
Percentage: 53.54%
Count: 2,312
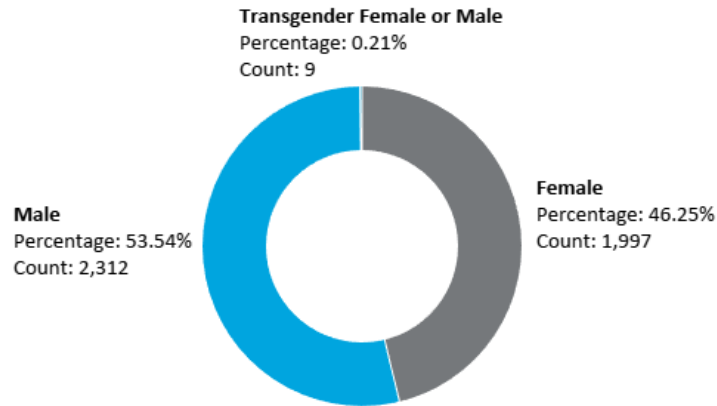
Source: ETO CMP database.

The data collected on the prevention population are currently limited to this set of demographic variables, as performance measures for the prevention population have not been established. This brief descriptive analysis provides initial insight into the demographics of the clients served by CMP prevention programs. These findings, in turn, can provide important context as DCW and CMP stakeholders work to develop a set of performance measures for CMP prevention programs.

Figure 10: *Age Distribution of Children/Youth in the Prevention Population (N = 4,770)[22]*
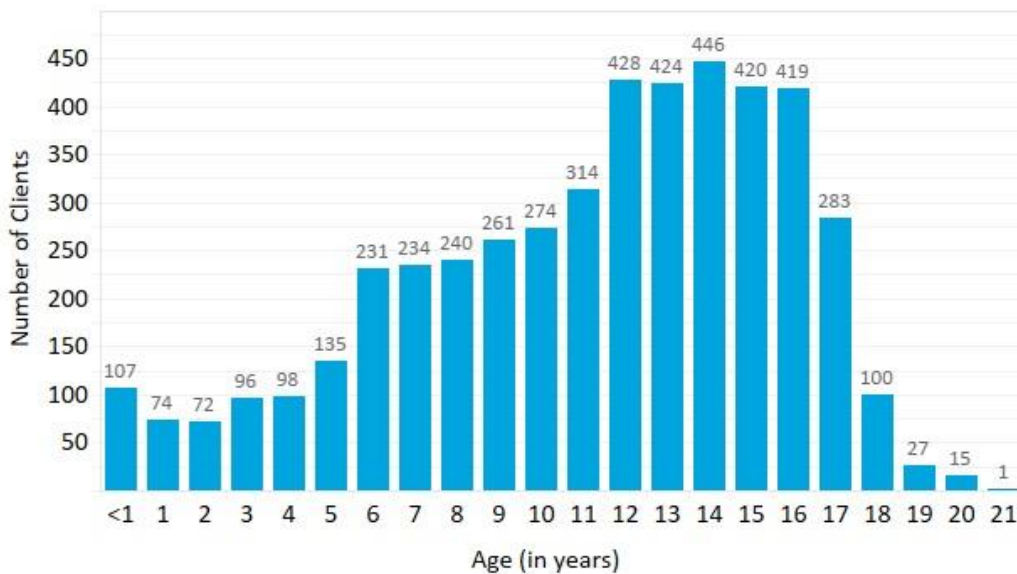
Source: ETO CMP database

3.3.2. ISST Population

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[21] Gender was missing for 382 clients in the dataset.
[22] The client's age at the time of entry into a prevention program was calculated by subtracting the client's date of birth from the program start date and dividing by 365.25 days.

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During SFY19, the 35 CMPs (representing 44 counties) served 6,582 distinct children/youth via ISST meetings. As with previous years, this population is notably larger than the population of CMP's 4,700 prevention clients. As shown in Figure 11, 54 percent of ISST clients were female while 46 percent were male.

Figure 11: ISST *Population by Gender (N = 6,349)*[23]

Male
Percentage: 54.02%
Count: 3,430

Female
Percentage: 45.98%
Count: 2,919

Source: Trails and ETO CMP databases.

As displayed in Figure 12, the ages of CMP clients ranged from under a year to 21, while the mean age was 8.9.

Figure 12: *ISST Population by Ages (N = 6,582)*
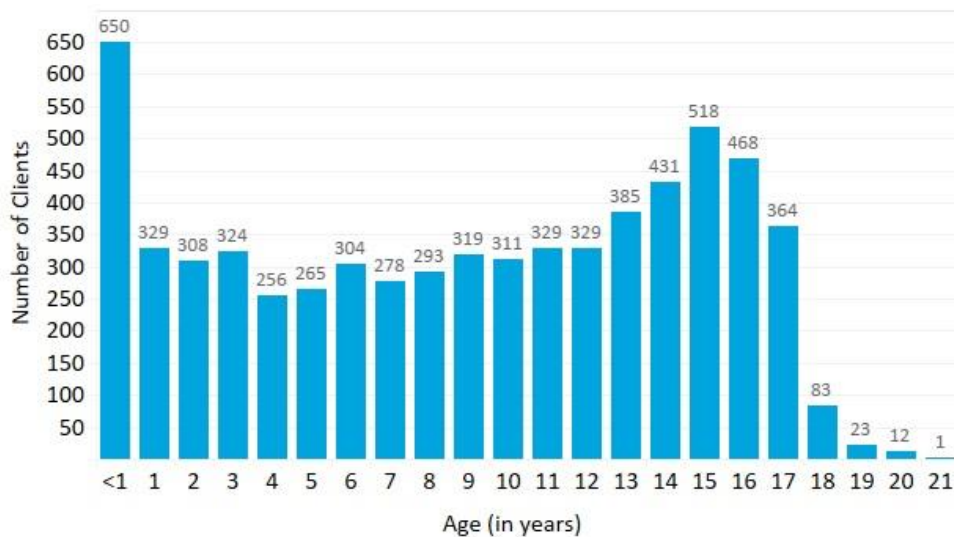
Source: Trails and ETO CMP databases

As shown in Figure 13 on the following page, 44 percent of clients were Caucasian, 35 percent were Hispanic, 10 percent were African American, while a combined 12 percent were clients from "other"

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[23] The sample size is lower than the total ISST population of 6,582 clients because gender data were missing for 233 clients.

racial and ethnic backgrounds.[24] These percentages are similar to those of previous ISST populations, demonstrating consistency in the racial and ethnic composition of the population.

Figure 13: *ISST Clients by Race and Ethnicity (N = 6,582)*

Unknown
Percentage: 6.58%
Count: 433

African-American
Percentage: 9.60%
Count: 632

Other
Percentage: 1.20%
Count: 79

Caucasian
Percentage: 43.53%
Count: 2,865

Hispanic
Percentage: 34.50%
Count: 2,271
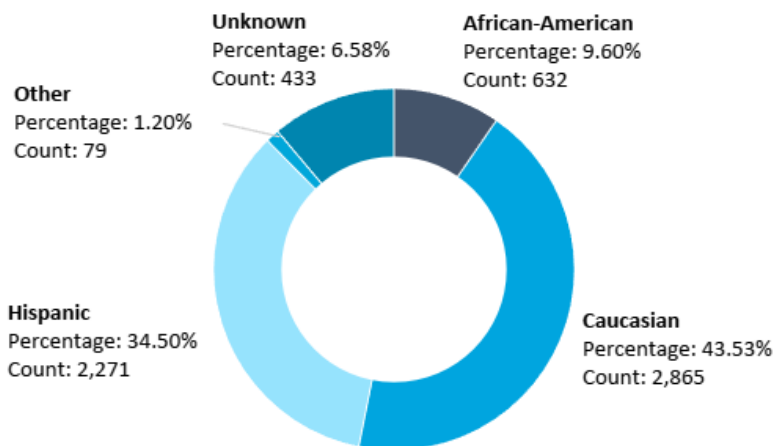
3.3.3. ISST Population by Performance Goal Type

As Table 4 shows, the majority of SFY19 CMP ISST clients had performance goals under the child welfare domain (96 percent). Considerably fewer CMP ISST clients were served under the other three domains, with education (42 percent) serving the second largest percentage of clients, followed by health/mental health (17 percent) and juvenile justice (9 percent).

Table 4: *Number of ISST Clients by Performance Goal Type (Duplicated Counts)*

Program	# of Clients
Child Welfare	6,344 (96.4%)
Education	2,731 (41.5%)
Health/Mental Health	1,119 (17.0%)
Juvenile Justice	600 (9.1%)
Total CMP ISST Population	**6,582***

Source: Trails and ETO CMP databases.
*Percentages do not sum to 100 because a CMP ISST client may have performance goals under multiple domains.

Nearly all CMP ISST clients had child welfare performance goals (96.4 percent), warranting an examination of key variables pertaining to involvement with the child welfare system. This year's evaluation once again confirms that CMP ISST clients have higher risk levels than the general population of children/youth served by Colorado's child welfare system. Table 5 presents the differences in risk and presenting factors between CMP ISST clients and the full population of children/youth who were involved in the child protection system at the assessment level or higher.

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[24] The "other" category consists of children/youth identified as having the following racial and ethnic backgrounds: Asian, Hawaiian, or Native American.

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Table 5: *Differences in Risk and Presenting Factors between CMP ISST and Child Welfare*

Factor	CMP ISST Population	Child Protection Population
Family Structure	(*N* = 2,869)	(*N* = 63,618)
Single Parent	52.6%	39.9%
Married Couple	23.8%	40.8%
Unmarried Couple	23.6%	19.3%
Prior Adoption	2.9%	1.3%
Number of Prior Referrals	5.76	5.67
Number of Prior Assessments	2.71	2.67
Number of Prior Cases	0.46	0.42
Number of Prior Removals	0.19	0.16
Prior DYS Involvement	7.2%	2.7%
Level of Involvement Upon Entry:		
Case	71.6%	19.1%
Removal	32.3%	8.6%
Population Size	**6,344**	**66,028**

*The differing population sizes (represented by *N*) reflect the varying extent to which data were available for each variable.

CMP ISST clients came from diverse family structures, with the majority being members of single-parent families (53 percent), followed by married and unmarried couples (24 percent for each family type). CMP ISST clients were considerably more likely to have been previously adopted (three percent) than children/youth within the broader child protection population (one percent). CMP ISST clients also had considerably higher levels of previous involvement with the child welfare and DYS systems. CMP ISST clients had an average of nearly six prior referrals and three prior child welfare assessments. In addition, CMP ISST clients had a higher average number of prior child welfare cases and a higher number of cases involving a removal from the home (0.46 and 0.19, respectively) than the broader CMP ISST population. Notably, a considerably higher percentage of CMP ISST clients had also been previously involved with DYS (7 percent versus 3 percent for the broader population). Finally, CMP clients entered the child welfare system at a higher level of involvement than the broader child protection population. The vast majority of CMP clients (72 percent) entered at the case level in comparison to only 19 percent of the broader child protection population. CMP clients were also considerably more likely to enter the system via a removal from their homes (32 percent versus 9 percent, respectively). Collectively, these factors strongly underscore how CMP clients have considerably higher levels of risk than the general population of children and youth served by Colorado's child welfare system.

3.4. Non-experimental Evaluation of ISST Population

This section presents the findings from a descriptive, non-experimental evaluation that examines the outcomes of the ISST population (subsequently referred to as "CMP clients") via the performance goals within the four program domains. The evaluation team used a non-experimental, single group evaluation design to examine outcomes, given the historical "data silo" challenges in accessing the requisite outcome data across all four domains, as well as accessing data on comparison populations. As previously noted, a non-experimental evaluation design does not rely on a comparison group for causal

attribution of program impact and instead uses descriptive statistics to examine the outcomes of CMP clients. The lack of a comparison group prevents causal inference on the program's effectiveness, but the analysis of outcomes provides preliminary evidence on changes in the outcomes of children/youth served by CMP.

3.4.1. Child Welfare Clients

As shown in Table 6, CMP appears to have had varying levels of success in improving the child welfare outcomes of its clients. The program was associated with high levels of success in increasing the safety of children and youth, with 94.5 percent of clients having no substantiated abuse findings after CMP services began; decreasing the number of children and youth involved with the child welfare system (93.6 percent); and increasing the number of children and youth that remained home (91 percent). In contrast, the program appeared to have more moderate success in achieving placement stability, with 88 percent of CMP clients having two or fewer placement moves while in out-of-home care. Finally, the program appeared to have notably less success in increasing permanency, with 66 percent of CMP clients discharged to a permanent home.

Table 6: *Child Welfare Performance Goals*

Performance Measure	# Children and Youth with Goal	# Achieving Goal	Percentage Achieving Goal in SFY19	Percentage Achieving Goal in SFY18
Increase safety of children/youth	6,344	5,997	**94.5%**	94.2%
Decrease number of children/youth involved in child welfare	6,344	5,940	**93.6%**	93.1%
Increase number of children/youth who remain home	4,824	4,383	**90.9%**	91.2%
Increase placement stability of children/youth	2,047	1,803	**88.1%**	88.3%
Increase permanency of children/youth	2,047	1,349	**65.9%**	63.4%

Source: Trails and ETO CMP databases.

3.4.2. Education Clients

Performance goals under the education domain were the second most common type of goal for CMP clients, with 42 percent of CMP clients involved in this program domain. Unlike the other three domains, which utilize client-level administrative data for measuring performance goals, the calculation of education performance goals is dependent upon data provided via the annual reports submitted by CMP counties (due to a lack of access to client-level administrative data). As displayed in Table 7 on the following page, self-reported data provided by CMP counties suggest that the program appears to have high to moderate levels of success in improving the educational outcomes of its clients. The program was associated with a high level of success in increasing school stability (95 percent). The program was

associated with more moderate success in decreasing disciplinary problems (87 percent), increasing academic achievement (77 percent), and increasing school attendance (67 percent).

Table 7: *Education Performance Goals*

Performance Measure	Number of Children and Youth with Goal	Number of Achieving Goal	Percentage Achieving Goal in SFY19	Percentage Achieving Goal in SFY18
Increase school stability	387	366	**94.6%**	90.6%
Decrease disciplinary problems at school	419	362	**86.4%**	80.5%
Increase academic achievement	816	624	**76.5%**	96.0%
Increase school attendance	1,607	1,075	**66.9%**	64.1%
Increase successful graduation rates**	N/A	N/A	**N/A**	N/A

Source: Self-reported by CMP counties via the CMP Annual Report SFY18–19.
**None of the CMP counties selected the "Increase Successful Graduation Rates" performance goal.

3.4.3. Health/Mental Health Clients

As shown in Table 8, CMP appears to have moderate to limited success in improving client health and mental health outcomes. The program was associated with moderate success in decreasing substance abuse, as 61 percent of applicable clients completed 90-day inpatient substance abuse treatment or intensive outpatient treatment. The program demonstrated more limited success in decreasing problem severity, with 32 percent of clients having improved levels of functioning on the CCAR while receiving CMP services. CMP also appeared to have notably less success in increasing the health of children/youth, with 21 percent of clients establishing linkages to substance use and mental health providers.

Table 8: *Health/Mental Health Performance Goals*

Performance Measure	# Children and Youth with Goal	# Achieving Goal	Percentage Achieving Goal in SFY19	Percentage Achieving Goal in SFY18
Decrease substance abuse	57	35	**61.4%**	**54.0%**
Decrease problem severity	1,311	418	**31.9%**	**48.6%**
Increase children/youth health	6,344	1,336	**21.1%**	**26.9%**
Increase psychological, social, cognitive, and physical functioning	Data Not Available			
Increase wellbeing	Data Not Available			

Source: Trails, ETO CMP, and OBH databases.
Note. The requisite data were not available for measuring the "Increase psychological, social, cognitive, and physical functioning" and "Increase wellbeing" goals.

3.4.4. Juvenile Justice Clients

The juvenile justice domain was the smallest of the four program domains, with 9 percent of CMP clients involved in the juvenile justice system. As displayed in Table 9, CMP appears to have had varying levels of success in improving the outcomes of its clients involved with the juvenile justice system. The program was associated with high levels of success in decreasing commitments to DYS (97 percent) and preventing involvement with the juvenile justice system (93 percent). The program appeared to have notably less success in increasing successful involvement with the juvenile justice system, with 53 percent of CMP clients completing probation. Finally, none of the CMP counties selected the fourth performance goal of decreasing involvement in truancy court.

Table 9: *Juvenile Justice Performance Goals*

Performance Measure	Number of Children and Youth with Goal	Number Achieving Goal	Percentage Achieving Goal in SFY19	Percentage Achieving Goal in SFY18
Decrease commitment to DYS†	3,097	3,015	**97.4%**	--
Prevent involvement with juvenile justice system†	3,097	2,557	**82.6%**	--
Increase successful involvement with juvenile justice system (probation only)^	154	82	**53.3%**	56.2%
Decrease children/youth involved in truancy court*	N/A	N/A	N/A	N/A*

Source: Trails, ETO CMP, DYS, and Colorado Judicial databases. Performance figures for SFY18 are not provided as a result of concerns about comparability between the years due to changes in the methodology for calculating the "Decrease commitment to DYS" and "Prevent involvement with juvenile justice system."
†Denotes data provided by DYS.
^Denotes data provided by Colorado Judicial.
*Denotes that none of the CMP counties selected this performance goal.

3.5. Quasi-experimental Evaluation

To more rigorously assess CMP's effectiveness in improving client outcomes, the evaluation team employed quasi-experimental designs to increase the statistical rigor of the outcome evaluation and obtain causal empirical evidence on the program's effectiveness in improving child welfare, health/mental health, and juvenile justice outcomes. Quasi-experimental designs replicate the counterfactual conditions of the experimental approach embedded in randomized controlled trials as closely as possible by comparing outcomes for a treatment group and a comparison group. Under the quasi-experimental evaluation, the treatment groups consisted of the children/youth who were involved with the child welfare system and the health/mental health and juvenile justice domains and who were served by CMP via an initial ISST meeting in SFY18. In contrast, the comparison groups consisted of children/youth who were newly involved with the child welfare and the health/mental health and

juvenile justice systems in SFY18, resided in a CMP county, and were eligible for CMP but were not served by the program.

The development of a robust quasi-experimental design is dependent upon the ability to identify an appropriate comparison group. The ideal CMP comparison group would consist of children/youth who resided in CMP counties and were eligible for CMP but who were not served by the program. During the SFY17 evaluation, the evaluation team engaged with members of the CMP Evaluation Subcommittee regarding the feasibility of identifying children/youth who were eligible but not served by the program. The Evaluation Subcommittee confirmed that capacity issues were the primary basis for otherwise eligible children/youth not being served by their county's CMP and that members of the proposed comparison group would have similar risk profiles as the treatment group. Please refer to **Appendix A** for a detailed overview of the process employed to construct a "comparison pool" of child welfare-involved children and youth residing within the CMP counties who were eligible for CMP but were not served by the program and could serve as potential matches for members of the treatment group.

3.5.1. Constructing Comparison Groups using Matching Methods

In the next step, the evaluation team constructed separate matched treatment and comparison groups in accordance with the populations associated with the child welfare, health/mental health, and juvenile justice performance goals. For the child welfare evaluation, the evaluation team constructed three matched groups with the first matched group used to examine the decreased involvement and increased safety performance goals. The second matched group consisted of the subpopulation of children/youth who were removed from their homes, which was then used by the evaluation team to examine the placement stability and permanency performance goals. The final matched group consisted of the subpopulation of children/youth who entered into a child welfare case but remained in their homes, which was used by the evaluation team to examine the remain-home performance goal.

Similarly, the evaluation team constructed three matched groups to evaluate the health/mental health outcomes of CMP clients. The evaluation team used the first matched groups to examine whether CMP clients had decreased problem severity. The second groups examined whether clients had decreased levels of substance abuse due to the successful completion of substance abuse treatment. The evaluation team used the final matched groups to examine whether CMP clients had increased levels of health via establishing linkages to an array of health and mental health service providers. Meanwhile, the evaluation team constructed a single matched group to evaluate the juvenile justice outcomes of CMP clients. The matched groups were used to examine whether CMP prevented clients from becoming involved with the juvenile justice system and whether the program decreased commitment to DYS.

Within each of the matched groups, the treatment group consisted of children/youth in CMP counties who had child welfare, health/mental health, or juvenile justice performance goals and who were served by the program (by an initial ISST meeting) during the period of SFY18. The comparison group consisted of children/youth with child welfare, health/mental health, or juvenile justice involvement residing in the same CMP counties who were eligible for CMP but not served by their county's program.

Table 10 provides an overview of the unmatched treatment and potential comparison groups that were associated with each of the performance goals.

Table 10: *Unmatched Treatment and Comparison Groups Associated with the Child Welfare, Health/Mental Health, and Juvenile Justice Performance Goals*

Performance Goal	Number of CMP Clients (Treatment Group)	Number of Children/Youth Who Could Serve as Potential Matches (Comparison Group)
Child Welfare		
Decrease number of children/youth involved in child welfare	5,194	35,893
Increase safety of children/youth	5,194	35,893
Increase placement stability of children/youth	1,868	1,054
Increase permanency of children/youth involved in child welfare	1,868	1,054
Increase number of children/youth who remain home	3,792	35,359
Health/Mental Health		
Decrease problem severity	1,119	2,890
Decrease substance abuse	54	23
Increase children/youth health	5,220	35,982
Juvenile Justice		
Decrease commitment to DYS	2,493	14,231
Prevent involvement with juvenile justice system	2,493	14,231

Note: The figures presented in this table represent CMP clients and members of the comparison population from 42 of the 44 counties participating in CMP. As detailed further below, two of the counties were excluded from the quasi-experimental evaluation due to enrolling all eligible children which prevented the evaluation team from constructing a comparison group within each county.

Notably, two of the counties, Boulder and Larimer, enroll all eligible children in their CMPs. Accordingly, the evaluation team could not identify comparison groups for these counties due to the lack of a comparable population of children who were not served by the program. In addition, a subpopulation of 13 CMP clients was served not by a CMP county but was instead served by DYS. Along with the population of CMP clients from Boulder and Larimer Counties, the evaluation team excluded the subpopulation of CMP clients served by DYS from the quasi-experimental analysis. Excluding this subset of CMP clients from the quasi-experimental evaluation is likely to have minimal impact on the evaluation's findings. As detailed in **Appendix B**, subsequent sensitivity analyses revealed that outcome achievement on each of the child welfare, health/mental health, and juvenile justice performance goals differed by less than three and a half percentage points when CMP clients served by Boulder and Larimer Counties and DYS were excluded.

The evaluation team constructed the matched groups using a collection of pretreatment variables that were included in the matching process based on having statistically significant relationships with the treatment assignment and/or the outcome variables.[25] Demographic variables included a child's age, gender, race, and family structure, and the age of the child's primary caregiver. Variables pertaining to a child's previous involvement with the child welfare system included the number of previous referrals, assessments, cases, and removals, and whether the child was previously adopted. Finally, other matching variables included whether the child was previously involved with DYS, previously received food assistance, or was previously covered by Medicaid. Prior to matching, the evaluation team conducted initial analyses of the imbalance between the groups on the aforementioned variables. This analysis used descriptive statistics and bivariate statistical tests to assess the imbalance on factors associated with receiving treatment and the associated outcomes.

The evaluation team then constructed the matched comparison groups using the Coarsened Exact Matching (CEM) methodology.[26, 27] The CEM methodology approximates a randomized block experimental design, in which members of the treatment and comparison groups are assigned to strata defined by the covariates, thereby ensuring exact multivariate balance across all observed covariates. The evaluation team first assessed the imbalance between the treatment and comparison groups using a multivariate imbalance measure and a collection of univariate measures of imbalance across the selected covariates. After assessing the initial levels of imbalance, the evaluation team used the CEM algorithm to match children in the treatment group to all members of the comparison group with the same covariate values.[28] In the ensuing steps, the evaluation team "coarsened" covariates with considerable imbalance into substantively indistinguishable values and created a collection of strata with identical values. The evaluation team dropped from the sample strata that did not contain a minimum of one member of the treatment and comparison groups. In the next step, the evaluation team used multivariate and univariate measures to assess the imbalance among the matched groups.

The evaluation team then compared matched samples to the population characteristics to comprehensively assess sample size, variance, and imbalance. Given the bias-variance tradeoff, through which minimization of bias can come at the expense of sample variance, the evaluation team constructed and examined alternative samples with varying levels of variance and bias. In each instance, the evaluation team selected matched samples that minimized bias between the treatment and comparison groups, to the greatest extent possible. This, in turn, provides greater confidence in the

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[25] Rubin, D. B., & Thomas, N. (1996). Matching using estimated propensity scores: relating theory to practice. *Biometrics, 52*, 249–264.

[26] Iacus, S. M., King, G., & Porro, G. (2011). Multivariate matching methods that are monotonic imbalance bounding. *Journal of the American Statistical Association, 106*(493)*, 345–361.

[27] Iacus, S. M., King, G., & Porro, G. (2012). Causal inference without balance checking: Coarsened exact matching. *Political Analysis, 20*(1), 1–24.

[28] In contrast to propensity score matching (PSM), the CEM methodology allows for the improvement of balance for one covariate without affecting the maximum imbalance of the other covariates. More specifically, CEM uses a monotonic imbalance bounding matching method. Under this method, the balance between the treatment and comparison groups is chosen prior to the matching process. In contrast, PSM and other greedy matching methods determine balance after matching, which often results in multiple iterations of the matching process.

design and findings of the quasi-experimental evaluation. An overview of the matched groups is included in Table 11 while detailed descriptions of the matched groups are included in **Appendix C.**

Table 11: Matched Treatment and Comparison Groups Associated with the Child Welfare, Health/*Mental Health, and Juvenile Justice Performance Goals*

Performance Goal	Number of CMP Clients	Number of Children/Youth in Matched Comparison Group
Child Welfare		
Decrease number of children/youth involved in child welfare	3,578	3,578
Increase safety of children/youth	3,578	3,578
Increase placement stability of children/youth[†]	647	545
Increase permanency of children/youth involved in child welfare[†]	647	545
Increase number of children/youth who remain home	2,550	2,550
Health/Mental Health		
Decrease problem severity	378	378
Decrease substance abuse[†]	26	17
Increase children/youth health	3,136	3,136
Juvenile Justice		
Decrease commitment to DYS	1,158	1,158
Prevent involvement with juvenile justice system	1,158	1,158

Note: [†]Due to a smaller number of observations in the comparison group, 1-to-*k* matching was used to construct the matched groups for this measure.

3.5.2. Estimating Program Impacts

To estimate the effect of CMP on child welfare outcomes, the evaluation team calculated the differences in outcomes for the treatment groups and the matched comparison groups. The impact of CMP on each outcome variable (indicated as ΔY) was estimated via the following equation:

$$\Delta Y = \frac{1}{T}\sum_{i=1}^{T}\left[Y_{1i} - \overline{Y_{0iJ}}\right]$$

This equation allows for the estimation of the average treatment effect on the treated. On the right-hand side of the equation, the terms in brackets represent the difference in the outcome of interest between individual i in the treatment group and the mean of the outcome variable over all of the matched comparison group members (j) for individual i.

Multi-level mixed effects models were used to estimate the average treatment effect by accounting for the nested structure of the data with children and youth clustered by CMP counties. Within these models, children were situated at the first level of analysis while county-level variables were situated at

the second. This approach allows the quasi-experimental evaluation to account for county-level differences while controlling for associated covariates. Matching covariates that were not exactly matched or had statistically significant differences even after matching were included in the multi-level mixed effects models. Matching methods and regression adjustments (including multi-level mixed effects models) are complementary methods and have been shown to work best in combination.[29] Including those variables that were not exactly matched provides a second opportunity to control for important differences between the treatment and comparison groups. Several post-treatment covariates associated with whether a child was served by CMP were included in the models to further control for differences between the groups. These variables included the child's program area, risk level, level of involvement, and DYS involvement.

As 1-to-k matching was used to match treatment and comparison members within the child welfare out-of-home and the substance abuse subpopulations, weighted multi-level mixed effects models were used for the placement stability, permanency, and substance abuse outcome models. Within these weighted multi-level mixed effects models, observations were weighted according to the number of observations within their corresponding strata.[30]

Child Welfare Outcome: New Involvement in Child Welfare

On the following page, Table 12 provides the results for the multi-level mixed effects model used to examine whether CMP clients were more or less likely than a comparison population to have a new involvement with the child welfare system (i.e., a traditional or Family Assessment Response case) in the year after receiving services. **The results show that CMP clients had a 5.0-percentage point increase in the probability that they would have a new involvement ($p < 0.001$) compared to youth who were eligible but were not served by the program**. While the magnitude of this effect is small, it provides statistically significant evidence that CMP clients are more likely to have a new involvement.

Sensitivity analyses were subsequently conducted to examine the robustness of the model's findings. Additional models were run on a matched group with a larger number of observations but a higher degree of imbalance, and on the full treatment group and a randomly sampled comparison group. In these instances, CMP clients were found to have between a 4.5 and 7.1 percentage point increase in the probability of having a new involvement ($p < 0.001$ in both models). Together, these results provide consistent supporting evidence that CMP clients are more likely to have a subsequent involvement than children/youth who were eligible but were not served by the program.

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[29] Stuart, E. A. (2010). Matching methods for causal inference: A review and a look forward. *Statistical Science, 25*(1), 1–21.
[30] Iacus, S. M., King, G., & Porro, G. (2008). *Matching for causal inference without balance checking*. https://ssrn.com/abstract=1152391 or http://dx.doi.org/10.2139/ssrn.1152391

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Table 12: *New Child Welfare Involvement Multi-level Mixed Effects Model*

Outcome: New Child Welfare Involvement	
	Coefficient (Std. Error)
Level 2: Agency Attributes	
Treatment: CMP	**0.050*** (0.007)**
Percent Variation Explained by Level 2	2.45%
Level 1: Child Attributes	
Program Area (Base: PA3 - Prevention)	
PA4 - Youth in Conflict	-0.023 (0.027)
PA5/6 – Child Protection/Specialized Services	-0.022 (0.026)
PA Missing	-0.071 (0.041)
Risk Level (Base: High)	
Low	-0.042** (0.014)
Moderate	-0.007 (0.007)
Not Available	-0.005 (0.009)
Child Welfare Level of Involvement (Base: Assessment)	
Case	-0.086*** (0.007)
Prevention	-0.032 (0.030)
Referral	-0.081*** (0.019)
DYS Involvement (Base: No)	
Yes	0.074*** (0.015)
Age at Beginning of Involvement	-0.002*** (0.001)
Primary Caregiver's Age	0.000*** (0.000)
Number of Prior Referrals	0.001 (0.001)
Number of Prior Assessments	-0.002 (0.002)
Prior Food Assistance (Base: No)	
Yes	0.001 (0.007)
Unknown	-0.021 (0.025)
Constant	0.128*** (0.028)
Log-Likelihood	718.843
Observations	7,156

Note: *p < 0.05; **p < 0.01; ***p < 0.001

Child Welfare Outcome: Subsequent Founded Assessment of Abuse and/or Neglect

Table 13 on the following page provides the results for the model the evaluation team used to examine whether CMP clients are more or less likely to have a subsequent founded assessment in the year after receiving services. **The results show that CMP clients had a 1.3-percentage point decrease in the probability that they would have a subsequent founded assessment (*p* < 0.05) compared to youth who were eligible but were not served by the program.**

The evaluation team conducted sensitivity analyses to examine the robustness of the model's findings. The evaluation team ran subsequent models on a matched group with a larger number of observations but a higher degree of imbalance and the full treatment group and a randomly sampled comparison group. In these instances, CMP clients were found to have between a 0.4 percentage point decrease to a 2.1 percentage point increase in the probability of having a subsequent founded assessment (with only

one of the models producing statistically significant findings of $p < 0.001$). As these effects were not consistently significant across models, there is less evidence to support the conclusion that CMP clients are less likely to have a subsequent founded assessment.

Table 13: *Subsequent Founded Assessment Multi-level Mixed Effects Model*

Outcome: Subsequent Founded Assessment	
	Coefficient (Std. Error)
Level 2: Agency Attributes	
Treatment: CMP	**-0.013* (0.006)**
Percent Variation Explained by Level 2	1.81%
Level 1: Child Attributes	
Program Area (Base: PA3 - Prevention)	
PA4 - Youth in Conflict	0.011 (0.026)
PA5/6 – Child Protection/Specialized Services	0.034 (0.024)
PA Missing	0.050 (0.043)
Risk Level (Base: High)	
Low	-0.070*** (0.015)
Moderate	-0.034*** (0.007)
Not Available	-0.020* (0.009)
DYS Involvement (Base: No)	
Yes	-0.017 (0.016)
Age at Beginning of Involvement	-0.002*** (0.001)
Primary Caregiver's Age	0.000*** (0.000)
Number of Prior Referrals	0.001 (0.001)
Number of Prior Assessments	-0.002 (0.002)
Prior Food Assistance (Base: No)	
Yes	0.017* (0.007)
Unknown	-0.014 (0.028)
Constant	1.071*** (0.026)
Log-Likelihood	-103.003
Observations	7,156

Note: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Child Welfare Outcome: Placement Stability for Children Removed from Their Homes

Table 14 on the following page provides the results for the model used to examine whether CMP clients who were removed from their homes experienced placement stability (i.e., three or fewer placement settings/removals) in the year after receiving services. **The results show that CMP clients had a 5.2-percentage point decrease in the probability that they would experience placement stability ($p < 0.001$) compared to youth who were eligible but were not served by the program.** The magnitude of this effect is small but provides statistically significant evidence that CMP clients are less likely to experience placement stability than a comparison group of children/youth who were eligible but not served by CMP.

Table 14: *Placement Stability Weighted Multi-level Mixed Effects Model*

Outcome: Placement Stability	
	Coefficient (Std. Error)
Level 2: Agency Attributes	
Treatment: CMP	**-0.052*** (0.014)**
Percent Variation Explained by Level 2	0.36%
Level 1: Child Attributes	
Previously Adopted (Base: No)	
Yes	0.292* (0.144)
Prior Food Assistance (Base: No)	
Yes	-0.021 (0.019)
Previously on Medicaid (Base: No)	
Yes	0.004 (0.010)
Gender (Base: Female)	
Male	0.001 (0.011)
Race and Ethnicity (Base: Caucasian)	
African American	0.029 (0.028)
Hispanic	0.041* (0.017)
Other	0.027 (0.033)
Unknown	0.023 (0.059)
Family Structure (Base: Married Couple)	
Single Female	0.043*** (0.012)
Single Male	0.042 (0.042)
Undetermined	0.017 (0.013)
Unmarried Couple	-0.018 (0.020)
Primary Caregiver's Age	0.000 (0.000)
Age at Beginning of Involvement	-0.006*** (0.001)
Risk Level (Base: High)	
Low	0.081*** (0.020)
Moderate	0.050*** (0.013)
Not Available	0.017 (0.012)
Number of Prior Referrals	0.001 (0.006)
Number of Prior Assessments	0.001 (0.010)
Number of Prior Cases	-0.062 (0.033)
Number of Prior Removals	-0.090*** (0.027)
Prior DYS Involvement (Base: No)	
Yes	0.100** (0.038)
Constant	1.953*** (0.022)
Log-Likelihood	156.246
Observations	1,192

Note: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

The evaluation team conducted sensitivity analyses using a matched group with a larger number of observations and a higher degree of imbalance, and on the full, unmatched treatment and comparison groups. In these instances, CMP clients were found to have between a 5.0 and 6.9 percentage point decrease in the probability of experiencing placement stability ($p < 0.01$ or lower). Together, these

results provide strong, consistent evidence that CMP clients are less likely to experience placement stability than children/youth who were eligible but were not served by the program.

Child Welfare Outcome: Permanency for Children/Youth Removed from Their Homes

As displayed in Table 15, the evaluation team used the fourth model to examine whether CMP clients were more or less likely to achieve permanency in the year after they began receiving services.

Table 15: *Permanency Weighted Multi-level Mixed Effects Model*

Outcome: Permanency	
	Coefficient (Std. Error)
Level 2: Agency Attributes	
Treatment: CMP	**-0.040 (0.057)**
Percent Variation Explained by Level 2	7.30%
Level 1: Child Attributes	
Previously Adopted (Base: No)	
Yes	0.013 (0.348)
Prior Food Assistance (Base: No)	
Yes	0.117*** (0.032)
Previously on Medicaid (Base: No)	
Yes	0.045 (0.066)
Gender (Base: Female)	
Male	-0.045* (0.021)
Race and Ethnicity (Base: Caucasian)	
African American	0.107*** (0.032)
Hispanic	0.083*** (0.018)
Other	-0.094 (0.120)
Unknown	-0.016 (0.065)
Family Structure (Base: Married Couple)	
Single Female	-0.044 (0.040)
Single Male	0.012 (0.087)
Undetermined	-0.085 (0.154)
Unmarried Couple	-0.067 (0.034)
Primary Caregiver's Age	0.000* (0.000)
Age at Beginning of Involvement	-0.001 (0.003)
Risk Level (Base: High)	
Low	0.229 (0.161)
Moderate	0.029 (0.033)
Not Available	-0.103** (0.035)
Prior DYS Involvement (Base: No)	
Yes	0.136 (0.151)
Constant	1.629*** (0.049)
Log-Likelihood	-948.758
Observations	1,192

Note: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

The results show that CMP clients were not significantly more or less likely to have achieved permanency. Sensitivity analyses were conducted to examine the robustness of the model's findings, using the same groups used in the sensitivity analyses for the placement stability model. In these analyses, CMP clients were found to have between a 3.8- and 9.9-percentage point decrease in the probability of achieving permanency (with only one of the variations of the models producing statistically significant findings of $p < 0.05$). Together, these results provide further support for the conclusion that CMP clients were not significantly more or less likely to achieve permanency.

Child Welfare Outcome: Children/Youth Involved in a Child Welfare Case Who Remain Home

As displayed in Table 16, the evaluation team used the final child welfare model to determine whether CMP clients were more or less likely to remain in their homes in the year after they began receiving services. **The results show that CMP clients were not significantly more or less likely to remain home.**

Table 16: *Remain Home Multi-level Mixed Effects Model*

Outcome: Remain Home	
	Coefficient (Std. Error)
Level 2: Agency Attributes	
Treatment: CMP	**-0.005 (0.006)**
Percent Variation Explained by Level 2	1.60%
Level 1: Child Attributes	
Age at Beginning of Involvement	0.005*** (0.001)
Primary Caregiver's Age	0.000*** (0.000)
Number of Prior Referrals	0.002 (0.001)
Number of Prior Assessments	-0.006* (0.002)
Prior Food Assistance (Base: No)	
Yes	-0.008 (0.009)
Unknown	0.006 (0.028)
Previously on Medicaid (Base: No)	
Yes	0.023* (0.011)
Unknown	0.000 (0.000)
Program Area (Base: PA3 - Prevention)	
PA4 - Youth in Conflict	-0.027 (0.023)
PA5/6 – Child Protection/Specialized Services	-0.019 (0.022)
PA Missing	-0.028 (0.038)
Risk Level (Base: High)	
Low	0.035** (0.013)
Moderate	0.005 (0.007)
Not Available	-0.001 (0.009)
DYS Involvement (Base: No)	
Yes	-0.164*** (0.016)
Constant	1.931*** (0.025)
Log-Likelihood	1,192.243
Observations	5,100

Note: *p < 0.05; **p < 0.01; ***p < 0.001

Sensitivity analyses were conducted using a matched group with a larger number of observations but a higher degree of imbalance and on a random sample of unmatched treatment and comparison groups. In these models, CMP clients were found to have between a 0.3 percentage point increase and a 7.5 percentage point decrease in the probability of remaining home, and these effects were not consistently significant. Together, these results suggest that CMP clients were not significantly more or less likely to remain home than children/youth who were eligible but were not served by the program.

Health/Mental Health Outcome: Decrease Problem Severity

The evaluation team used the "decrease problem severity" model to examine whether CMP clients had improved levels of functioning on the CCAR or a similar clinical instrument designed to assess the behavioral health status of clients. The findings shown in Table 17, **demonstrate that CMP clients were not significantly more or less likely to experience improved levels of functioning when compared to children and youth who were eligible but not served by the program.**

Table 17: *Decrease Problem Severity Multi-level Mixed Effects Model*

Outcome: Decrease Problem Severity	
	Coefficient (Std. Error)
Level 2: Agency Attributes	
Treatment: CMP	**0.008 (0.034)**
Percent Variation Explained by Level 2	0.01%
Level 1: Child Attributes	
Program Area (Base: PA3 - Prevention)	
PA4 - Youth in Conflict	-0.219 (0.147)
PA5/6 – Child Protection/Specialized Services	-0.186 (0.144)
PA Missing	-0.118 (0.254)
Prior Food Assistance (Base: No)	
Yes	0.114 (0.069)
Missing	-0.177 (0.260)
Previously on Medicaid (Base: No)	
Yes	-0.062 (0.092)
Gender (Base: Female)	
Male	0.001 (0.011)
Primary Caregiver's Age	-0.000 (0.000)
Age at Beginning of Involvement	0.006 (0.005)
Number of Prior Referrals	-0.004 (0.005)
Number of Prior Assessments	0.005 (0.010)
Number of Prior Removals	-0.0072* (0.032)
Constant	0.427* (0.178)
Log-Likelihood	-493.609
Observations	756

Note: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

The evaluation team conducted sensitivity analyses on the full, unmatched population and a matched group with a larger number of observations but a higher degree of imbalance. In these models, CMP clients were shown to have between a 1.9 and 2.7 percentage point decrease in the probability of improving their level of functioning, and neither of these findings was statistically significant. Together, these results suggest that CMP clients were neither significantly more nor less likely to decrease their problem severity.

An important contextual caveat is that despite not improving their level of functioning, many CMP clients are successfully maintaining their current levels of functioning. Analyses conducted by OBH staff for the SFY 18 CMP Evaluation revealed that approximately 91 percent of clients in the matched treatment and comparison groups were measured as already functioning at moderate to high levels at the time of their first CCAR assessment. Furthermore, approximately 46 percent of those clients with moderate to high levels of functioning showed no change in their level of functioning. However, these clients would be characterized as having an adverse outcome under the current operationalization of the performance measure. Accordingly, there may be a need to reconsider the operationalization of this performance measure to more accurately measure decreases in problem severity based on the number of children and youth who are maintaining or improving their level of functioning.

Health/Mental Health Outcome: Decrease Substance Abuse

The evaluation team used the decrease substance abuse model to examine whether CMP clients completed a 90-day inpatient substance abuse treatment or intensive outpatient treatment. As shown in Table 18, **the findings demonstrate that CMP clients were not significantly more or less likely to achieve lower levels of substance abuse.**

Table 18: *Decrease Substance Abuse Linear Probability Model*

Outcome: Decrease Substance Abuse	
	Coefficient (Std. Error)
Level 2: Agency Attributes	
Treatment: CMP	**0.025 (0.090)**
Percent Variation Explained by Level 2	0.01%
Level 1: Child Attributes	
Family Structure (Base: Single Parent)	
Married Couple	0.017 (0.176)
Undetermined	0.059 (0.172)
Primary Caregiver's Age	0.008 (0.008)
Prior DYS Involvement (Base: No)	
Yes	-0.042 (0.218)
Constant	0.286 (0.492)
Log-Likelihood	-33.017
Observations	43

Note: *p < 0.05; **p < 0.01; ***p < 0.001

The evaluation team conducted a sensitivity analysis to examine the robustness of the findings, by running a similar model on the unmatched population. In this model, CMP clients were found to have a 4.5 percentage point increase in the probability of completing substance abuse treatment, though the effect was not statistically significant. An important caveat to the findings noted here and above is that a small number of children in both the treatment and comparison groups (a total of 54 CMP clients and 23 members of the comparison population) were engaged in substance abuse treatment. Notably, the smaller number of observations in both groups (and the smaller number of observations in the comparison pool, in particular) hindered the ability to determine a causal effect using the quasi-experimental evaluation design. For these reasons, the findings provided here should be interpreted cautiously.

Health/Mental Health Outcome: Increased Children/Youth Health

For the final outcome in the health/mental health quasi-experimental evaluation, the evaluation team examined whether CMP clients had increased levels of health by way of establishing linkages to various health and mental health providers. As displayed in Table 19 on the following page, **the findings demonstrate that CMP clients had a 4.7 percentage point increase in the probability that they would have increased levels of health through established linkages to health and mental health care providers ($p < 0.001$).**

Table 19: *Increase Children/Youth Health Multi-level Mixed Effects Model*

Outcome: Increase Children/Youth Health	
	Coefficient (Std. Error)
Level 2: Agency Attributes	
Treatment: CMP	**0.047*** (0.010)**
Percent Variation Explained by Level 2	2.10%
Level 1: Child Attributes	
Prior Food Assistance (Base: No)	
Yes	0.009 (0.013)
Missing	-0.021 (0.040)
Previously on Medicaid (Base: No)	
Yes	0.036* (0.015)
Primary Caregiver's Age	0.000 (0.000)
Age at Beginning of Involvement	0.008*** (0.002)
Risk Level (Base: High)	
Low	-0.033 (0.021)
Moderate	-0.010 (0.010)
Not Available	0.017 (0.014)
Number of Prior Referrals	0.008*** (0.002)
Number of Prior Assessments	-0.003 (0.004)
Child Welfare Level of Involvement (Base: Assessment)	
Case	0.028** (0.011)
Prevention	0.137** (0.050)
Referral	0.022 (0.029)
Program Area (Base: PA3 - Prevention)	
PA4 - Youth in Conflict	0.118** (0.045)
PA5/6 – Child Protection/Specialized Services	0.080 (0.043)
PA Missing	0.113 (0.068)
Prior DYS Involvement (Base: No)	
Yes	0.082** (0.025)
Constant	-0.150** (0.046)
Log-Likelihood	-1,716.324
Observations	6,272

Note: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

The robustness of this finding was examined using sensitivity analyses conducted on the full, unmatched population and a matched group with a larger number of observations but a higher degree of imbalance. In these models, CMP clients were shown to have between a 4.9 and 5.2 percentage point decrease in the probability of improving their level of functioning (with both of these findings significant at the $p < 0.001$ level). Together, these results produce strong supporting evidence that CMP clients were significantly more likely to have increased health by way of established linkages to health and mental health providers.

Juvenile Justice Outcome: Prevent Juvenile Justice Involvement

The evaluation team used the "prevent involvement with the juvenile justice system" model to examine whether CMP clients were less likely to enter detention. The findings presented in Table 20 **demonstrate that CMP clients had a 3.9 percentage point decrease in the probability that they would become involved with the juvenile justice system via detention (*p* < 0.01).**

Table 20: *Prevent Juvenile Justice Involvement Multi-level Mixed Effects Model*

Outcome: Prevent Juvenile Justice Involvement	
	Coefficient (Std. Error)
Level 2: Agency Attributes	
Treatment: CMP	**-0.039** (0.015)**
Percent Variation Explained by Level 2	2.49%
Level 1: Child Attributes	
Prior Food Assistance (Base: No)	
Yes	-0.004 (0.018)
Missing	-0.079 (0.051)
Previously on Medicaid (Base: No)	
Yes	-0.004 (0.018)
Primary Caregiver's Age	-0.000 (0.000)
Risk Level (Base: High)	
Low	0.029 (0.027)
Moderate	0.001 (0.014)
Not Available	0.011*** (0.019)
Number of Prior Referrals	0.004* (0.002)
Number of Prior Assessments	-0.010* (0.004)
Child Welfare Level of Involvement (Base: Assessment)	
In-Home Case	0.031 (0.016)
Not Provided	-0.093** (0.028)
Out of Home Case	0.097*** (0.021)
Prevention	-0.101* (0.049)
Referral	-0.159*** (0.030)
Program Area (Base: PA3 - Prevention)	
PA4 - Youth in Conflict	0.215*** (0.045)
PA5 – Child Protection	-0.097* (0.044)
PA6 – Specialized Services	-0.172* (0.079)
PA Missing	-0.015 (0.061)
Constant	0.110* (0.048)
Log-Likelihood	2.728
Observations	2,316

Note: *p < 0.05; **p < 0.01; ***p < 0.001

Once again, the robustness of the finding was examined via a sensitivity analysis conducted on a matched group with a larger number of observations but a higher degree of imbalance. In this model, CMP clients were shown to have a 6.5 percentage point decrease in the probability that they would become involved with the juvenile justice system, though these findings were not statistically significant.

These results provide some further supporting evidence that CMP clients were significantly less likely to become involved with the juvenile justice system.

Juvenile Justice Outcome: Decrease DYS Commitment

In the final model, the evaluation team examined whether CMP clients were less likely to be committed to DYS. The findings presented in Table 21 **demonstrate that CMP clients were not significantly more or less likely to be committed to DYS.**

Table 21: *Prevent DYS Commitment Multi-level Mixed Effects Model*

Outcome: Prevent DYS Commitment	
	Coefficient (Std. Error)
Level 2: Agency Attributes	
Treatment: CMP	**-0.001 (0.005)**
Percent Variation Explained by Level 2	0.01%
Level 1: Child Attributes	
Prior Food Assistance (Base: No)	
Yes	-0.009 (0.006)
Missing	0.000 (0.017)
Previously on Medicaid (Base: No)	
Yes	0.013 (0.007)
Primary Caregiver's Age	-0.001 (0.000)
Program Area (Base: PA3 - Prevention)	
PA4 - Youth in Conflict	0.024 (0.014)
PA5 - Child Protection	-0.005 (0.014)
PA6 - Specialized Services	-0.018 (0.025
PA Missing	0.001 (0.020)
Risk Level (Base: High)	
Low	-0.005 (0.009)
Moderate	-0.001 (0.005)
Not Available	0.013* (0.006)
Number of Prior Referrals	-0.001 (0.001)
Number of Prior Assessments	0.000 (0.001)
Child Welfare Level of Involvement (Base: Assessment)	
In-Home Case	-0.003 (0.005)
Not Provided	-0.020* (0.009)
Out of Home Case	0.010 (0.007)
Prevention	-0.018 (0.016)
Referral	-0.021* (0.010)
Constant	0.004 (0.015)
Log-Likelihood	2,601.515
Observations	2,316

Note: $*p < 0.05$; $**p < 0.01$; $***p < 0.001$

The evaluation team conducted a sensitivity analysis to examine the robustness of the findings by running a similar model on a matched group with a larger number of observations but a higher degree of imbalance. In this model, CMP clients were found to have a 0.6 percentage point decrease in the probability of being committed to DYS, though these findings were not statistically significant. These results further suggest that CMP clients were not significantly more or less likely to be committed to DYS.

3.6. Outcome Evaluation Summary

The results of the descriptive, non-experimental evaluation demonstrate that, for this higher risk population, CMP appears to have varying degrees of success in achieving performance measures across the four program domains for children within one year of entering the program. Across the domains, the program appears to have more moderate to high levels of success within the child welfare, juvenile justice, and education domains. In contrast, the program appears to have more limited to moderate levels of success in achieving health/mental health performance goals. However, the findings from the descriptive, non-experimental evaluation should be interpreted cautiously as the lack of a comparison group within these analyses limits the ability to determine the program's effectiveness by comparing the outcomes of CMP clients to similar populations of children and youth who were eligible, but not served by the program.

To more rigorously evaluate the program's effectiveness, the evaluation team employed matched quasi-experimental evaluations of CMP clients involved with the child welfare, health/mental health systems, and juvenile justice systems. The results from these quasi-experimental evaluations are summarized in Table 22 on the following page. Overall, the findings provide evidence suggesting that CMP is improving outcomes within each of these three domains. Within the child welfare domain, CMP clients were found to be significantly less likely to have a subsequent found assessment ($p < 0.05$), but significantly more likely to have a new child welfare case ($p < 0.001$) and less likely to experience placement stability ($p < 0.001$). In contrast, CMP clients in the child welfare domain were not significantly more or less likely to remain home or achieve permanency. These findings suggest that while the program is keeping children and youth safe through a decreased probability of having a subsequent founded assessment, opportunities exist for improving performance on the new child welfare case and placement stability outcomes.

Meanwhile, the findings suggest that CMP is having a combination of positive and neutral impacts on the health/mental health and juvenile justice domains. Within the health/mental health domain, CMP clients were significantly more likely to have established linkages to substance use and mental health providers ($p < 0.001$) and were not significantly more or less likely to experience decreases in problem severity or substance abuse. Within the juvenile justice domain, CMP clients were significantly less likely to become involved with the juvenile justice system ($p < 0.01$) and not significantly more or less likely to be committed to DYS. Together, the findings in these three domains provide evidence suggesting that CMP is accomplishing its stated goal of improving outcomes for children and youth involved with multiple systems.

Table 22: *Summary of the Quasi-Experimental Evaluation's Findings for Child Welfare, Health/Mental Health, and Juvenile Justice Outcomes*

Outcome (Performance Goal)	Finding	Statistically Significant Finding
Child Welfare		
Subsequent Founded Assessment	CMP clients had a 1.3 percentage point decrease in the probability that they would have a subsequent founded assessment compared to youth who were eligible but not served by the program.	✓ ($p < 0.05$)
Permanency	CMP clients were not significantly more or less likely to have achieved permanency compared to youth who were eligible but not served by the program.	
Remain Home	CMP clients were not significantly more or less likely to remain home compared to youth who were eligible but not served by the program.	
Subsequent Involvement	CMP clients had a 5.0 percentage point increase in the probability that they would have a new involvement compared to youth who were eligible but not served by the program.	✓ ($p < 0.001$)
Placement Stability	CMP clients had a 5.2 percentage point decrease in the probability that they would experience placement stability compared to youth who were eligible but not served by the program.	✓ ($p < 0.001$)
Health/Mental Health		
Increase Children/Youth Health	CMP clients had a 4.7 percentage increase in the probability of having increased health through established linkages to primary health care providers, oral care providers, substance abuse providers, mental health providers, or health insurance providers.	✓ ($p < 0.001$)
Decrease Problem Severity	CMP clients were not significantly more or less likely to have decreased problem severity and improved functioning.	
Decrease Substance Abuse	CMP clients were not significantly more or less likely to have completed 90-day inpatient substance abuse treatment or intensive outpatient treatment.	
Juvenile Justice		
Prevent Involvement with Juvenile Justice System	CMP clients had a 3.9 percentage point decrease in the probability that they would become involved with the juvenile justice system.	✓ ($p < 0.01$)
Decrease Commitment to DYS	CMP clients were not significantly more or less likely to have a commitment to DYS.	

4. Cost Evaluation

The cost evaluation examines the potential cost-effectiveness of CMP by comparing child welfare costs for families who receive CMP and those that receive services as usual.

4.1. Cost Comparison Approach

The CMP potentially generates cost savings through a number of key processes, two of which are: 1) reduction of costs associated with integration of services across agencies (e.g., duplicative services, time associated with administrative overhead); and 2) improvements in treatment outcomes to children/youth, resulting in decreased recidivism. Identifying cost savings that are byproducts of the first key process requires a comprehensive assessment of participating service agencies, and is out of the scope of this evaluation. However, by collecting service cost data for the CMP and non-CMP comparison groups, the second key process can be tested as a pathway to cost savings. The evaluation team hypothesized that serving dually involved youth through CMP would generate cost savings and improve outcomes as a result of the cross-system meetings, integrated service plans, and streamlined services. Youth who participate in the CMP may have generally higher risk profiles and initial service needs than non-CMP youth, which suggests that cost savings may be realized by reducing the resources required to serve youth when they return in the future, even if their likelihood of returning is relatively unchanged. As such, comparing these groups on their initial likelihood of incurring a service cost, as well as their one-year follow-up costs, provides better insight into the upfront resource requirements during service episodes, as well as downstream costs that can be expected if a youth is to return in a year.

Similar to the quasi-experimental outcome evaluation, the evaluation team conducted a cost comparison between CMP-involved children/youth and the comparison group of children/youth in CMP counties who were eligible but did not receive an ISST meeting. Specifically, service and OOH placement costs during involvement with the CMP and costs up to one year following exit of the program were collected for both the treatment and comparison groups. Although meeting costs may also differ between CMP-involved youth who meet with multiple systems at the same time and youth from the comparison group who meet with each system independently, there is currently no data available to estimate the cost or frequency of non-ISST meetings. Thus, meeting costs were not considered in the cost comparison approach. However, it should be noted that having multiple meetings across systems does carry a real cost for families in regard to childcare, transportation, and missing work.

In an effort to improve upon the 2018 cost comparison evaluation, the evaluation team elected to alter the modeling strategy by analyzing the data across three stages, including a logistic regression model testing whether or not services resulted in a cost, as well a generalized linear model (GLM) with costs as the outcome, employing a gamma distribution, and then a GLM using the log of costs as an outcome. An increasingly popular method of analyzing healthcare cost data is to model whether or not individuals incur costs, and to then model non-zero costs in a separate study. This is because there are likely to be underlying differences between people who incur and who do not incur costs of a service

or treatment. For example, it is likely that youth who engage the child welfare system and participate in a program such as CMP, but incur no accounting costs, have unobserved and qualitatively different characteristics than those with non-zero costs. In addition, separating by zero and non-zero cost results in datasets more suitable for modeling techniques that may help identify characteristics associated with the populations of interest, in this case youth who incur non-zero costs.

The first stage of the analysis was to conduct a logistic regression predicting whether or not youth incurred a cost, including an indicator of participation in CMP, as well as including covariates, including race, prior involvement with child welfare, age, and risk category. The second stage consisted of analyzing service costs during treatment, as well as one-year follow-up, using generalized linear modeling with a gamma distribution for costs. The third stage involved modeling service costs and one-year follow-up costs using the log of costs as the outcome. The second and third stages excluded observations where costs were zero, and as a result of the smaller sample sizes, fewer covariates were included in the models.

4.2. Cost Comparison Results

Table 23 provides odds ratios and 95% confidence intervals from the logistic regression. An odds ratio greater than one can be interpreted as an increase in the odds of incurring a cost, and a confidence interval that does not include 1.00 in the range is interpreted as statistically significant. Youth who participated in CMP were significantly more likely to incur a cost than comparison youth. In addition, removal from the home, prior case count, and an increase in youth age were all positively and significantly associated with increased likelihood of incurring a cost. Alternatively, Medicaid receipt was associated with a decreased likelihood of experiencing costs. No other covariates were statistically significant.

Table 23: *Results of Logistic Regression Model Analyzing Participants' Likelihood of Incurring Costs*

Covariates	Odds Ratio	95% Confidence Intervals
CMP (Treatment effect)	**1.58 *(.00)***	**1.35, 1.87**
Removal	5.96 (.00)	4.93, 7.22
Prior referral count	1.00	.98, 1.02
Prior case count	1.39 (.00)	1.22, 1.59
Medicaid recipient	.47 (.00)	.39, .57
DYC detention involvement	.72 (ns)	.33, 1.54
African American	1.10 (ns)	.87, 1.38
Hispanic	.93 (ns)	.79, 1.09
Low risk rating^	.92 (ns)	.66, 1.29
Moderate risk rating^	1.13 (ns)	.96, 1.34
PA5	.74 (ns)	.41, 1.36
Age	1.04 (.00)	1.02, 1.05

*p-values in parentheses

Table 24 includes separate models run for service costs during involvement with child welfare, and one-year costs following exit. The first two columns provide results of the GLM with total costs as the outcome of interest. These coefficients are interpreted as the dollar amount associated with the tested characteristic. The second two columns show results of the GLM with the log of costs as the outcome. These coefficients are exponentiated, and then subtract one, in order to interpret as a percent change in costs associated with the characteristic of interest.

For service costs during treatment, CMP treatment was statistically and significantly related to higher costs. From the GLM with the gamma distribution, CMP treatment was associated with a $1,999 increase in service costs during, and from the GLM with the log of costs as the outcome, a 164% increase in costs. Columns three and five display results for one-year costs as the outcome of interest. As opposed to the costs during treatment, CMP youth had $1,689 less in costs, though this result only trended toward statistical significance (*p* = .08). Using the log of one-year costs as the outcome, CMP was statistically and significantly associated with a decrease in costs, corresponding to an 55% reduction (*p* < .001).

Table 24: *Results of Cost Comparison Analysis from Generalized Linear Models*

Covariates	Gamma distribution		Log(Dollar ($) cost)	
	Dollar ($) cost during Treatment	1-year Follow-up Costs	Dollar ($) cost during Treatment	1-year Follow-up Costs
CMP (Treatment effect)	**1,999 *(.00)***	**-1,689 (.08)**	**.97 (.00)**	**-.82 (.00)**
Removal	2,211 (.00)	3,485 (.03)	.37 (.00)	-.08 (ns)
Prior referral count	105 (.00)	-	.04 (.00)	-
Prior case count	-345 (.00)	-	-.01 (ns)	-
Medicaid recipient	265 (.06)	618 (ns)	.23 (ns)	-.28 (.05)
DYC detention involvement	2,622 (ns)	-	.96 (.01)	-
African American	-22 (ns)	410 (ns)	.03 (ns)	.27 (ns)
Hispanic	-2 (ns)		.01 (ns)	-
Low risk rating^	-33 (ns)	-2,542 (.06)	-.24	-.34 (ns)
Moderate risk rating^	-269 (ns)	-2,488 (.00)	-.16 (.09)	-.30 (.05)
PA5	115 (ns)	-	.00 (ns)	-
Age	-13 (ns)	-	.00 (ns)	-

*p-values in parentheses

5. Discussion

In this section, we discuss considerations for evaluation findings in the primary evaluation domains of process, outcome, and cost, as well as next steps for each activity.

5.1. Process Evaluation Considerations

Findings from the Family Voice Survey demonstrate the overwhelmingly positive experiences that families have with ISST meetings. Moreover, results highlight how CMP is advancing best practices for family engagement to address complex needs of multi-system youth. For instance, initial survey findings demonstrate how before meeting actions positively set the stage for the ISST family engagement experience. The authentic welcome received then continues throughout ISST engagement, where collaboration with families took the form of strength-based dialogue, creating space to center family concerns and questions, infusing service options into next steps planning, and co-generation of goal development.

These findings are especially noteworthy in light of Colorado's momentum towards adoption of the Family First Prevention Services Act (FFPSA or Family First), where CMP will play a crucial role in bringing prevention practices to Colorado families in meaningful and sustainable ways. This focus on prevention is further bolstered by the strength-based approach that CMP holds, uplifting protective factors during service delivery. Additionally, results speak to the ways in which CMP cultivates underlying conditions that promote family strengthening, community sustainability, and systems support. For instance, CMP serves as a powerful example to families on the centrality of collaboration within and across systems and communities, with family voice and choice at the center of practice. In concert, the trust, rapport, and relationships CMP partners foster can carry families forward in viewing CMP and intersecting agencies as supportive and nurturing resources in their communities.

There are four key areas for practice growth that Family Voice Survey findings illuminate. First, CMP partners should continue integration of family cultural context into CMP practice, mirroring Colorado's commitment to equity, access, and inclusive excellence. Second, CMP sites should invest in innovative mediums to provide copies of the plan to families in timely, user-friendly ways immediately following the initial ISST meeting, thus better supporting families and ISST meeting partners in enacting expectations and goal achievement. Third, ISST meeting partners and CMP sites should enhance collaboration and impact by improving coordination across CMP stakeholders, thus reducing duplication and repetition for families in the areas of information sharing and task fulfillment. Fourth, CMP stakeholders should pay close attention to the interplay of micro- and macro- issues that are embodied in family experiences of ISST engagement, where authentic respect in approach must be consistently infused by all partners, clarity in purpose elevated, and structural barriers such as resource availability addressed. Underscoring these specific areas for growth is a continual focus on raising the bar for every family to close the gap on all survey statements of family experience and engagement.

5.1.1. Process Evaluation Next Steps

Next year's evaluation will continue the momentum of the first Family Voice Survey by developing and implementing a new family experience assessment to capture additional data on family engagement and provide greater depth to findings from this year's survey, with a particular focus on cultural needs and responsive practices. Additional conversations between COACT and CMP evaluators will also guide design considerations for future family voice measures. Further, the evaluation team will continue partnership with DCW staff, the CMP Family Voice and Choice Committee, and CMP coordinators to move findings into action through targeted knowledge translation and mobilization efforts, including peer learning collaboratives and family voice roadmaps, presentations and facilitated workshops with IOGs, and creative recruitment and outreach strategies with families. In commitment to catalyzing such translational efforts, this year's report includes a CMP Family Voice Survey infographic (see **Appendix D** and online at https://bit.ly/CMPFamilyVoice) for dissemination to families, communities, and system collaborators.

A second next step for the process evaluation is to administer a new Collaboration Survey to all CMP sites. The survey will be developed in partnership with the CMP Practice Committee and CMP Program Administrator. The results will further inform collaboration practices between mandated partners and CMP sites to enhance services for multi-system involved youth.

5.2. Outcome Evaluation Considerations

This year's evaluation continued to build on previous evaluations and increase the overall analytical rigor of the evaluation by expanding the quasi-experimental research design to the juvenile justice domain. The results of the descriptive, non-experimental evaluation demonstrate that, for this higher risk population, CMP appears to have varying degrees of success in achieving performance measures across the four program domains for children within one year of entering the program. Across the domains, the program appears to have more moderate to high levels of success within the child welfare, juvenile justice, and education domains. In contrast, the program appears to have more limited to moderate levels of success in achieving health/mental health performance goals. Although these findings provide insight into the effectiveness of the program, they should be interpreted with caution because of the limitations inherent to the non-experimental, descriptive evaluation.

The QED enabled the evaluation team to more thoroughly examine the descriptive findings. The results of the QED across the child welfare, health/mental health, and juvenile justice domains indicate mixed effectiveness in improving client outcomes. Most notably, a statistically significant difference in favor of CMP clients was found in each domain with CMP clients being less likely to have a founded assessment and be involved with the juvenile justice system, and more likely to have established linkages to substance use and mental health providers. However, there was a small negative effect on child welfare re-involvement and placement stability outcomes and neutral effects on the other five outcomes.

Two factors are important to consider in light of the evaluation's findings. First, the program's impacts could be attributed to the considerable differences in the design and implementation of programs

across CMP counties. As detailed in the authorizing legislation, the program explicitly requires all counties to involve 10 mandatory partners; to establish collaborative processes for risk sharing, resource pooling, performance expectation, outcome monitoring, and staff training; and to implement an ISST to deliver integrated, multiagency services. Outside of these requirements, CMP counties are given considerable discretion in the design and implementation of their programs. CMP coordinators and other stakeholders have consistently highlighted the ability to tailor their programs to meet the individual needs of their clients as a key strength of the program. At the same time, these county-specific adjustments to the implementation and administration of the program could exert a notable impact on the program's overall effectiveness.

Second, it is important to consider the program's impact on the education domain. However, accessing client-level data for the CMP population and a robust comparison group remains an enduring challenge and a key need for comprehensively evaluating the program's effectiveness. Ultimately, the overall determination of the program's effectiveness can only be fully assessed when client outcomes can be rigorously evaluated via quasi-experimental evaluations conducted across all four domains. Accordingly, the need to access outcome data for the education domain, along with the ability to construct matched treatment and comparison groups, will be an important task within subsequent evaluations of the program.

5.2.1. Outcome Evaluation Next Steps

Drawing up the findings from this year's evaluation, the evaluation team describes a collection of recommended next steps for the SFY20 evaluation below. These recommendations support the evaluation team's ongoing evaluation capacity-building efforts by furthering efforts to understand the effective components of the program, expanding access to critical client outcome data, and expanding the quasi-experimental evaluation to additional program domains.

Continue Evaluation Capacity-Building Efforts: Accessing program and outcome data remains a critical need for effectively evaluating CMP. Through collaboration with Colorado Judicial, DYS, and OBH, this year's evaluation was able to once again expand access to outcome data for CMP clients involved in the child welfare, juvenile justice, and health/mental health systems. However, data for clients who are at risk for adverse educational outcomes continue to remain elusive. Accordingly, the evaluation team will continue to engage members of the CMP Steering Committee, the CMP Evaluation and Data Subcommittees, and the Colorado Department of Education to identify opportunities for addressing existing data silos and improving data collection and matching across the CMP outcome domains. This process will continue to focus on exploring possible options, such as the development of MOUs, and formal data use agreements (DUAs), which can be used to obtain the requisite education outcome data.

Conduct Additional Analysis to Identify High-Performing CMP Counties: The evaluation team conducted a series of exploratory analyses during the SFY18 evaluation to identify "high-performing CMP counties" that could serve as a model for their peer counties. The evaluation team will build upon these initial results by conducting additional exploratory analyses to identify a collection of CMP counties that consistently achieved all child welfare outcomes at levels higher than the mean

performance of the CMP counties. These analyses, along with subsequent dissemination, training, and technical assistance efforts, could play a pivotal role in informing subsequent efforts to improve CMP's overall effectiveness. The evaluation team will share the results of these exploratory analyses by the end of this fiscal year.

5.3. Cost Evaluation Considerations

Overall, the results of the cost evaluation analyses suggest that youth who incur costs have profiles characterized by higher risk. Moreover, youth who have higher risk profiles tend to have higher costs and are more likely to be enrolled in the CMP. While these youth may not be less likely to reengage the system in the future, their trajectories of costs appear to be abetted by benefiting from a more holistic and collaborative approach between agencies and families. As such, the reduction in one-year costs may indicate substantial improvements in youths' overall welfare as a result of CMP engagement.

The ability to identify cost savings from a range of diverse programs, processes, and outcomes for youth and families, relies on collaboration between agencies and the ability to overcome complex data siloes. Moreover, in many CMPs, services have not become standard enough or implemented with sufficient fidelity to enable accurate cost assignment to efforts or to savings associated with achieving outcomes directly from those efforts. As organizations shift their research and evaluation priorities towards better understanding the processes and outcomes underlying implementation science, it is important to note that there remains little published research on costs and benefits as they are realized in applied settings. The CMP is an important example of the measurable benefits when stakeholders, such as counties, emphasize collaboration and tailor their services to best meet the needs of their families.

5.3.1. Cost Evaluation Next Steps

Shifting the cost evaluation to distinguish no-cost youth from others is an important step to measuring cost savings. A new and attainable goal for the evaluation moving forward may be to follow the outcomes analysis and use matching techniques to design a comparison group for the youth with positive costs, and to extend the one-year follow-up to include two years of costs. This would allow for a more rigorous test of the cost structures underlying youth involvement across multiple domains by increasing the sample size of the comparison group, particularly because youth who have positive and higher costs tend to be at higher risk initially. In addition, it will provide more data that will allow for an initial model of costs over time. An important insight from this work will be to better understand the processes leading to higher initial costs for CMP youth, but reductions in long-term costs.

APPENDIX A: ORGANIZING, CLEANING, MERGING, AND MATCHING OF EVALUATION DATA

This Appendix provides an overview of the processes associated with compiling the dataset used in the outcome evaluation.

1. Construct the population of CMP clients with child welfare involvement using the Trails database. Information on children and youth who are involved in the child welfare system are required to be included within the Trails database, which serves as the official case record for all children served by the child welfare system. CMP clients within Trails were identified using the parameters that the client had an initial ISST meeting during SFY18 that was documented within Trails via the "Facilitated Family Meeting/ISST" framework.

2. Match the list of clients from the ETO database to the Trails database. This process was used to match the SFY18 records from the ETO database to the population of CMP clients in the Trails database. The ETO database provided data for children and youth who were served by CMP but not necessarily served by the child welfare system. As some CMP clients were recorded in both ETO and Trails, a matching and deduplication process was used to remove children and youth who were represented within both databases. Children and youth were then matched using a multistep matching algorithm. Duplicated clients were subsequently removed, with the client records from the Trails database being retained, while duplicated records in ETO were discarded.

3. Combine the cleaned ETO and Trails datasets into a unique dataset. Under this step, the cleaned datasets were merged into a single dataset ("CMP Outcome Evaluation Dataset") consisting of all CMP clients that had an initial ISST meeting in SFY18.

4. Construct a pool of children and youth that were eligible but not served by CMP. This process was used to identify child welfare-involved children and youth residing within the CMP counties that were eligible for CMP but were not served by the program. This process established a "comparison pool" of children and youth that could serve as potential matches for members of the treatment group. The following parameters were used to identify children and youth that were eligible for the comparison pool:

   a. Children and youth were served within a new child welfare assessment, case, prevention, or new removal in an existing adoption case during SFY18.
   b. Children and youth did not have prior CMP involvement or an ISST meeting. In addition, children and youth did not have CMP involvement or an ISST meeting at any point during SFY18. Finally, children and youth were verified to not have been identified in ETO as a CMP client and to not have had CMP involvement or an ISST meeting in SFY19.
   c. Children and youth were served by systems in the 44 CMP counties for SFY18, excluding Larimer and Boulder Counties, and those served by DYS.
   d. For children and youth with multiple events, the event used was the first eligible event in SFY18.

5. Match the CMP Outcome Evaluation Dataset to records within the Colorado Benefits Management System. Members of the treatment and comparison groups were subsequently matched to records

within the Colorado Benefit Management System. This matching process provided additional demographic data for the treatment and comparison groups, as well as data on all food, cash, and medical assistance applications and eligibility determinations.

6. Integrate pretreatment variables. Under this step, a collection of 14 pretreatment variables were integrated into the dataset. These variables were measured prior to children and youth becoming involved with multiple systems and were used to match members of the treatment and comparison groups.

7. Construct the child welfare outcome variables. In the seventh step, the SFY18 performance measures were used to construct outcome variables for members of the treatment and comparison groups. Under this process, the five child welfare outcome variables were calculated for all children who were involved with the child welfare system, including those within the Trails database, and any children who were originally included within the ETO database and had a child welfare performance goal. All outcomes were calculated 1 year from the date of the child or youth's entry into the child welfare system. For CMP clients, this consisted of 1 year after the date of the initial ISST meeting date. For members of the comparison group, this consisted of 1 year after the date that the child or youth first became involved with child welfare in SFY18. Table A1 on the following page details the operationalization of the five child welfare outcomes.

8. Match judicial outcomes to the CMP Outcome Evaluation Dataset. In this step, the dataset of CMP clients and members of a comparison group were sent to Colorado Judicial and the DYS for outcome matching. This process provided the juvenile justice outcomes for all CMP clients with performance measures under the juvenile justice domain. Table A2 details the operationalization of the four juvenile justice outcomes.

9. Match health and mental health outcomes to the CMP Outcome Evaluation Dataset. In this step, the dataset of CMP clients and members of a comparison group were sent to CDHS, OBH for outcome matching. This process provided the outcomes for all CMP clients with performance measures under the health/mental health domain. Table A3 details the operationalization of the five health/mental health outcomes.

Table A1: *Child Welfare Outcome Variables*

Outcome Measure	Numerator	Denominator (Population Size)	Assumptions
Decrease number of children and youth involved with child welfare	Children and youth who did not have a new involvement in the child welfare system in the year after they began receiving services	Children and youth served by the child welfare system in SFY19 (*N* = 6,344)	▪ New involvements were defined as a subsequent case (traditional or Family Assessment Response with services) within 1 year of the ISST date or 1 year of the involvement open date (for members of the comparison group).
Increase safety of children and youth	Children and youth with no substantiated findings of abuse in the year after they began receiving services	Children and youth served by the child welfare system in SFY19 (*N* = 6,344)	▪ No substantiated abuse finding was defined as no subsequent abuse/neglect finding within 1 year of the ISST date or 1 year of the case open date (for members of the comparison group).
Increase placement stability of children/youth	Children and youth with less than three completed removals in the year after they began receiving services, and who were receiving out-of-home services	Children and youth who were in an out-of-home placement in SFY19 (*N* = 2,047)	▪ The measure includes all child welfare clients who were in an out-of-home placement at some point during SFY19. ▪ The number of placements was calculated within 1 year of the ISST meeting or the removal date, whichever was later.
Increase permanency of children and youth involved in child welfare	Children and youth who were receiving out-of-home services, and whose most recent removal resulted in a permanent outcome (adoption, guardianship, reunion) in the year after they began receiving services	Children and youth who were in an out-of-home placement in SFY19 (*N* = 2,047)	▪ The measure includes all child welfare clients who were in an out-of-home placement at some point during SFY19. ▪ Permanency outcomes were calculated within 1 year of the ISST meeting or the removal date, whichever was later. ▪ Achieving permanency was defined as reunification, living with relatives, adoption, or a guardianship.
Increase the number of children and youth who remain home	Children and youth who had not been removed from their homes while receiving child welfare services in the year after they began receiving services	Children and youth receiving child welfare services who remained in their homes in SFY19 (*N* = 4,824)	▪ The measure includes all child welfare clients who were not in an out-of-home placement within 60 days of the ISST meeting or the opening of the case (used to account for lags in removal times). ▪ Whether the client was removed from the home was determined within 1 year of the ISST meeting or the date the case was opened. ▪ For the comparison group, only children and youth that were served in a case were included (i.e., children served via an assessment or referral were excluded).

Table A2: *Juvenile Justice Outcome Variables*

Outcome Measure	Numerator	Denominator (Population Size)	Assumptions
Prevent involvement with juvenile justice system	Children and youth who did not enter into detention	Children and youth served by CMP in SFY19, ages 10 years or older (*N* = 3,097)	▪ N/A
Increase successful involvement with juvenile justice system (probation only)	Children and youth who were also served by the juvenile justice system and had a "successful termination of probation or parole" in the year after they began receiving services	Children and youth served by CMP in SFY19 that were also served by the juvenile justice system **and** had a probation termination outcome in the year after they began receiving services (*N* = 154)	▪ Successful termination of probation consisted of the following outcomes: Terminated – successful, Terminated – unsatisfactory, and Successful Discharge – interstate compact. ▪ Unsuccessful termination of probation consisted of the following outcomes: Revocation – new felony offense, Revocation – new misdemeanor offense, Revocation – technical violation, Absconded, Absconded – warrant outstanding, and Community Corrections.
Decrease commitment to the Division of Youth Corrections	Children and youth who were not committed to the Division of Youth Services	Children and youth served by CMP in SFY19, ages 10 years or older (*N* = 3,097)	▪ N/A
Decrease children and youth involved with truancy court	Children and youth who were diverted from involvement with truancy court while involved in the juvenile justice system	Children and youth served by CMP in SFY19 (*N* = N/A)	▪ None of the CMP counties selected the "Decrease children and youth involved in truancy court" performance goal.

Table A3: *Health/Mental Health Outcome Variables*

Outcome Measure	Numerator	Denominator (Population Size)	Assumptions
Decrease problem severity	Children and youth with (a) decreased problem severity, and (b) improved level of functioning on CCAR or a similar tool	CMP clients that were involved with the health/mental health system and had a minimum of two-level of functioning measurements within the CCAR (*N* = 1,311)	▪ Measuring changes in the level of functioning required a minimum of two measurements. Clients with less than two measurements were excluded from the measure.
Increase psychological, social, cognitive, and physical functioning	Children and youth with decreased concerns according to the Trauma Screening Tool	CMP clients that were involved with the health/mental health system	▪ *Note*: The requisite data were not available to calculate this measure for SFY19.
Increase wellbeing	Children and youth with improved Multisystemic Therapy (MST) outcome indicators or successful completion of mental health treatment	CMP clients receiving mental health services	▪ *Note:* The requisite data were not available to calculate this measure for SFY19*.*
Decrease substance abuse	Children and youth who completed 90-day inpatient substance abuse treatment or intensive outpatient treatment	CMP clients receiving substance abuse or intensive outpatient services (*N* = 57)	▪ The CMP client population was matched to substance use treatment records in the Drug and Alcohol Coordinated Data System (DACODS) for patients receiving intensive residential, transitional residential, or intensive outpatient services during SFY19.
Increase children and youth's health	Children and youth with established linkages to (a) primary health care provider, (b) oral care provider, (c) substance abuse provider, (d) mental health provider or (e) health insurance provider	CMP clients in need of health services (*N* = 6,344)	▪ The CMP client population was matched to DACODS and CCAR records. The measure currently uses a broad denominator that assumes all clients require health services. However, a more specific denominator would consist of only those clients who explicitly needed a linkage. Additional consideration may be needed for how this measure is operationalized.

APPENDIX B: SENSITIVITY ANALYSIS – IMPACT OF EXCLUDING BOULDER AND LARIMER COUNTIES AND DYS CLIENTS

An important factor to consider is whether dropping children/youth served by Boulder and Larimer Counties and DYS had a notable impact on the populations used to construct the matched comparison groups. Children/youth served by Boulder and Larimer Counties and DYS were dropped from the quasi-experimental evaluation on the basis that comparison groups could not be identified. As shown in Table B1, excluding these clients from the analysis had minimal impact, with performance goals between the two populations differing by less than three and a half percentage points. Accordingly, these results cast doubt on the likelihood that excluding these clients had a considerable impact on the quasi-experimental evaluation's findings.

Table B1: *Comparison of Performance Goal Achievement with and without Clients Served by Boulder and Larimer Counties and DYS*

Outcome (Performance Goal)	Percentage Achieving Goal (Full Population)	Percentage Achieving Goal (Excluding Boulder and Larimer Counties and DYS)
Child Welfare Performance Goals		
Increase safety of children/youth	94.5% (*N* = 6,422)	94.1% (*N* = 5,305)
Decrease number of children/youth involved in child welfare	93.6% (*N* = 6,422)	93.4% (*N* = 5,305)
Increase number of children/youth who remain home	90.8% (*N* = 4,896)	89.6% (*N* = 3,888)
Increase placement stability of children/youth	88.1% (*N* = 2,061)	87.7% (*N* = 1,891)
Increase permanency of children/youth	65.7% (*N* = 2,061)	66.1% (*N* = 1,891)
Health/Mental Health Performance Goals		
Decrease problem severity	31.9% (*N* = 1,311)	31.4% (*N* = 1,140)
Decrease substance abuse	61.4% (*N* = 57)	64.8% (*N* = 54)
Increase children/youth health	21.1% (*N* = 6,344)	21.3% (*N* = 5,471)
Juvenile Justice		
Decrease commitment to DYS	97.4% (*N* = 3,097)	96.9% (*N* = 2,512)
Prevent involvement with juvenile justice system	82.6% (*N* = 3,097)	80.8% (*N* = 2,512)
Increase successful involvement with juvenile justice system (probation only)	53.3% (*N* = 154)	51.1% (*N* = 135)

APPENDIX C: DETAILED OVERVIEWS OF THE MATCHES USED IN THE CHILD WELFARE, HEALTH/MENTAL HEALTH, AND JUVENILE JUSTICE QUASI-EXPERIMENTAL EVALUATIONS

This appendix expands on the information provided in Section 3.5.1. (***Constructing Comparison Groups Using Matching Methods***) by providing detailed descriptions of the processes used to construct the matched groups used in the child welfare, health/mental health, and juvenile justice quasi-experimental evaluations.

Child Welfare Outcomes: Subsequent Involvements and Safety

To examine the subsequent involvement and safety performance goals, the evaluation team matched 3,578 members of the treatment group to 3,578 members of the comparison group. As shown in Table C1 on the following page, the matching process considerably reduced the imbalance between the two groups, with the matched groups having no statistically significant differences across the 13 matching variables.

Table C1: *Differences in Key Covariates within the Matched Child Welfare Groups Used to Examine Subsequent Involvements and Safety Outcomes*

Covariate	Matched CMP Clients	Matched Comparison Group	CMP Population
Prior Adoption	0.28%	0.28%	3.02%
Prior Food Assistance			
Yes	75.15%	75.91%	73.23%
No	23.48%	22.72%	24.60%
Unknown	1.37%	1.37%	2.16%
Previously on Medicaid			
Yes	84.96%	85.49%	82.72%
No	13.67%	13.14%	15.12%
Unknown	1.37%	1.37%	2.16%
Age at Beginning of Involvement	7.98	7.93	8.95
Gender			
Female	47.48%	47.48%	45.84%
Male	52.52%	52.52%	54.16%
Race and Ethnicity			
African American	9.17%	9.17%	9.89%
Caucasian	45.03%	45.03%	45.09%
Hispanic	40.05%	40.05%	35.89%
Other	0.95%	0.95%	1.23%
Unknown	4.81%	4.81%	7.93%
Family Structure			
Single Parent	21.05%	21.05%	23.75%
Married Couple	6.15%	6.15%	10.76%
Undetermined	64.92%	64.92%	54.91%
Unmarried Couple	7.88%	7.88%	10.59%
Primary Caregiver's Age	34.65	34.14	35.47
Number of Prior Referrals	5.11	4.82	5.76
Number of Prior Assessments	2.47	2.39	2.70
Number of Prior Cases	0.30	0.30	0.46
Number of Prior Removals	0.12	0.12	0.19
Prior DYS Involvement	3.63%	3.63%	7.33%
Number of Observations	**3,578**	**3,578**	**6,422**

Note: *Statistically significant at the $p < 0.05$ level.

Child Welfare Outcomes: Placement Stability and Permanency

Unlike the broader CMP population, the out-of-home subpopulation consisting of children/youth with placement stability and permanency outcome performance goals had notably fewer members within the comparison group. As a result, 1-to-1 matching could not be performed without excluding a sizable proportion of the treatment group. Accordingly, the evaluation team used 1-to-*k* matching to match multiple members of the treatment and comparison groups to one another. The use of 1-to-*k* matching does not necessarily result in a less balanced matched group but requires a slightly different outcome model that weights observations by the number of treatment and comparison groups within each matched stratum.[31] In total, 647 members of the treatment group were matched to 545 members of the comparison group. As shown in Table C2 on the following page, the matching process significantly reduced the imbalance between the two groups, though fewer of the 12 covariates were exactly matched.[32]

After matching, statistically significant differences persisted for food assistance and prior DYS involvement ($p < 0.005$ for both variables). The difficulty in removing statistically significant imbalances across these variables is largely attributed to the pre-matching imbalance between the number of treatment group members (1,868) and comparison group members (1,054). A comparison group that is approximately half the size of the treatment group limits the overall size of the comparison group and renders the matching process a more arduous task (though the evaluation team used 1-to-*k* matching to mitigate this imbalance by matching multiple members of the treatment and comparison groups to one another). The associated matches reduced overall imbalance between these groups by 27.3 percent while also removing statistically significant differences among 10 of the 12 variables. To further account for the effects of these remaining imbalances, the evaluation team includes these covariates within each of the multi-level mixed effects models. Including these variables in both the matching process and the subsequent multivariate models provides a "double robustness" approach, which is commonly used within randomized experiments and matched designs and allows the evaluation team to further control for covariate imbalance between the matched groups.

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[31] Blackwell, M., Iacus, S., King, G., & Porro, G. (2009). CEM: Coarsened exact matching in Stata. *The State Journal, 9*, 524–546. The article includes the following helpful description: "By default, CEM uses maximal information, resulting in strata that may include different numbers of treated and control units. To compensate for the differential strata sizes, CEM also returns weights to be used in subsequent analyses. Although this is generally the best option, a user with enough data may opt for a k-to-k solution to avoid the slight inconvenience of needing to use weights" (p. 536).

[32] Variables that were not exactly matched were subsequently included in the placement stability and permanency models.

Table C2: Differences in Key Covariates within the Matched Child Welfare Groups Used to Examine Placement Stability and Permanency Outcomes

Covariate	Matched CMP Clients	Matched Comparison Group	CMP Population
Prior Food Assistance*			
Yes	71.62%	65.32%	74.97%
No	28.38%	34.68%	25.03%
Unknown	0.00%	0.00%	0.00%
Previously on Medicaid			
Yes	85.72%	82.02%	86.50%
No	14.28%	17.98%	13.50%
Unknown	0.00%	0.00%	0.00%
Age at Beginning of Involvement	3.90	3.49	7.28
Gender			
Female	45.60%	46.42%	47.53%
Male	54.40%	53.58%	52.47%
Minority			
Yes	63.07%	65.14%	57.13%
No	36.93%	34.86%	42.87%
Family Structure			
Single Male	5.07%	4.59%	6.54%
Single Female	52.55%	52.48%	44.08%
Married Couple	14.30%	15.23%	21.06%
Undetermined	0.32%	1.83%	4.35%
Unmarried Couple	27.75%	25.87%	23.97%
Primary Caregiver's Age	30.50	30.64	34.48
Number of Prior Referrals	2.81	2.46	5.66
Number of Prior Assessments	1.39	1.26	2.77
Number of Prior Cases	0.09	0.10	0.40
Number of Prior Removals	0.03	0.04	0.17
Prior DYS Involvement*	3.93%	1.65%	8.47%
Number of Observations	**647**	**545**	**1,866**

Note: *Statistically significant at the $p < 0.05$ level.

Child Welfare Outcome: Remain Home

To examine the remain home performance goal, the evaluation team matched 2,550 members of the treatment group of children/youth who had a child welfare case but remained in their homes to 2,550 members of the comparison group. As shown in Table C3 on the following page, the matching process considerably reduced the imbalance between the two groups, with the 13 matching variables having no statistically significant differences.

Table C3: *Differences in Key Covariates within the Matched Child Welfare Groups Used to Examine the Remain Home Outcome*

Covariate	Matched CMP Clients	Matched Comparison Group	CMP Population
Prior Adoption	0.16%	0.16%	3.56%
Prior Food Assistance			
Yes	75.57%	75.49%	74.21%
No	23.33%	23.41%	22.49%
Unknown	1.10%	1.10%	3.30%
Previously on Medicaid			
Yes	84.63%	85.37%	82.17%
No	14.27%	13.53%	14.53%
Unknown	1.10%	1.10%	3.30%
Age at Beginning of Involvement	8.27	8.28	9.24
Gender			
Female	47.18%	47.18%	45.62%
Male	52.82%	52.82%	54.38%
Race and Ethnicity			
African American	8.27%	8.27%	9.97%
Caucasian	44.98%	44.98%	41.24%
Hispanic	40.71%	40.71%	40.06%
Other	0.78%	0.78%	1.37%
Unknown	5.25%	5.25%	7.36%
Family Structure			
Single Parent	11.37%	11.37%	18.33%
Married Couple	2.24%	2.24%	7.59%
Undetermined	82.67%	82.67%	67.41%
Unmarried Couple	3.73%	3.73%	6.67%
Primary Caregiver's Age	34.81	34.44	35.84
Number of Prior Referrals	5.14	4.85	5.71
Number of Prior Assessments	2.47	2.40	2.75
Number of Prior Cases	0.26	0.26	0.38
Number of Prior Removals	0.09	0.09	0.18
Prior DYS Involvement	2.39%	2.39%	7.73%
Number of Observations	**2,550**	**2,550**	**3,792**

Note: *Statistically significant at the $p < 0.05$ level.

Health/Mental Health Outcome: Decrease Problem Severity

Within the health/mental health domain, the evaluation team examined the decrease problem severity goal using matched groups consisting of 378 members for each of the treatment and comparison groups. Table C4 on the following page shows that the matching process considerably reduced the

imbalance between the two groups, with the matched groups having no statistically significant differences across the 13 matching variables.

Table C4: *Differences in Key Covariates within the Matched Health/Mental Health Groups Used to Examine the Decrease Problem Severity Outcome*

Covariate	Matched CMP Clients	Matched Comparison Group	CMP Population
Prior Adoption	0.53%	0.53%	7.69%
Prior Food Assistance			
Yes	85.71%	89.68%	79.45%
No	13.76%	9.79%	19.21%
Unknown	0.53%	0.53%	1.34%
Previously on Medicaid			
Yes	91.80%	94.71%	85.61%
No	7.67%	4.76%	13.05%
Unknown	0.53%	0.53%	1.34%
Age at Beginning of Involvement	12.23	12.21	11.97
Gender			
Female	47.09%	47.09%	43.52%
Male	52.91%	52.91%	56.48%
Race and Ethnicity			
African American	6.35%	6.35%	10.99%
Caucasian	56.08%	56.08%	47.36%
Hispanic	34.39%	34.39%	35.66%
Other	0.26%	0.26%	1.25%
Unknown	2.91%	2.91%	4.74%
Family Structure			
Single Parent	20.37%	20.37%	32.17%
Married Couple	2.12%	2.12%	15.37%
Undetermined	76.19%	76.19%	43.07%
Unmarried Couple	1.32%	1.32%	9.38%
Primary Caregiver's Age	37.92	37.66	38.95
Number of Prior Referrals	9.40	8.73	8.79
Number of Prior Assessments	4.45	4.00	4.09
Number of Prior Cases	0.54	0.50	0.62
Number of Prior Removals	0.25	0.22	0.39
Prior DYS Involvement	5.29%	5.29%	15.46%
Number of Observations	**378**	**378**	**1,119**

Note: *Statistically significant at the *p* < 0.05 level.

Health/Mental Health Outcome: Decrease Substance Abuse

The evaluation team examined the decrease substance abuse goal using notably smaller matched groups consisting of 26 members of the treatment group and 17 members of the comparison group (as shown in Table C5). The smaller size of these matched groups is attributed to a lower number of children and youth involved in substance abuse treatment and, in particular, critical differences in the number of CMP children and youth who received services (54 clients) and the number of non-CMP children and youth receiving services (23 clients). While imbalance existed between the number of children and youth in the two groups prior to matching, there were notably fewer statistically significant differences between the two groups that necessitated matching. Accordingly, only three of the 13 pretreatment variables significantly related to treatment assignment or substance abuse treatment outcomes were involved in the matching procedure.

Table C5: *Differences in Key Covariates within the Matched Health/Mental Health Groups Used to Examine the Decrease Substance Abuse Outcome*

Covariate	Matched CMP Clients	Matched Comparison Group	CMP Population
Family Structure			
Single Parent	70.19%	41.18%	57.41%
Married Couple	9.32%	11.76%	18.52%
Undetermined	20.50%	47.06%	20.37%
Unmarried Couple	--	--	3.70%
Primary Caregiver's Age	46.80	43.88	44.34
Prior DYS Involvement	85.09%	70.59%	61.11%
Number of Observations	**26**	**17**	**54**

Note: *Statistically significant at the $p < 0.05$ level.

Health/Mental Health Outcome: Increase Children/Youth Health

Next, the evaluation team examined the increased children/youth health outcome using robust treatment and comparison groups consisting of 3,136 members each. As shown in Table C6, the matching process considerably reduced the imbalance between the two groups, with the matched groups having no statistically significant differences across the 13 matching variables.

Table C6: *Differences in Key Covariates within the Matched Health/Mental Health Groups Used to Examine the Increase Children/Youth Health Outcome*

Covariate	Matched CMP Clients	Matched Comparison Group	CMP Population
Prior Adoption	0.26%	0.26%	3.16%
Prior Food Assistance			
Yes	73.88%	72.70%	74.39%
No	24.81%	25.99%	23.24%
Unknown	1.31%	1.31%	2.38%
Previously on Medicaid			
Yes	83.83%	84.85%	83.75%
No	14.86%	13.84%	13.87%
Unknown	1.31%	1.31%	2.38%
Age at Beginning of Involvement	7.62	7.62	8.69
Gender			
Female	47.58%	47.58%	46.23%
Male	52.42%	52.42%	53.77%
Race and Ethnicity			
African American	8.86%	8.86%	11.48%
Caucasian	45.25%	45.25%	42.85%
Hispanic	39.83%	39.83%	38.37%
Other	0.96%	0.96%	1.38%
Unknown	5.10%	5.10%	5.92%
Family Structure			
Single Parent	17.22%	17.22%	26.40%
Married Couple	5.07%	5.07%	11.61%
Undetermined	70.34%	70.34%	50.44%
Unmarried Couple	7.37%	7.37%	11.55%
Primary Caregiver's Age	34.23	34.07	35.41
Number of Prior Referrals	3.93	3.98	5.82
Number of Prior Assessments	1.96	1.92	2.79
Number of Prior Cases	0.21	0.21	0.41
Number of Prior Removals	0.07	0.07	0.20
Prior DYS Involvement	2.52%	2.52%	7.78%
Number of Observations	**3,136**	**3,136**	**5,220**

Note: *Statistically significant at the $p < 0.05$ level.

Juvenile Justice Outcomes: Prevent Involvements with the Juvenile Justice System & Decrease Commitment to DYS

Finally, the evaluation team examined the pair of juvenile justice outcomes using treatment and comparison groups consisting of 1,158 members each. As shown in Table C7, the matching process considerably reduced the imbalance between the two groups, with the matched groups having no statistically significant differences across the 13 matching variables.

Table C7: *Differences in Key Covariates within the Matched Justice Groups Used to Examine the Prevent Involvement with the Juvenile Justice System and Decrease Commitments to DYS Outcomes*

Covariate	Matched CMP Clients	Matched Comparison Group	CMP Population
Prior Adoption	0.17%	0.17%	5.66%
Prior Food Assistance			
Yes	76.51%	78.58%	74.93%
No	22.28%	20.21%	21.34%
Unknown	1.21%	1.21%	3.73%
Previously on Medicaid			
Yes	84.63%	85.23%	81.63%
No	14.16%	13.56%	14.64%
Unknown	1.21%	1.21%	3.73%
Age at Beginning of Involvement	13.44	13.44	13.85
Gender			
Female	45.77%	45.77%	43.16%
Male	54.23%	54.23%	56.84%
Race and Ethnicity			
African American	7.60%	7.60%	11.67%
Caucasian	44.47%	44.47%	40.11%
Hispanic	41.02%	41.02%	39.87%
Other	0.95%	0.95%	1.60%
Unknown	5.96%	5.96%	6.74%
Family Structure			
Single Parent	10.71%	10.71%	28.00%
Married Couple	2.50%	2.50%	12.60%
Undetermined	85.23%	85.23%	53.67%
Unmarried Couple	1.55%	1.55%	5.74%
Primary Caregiver's Age	38.97	38.70	40.18
Number of Prior Referrals	5.84	5.65	8.07
Number of Prior Assessments	2.69	2.59	3.83
Number of Prior Cases	0.28	0.28	0.60
Number of Prior Removals	0.08	0.08	0.33
Prior DYS Involvement	5.79%	5.79%	16.29%
Number of Observations	**1,158**	**1,158**	**2,493**

APPENDIX D: FAMILY VOICE INFOGRAPHIC

Collaborative Management Program (CMP)

CMP is a model integrated service delivery system that establishes collaborations across child welfare, mental/behavioral health, juvenile justice, and education to uplift communities, strengthen families, and improve outcomes for multi-system involved children and youth.

What are families saying?

1 CMP centers family voice & choice

"The group is amazing, thoughtful, and they get things done for families. I would recommend this team to any family I know that needs the extra help."

In a recent survey with over 400 families participating in CMP,

86% said family engagement meetings were helpful to their family and that co-developed plans met their families needs.

Collaboration + Support = Impact

2 Improving service coordination

85% said team members worked well together to serve their family and 88% felt comfortable calling team members with questions and needs.

"Team members are very caring. We feel like they are really sincere in words and actions to help our family."

3 A focus on strengths & personalized care

84% said their unique family concerns were included in discussion and 77% said next steps were developed with their family's strengths in mind.

"Things were explained in plain context for my understanding and the team meeting we had helped me focus so much more on my strengths instead of my stresses."

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To learn more, call 1-800-CO-4-KIDS or visit https://www.colorado.gov/pacific/cdhs/child-welfare-collaborations

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