

Collaborative Management
Program Evaluation

*Colorado Department of Human
Services*

State Fiscal Year 2017 Report



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Collaborative Management Program Evaluation State Fiscal Year 2017 Report

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COLORADO

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Division of Child Welfare

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Collaborative Management Program Evaluation State Fiscal Year 2017 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 was evaluated from 2004-2014, the State Fiscal Year 2017 (SFY17) report presents the methods, findings, and implications of a full-scale implementation of the CMP evaluation. This year's report builds on SFY15 (planning year) and SFY16 (pilot year), in which the process, outcome, and cost evaluations were developed, tested, and refined.

Overview

In 2004, the Colorado General Assembly passed House Bill 04-1451 (referred to as HB 1451) to establish collaborative management programs at the county level that would improve outcomes for children, youth, and families involved with multiple agencies. 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.

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. **In SFY17, the prior Division of Youth Services (DYS) involvement rate for youth from the CMP population was 13.6% compared to 3.3% for youth from the overall child welfare population in Colorado. Furthermore, 3.6% of CMP involved youth had a prior adoption compared to 1.1% for youth from the overall child welfare population.**

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

1. Is the 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. Are there cost savings associated with the CMP?
6. How are CMPs realizing systems improvements?

Collectively, the results of the three main evaluation components provide an understanding of the Collaborative Management Program so the evaluation team can answer the identified evaluation questions. Each component also addresses other relevant evaluation questions to explore how the CMP is implemented at the county level, and to better understand the contextual and practice factors contributing to child and system outcomes.

Process Evaluation

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 Interagency Oversight Group (IOG) and Individualized Services and Support Teams (ISST) implementation, coordinated service provision, and interagency collaboration. The evaluation team implemented new surveys to ensure that the most reliable and valid data are being collected to capture the key processes of the CMP.

The following summarizes the results for CMP process measures:

- The use of evidence-based practices was achieved by 100% of CMPs.
- 96% of CMPs achieved the goal of having 75% of their agencies contribute resources.
- 94% of CMPs achieved the goal of using Continuous Quality Improvement (CQI) by IOGs.
- Family participation in IOGs was achieved by 81% of CMPs.
- Attendance by mandatory members of the IOGs was achieved by 64% of CMPs

Stakeholders who participate in IOG and ISST meetings reported high levels of collaboration in shared vision, relationships, authenticity & trust, and leadership & process. However, the collaboration survey revealed several areas of improvement for the IOG and ISST processes, including challenges around resources being shared equally among members, decision-making activities being dominated by a few members, leadership taking a top-down approach, and the need for clearly defined roles.

Overall, families were mixed in their perceptions of the ISST meetings. The range of responses reflects the individual nature of family needs and the ability of agencies to meet these needs. It is important to note that the pilot survey was not designed to provide generalizable results for the CMP population.

Outcome Evaluation

The SFY17 Outcome Evaluation builds upon past evaluations by introducing greater analytical rigor to examine the question of whether CMP is effective in improving client outcomes. In following with the design of past evaluations, a non-experimental, descriptive evaluation was used to examine client outcomes for the entire CMP population across the program's four domains. These findings provide preliminary insight into the effectiveness of the program, but should be interpreted with caution. 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 increasing health and decreasing substance abuse. Finally, educational outcomes were limited to self-reported data provided by the CMP counties via county-specific annual reports, and the associated results should be interpreted cautiously. The program was associated with high levels of success in increasing successful graduation rates, decreasing disciplinary problems at school, increasing school stability, and increasing academic achievement, but more moderate levels of success in increasing school attendance.

Given the ability to access data for CMP clients with child welfare involvement and a comparable population of children/youth that were eligible, but not served by the program, a quasi-experimental design was used to evaluate the program's effectiveness in improving child welfare outcomes. The quasi-experimental design with matched groups increases the statistical rigor of the outcome evaluation and provides causal evidence on the program's effectiveness. The findings show that that program had a small negative impact in preventing new involvements and establishing placement stability for CMP clients. In addition, the findings show that the program has no significant effects on increasing safety, permanency, or keeping children/youth in their homes.

Cost Evaluation

The collection of data from counties on ISST meetings paints a picture of the resources being used to facilitate collaboration, and subsequently more efficient services to children, youth, and families. This efficiency is further demonstrated by the results from the cost comparison analysis, which indicates that there are no statistically significant differences on out-of-home (OOH) placement and service costs during a one-year follow-up period between children/youth who received CMP and otherwise eligible children/youth who did not. Similar to the outcome evaluation, the program's impact may be more clearly realized when costs from juvenile justice, education, and health/mental health services are considered.

Conclusions

Overall, for this higher risk population, the program appears to have a high level of success in child welfare performance measures, such as increasing the safety of children/youth, decreasing children/youth involvement in child welfare, and increasing children/youth who remain home. The program also appears to be associated with high levels of success in juvenile justice performance goals, such as decreasing commitment to DYS, and preventing involvement with the juvenile justice system.

The results of a quasi-experimental research design indicate that there is an overall neutral and small negative effect on child welfare re-involvement and placement stability outcomes. However, these results are not surprising given the emphasis of CMP on child/youth well-being outcomes, which will be measured more rigorously and across all four systems in future evaluations.

CMP stakeholders who participate in IOG and ISST meetings report high levels of collaboration in shared vision, relationships, authenticity & trust, and leadership & process. CMP sites achieved key process performance goals at high levels including the use of evidence-based practice, partner contributions at the service level, and completion of CQI.

The results from the cost comparison analysis indicate that there are no statistically significant differences on OOH placement and service costs during a one-year follow-up period between children/youth who received CMP and otherwise eligible children/youth who did not. Similar to the outcome evaluation, the program's impact may be more clearly realized when costs from juvenile justice, education, and health/mental health services are considered.

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 was evaluated from 2004-2014, the State Fiscal Year 2017 (SFY17) report presents the methods, findings, and implications of a full-scale implementation of the CMP evaluation. This year's report builds on SFY15 (planning year) and SFY16 (pilot year), in which the process, outcome, and cost evaluations were developed, tested, and refined.

1.1. CMP Program

In 2004, the Colorado General Assembly passed House Bill 04-1451 (referred to as HB 1451) to establish collaborative management programs at the county level that would improve outcomes for children, youth, and families involved with multiple agencies. This population is considered to be at higher risk for negative outcomes in the juvenile justice, child welfare, health/mental health, and education systems. **In SFY17, the prior Division of Youth Services (DYS) involvement rate for the CMP population was 13.6% compared to 3.3% for the overall child welfare population in Colorado.¹ Furthermore, the prior adoption rate for the CMP population was 3.6% compared to 1.1% for the overall child welfare 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.”² 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

¹ These data were collected from Trails, which is the Statewide Automated Child Welfare Information System (SACWIS) used to collect and record child welfare data. The overall child welfare population group was comprised of children/youth who received an assessment in SFY17.

² Colorado Revised Statute, Title 24, Article 1.9. (2010). Retrieved from <http://www.lexisnexis.com/hotttopics/Colorado>

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 competent services tailored to the unique needs of different populations. These elements are used to engage stakeholders outside state and local government in consensus-oriented 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.³ The specific goals of the legislation are to:

1. Develop a more 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.

The legislation requires the development of local collaborative management structures and processes that bring together agencies and service providers. Local stakeholders participate in the 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 all IOGs meet the following set of common elements:

- Inclusion of 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.
- Establishment of a collaborative process that addresses risk sharing, resource pooling, performance expectation, outcome monitoring, and staff training.

³ U.S. Department of Health and Human Services. (2010). *Guiding principles of systems of care*. Retrieved June 1st, 2010 from <http://www.childwelfare.gov/pubs/soc/socc.cfm>

- Implementation of 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.⁴ 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-saving related to CMP efforts; and (c) 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:

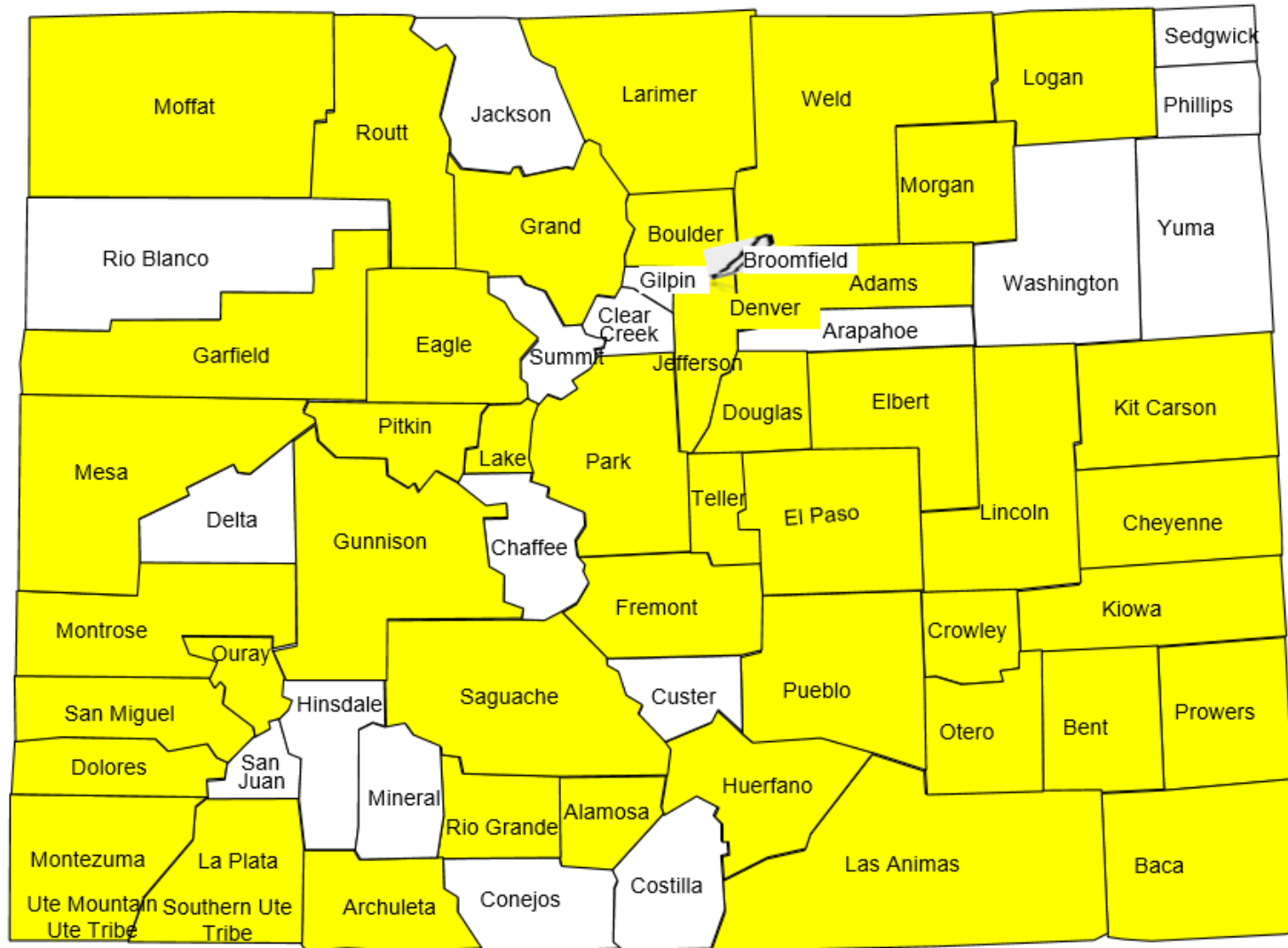
1. Is the CMP meeting legislative intent in key population, systems, services, and outcome components?
2. Are CMP structures/processes improving cross-agency collaborations at the local level?
3. What are the outcomes for CMP involved children/youth?
4. Which CMP models/components are most effective?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

Collectively, the results of the process, outcome, and cost evaluation components (see Appendix A) provide an improved understanding of CMP contextual and practice factors at the county and state levels that contribute to family and system outcomes. As displayed in the map on the following page, county participation in the CMP has increased significantly since it was established, growing from six counties in its first year to 45 counties in SFY18.⁵

⁴ California Department of Education. (2007). *Handbook on developing and evaluating interagency collaboration in early childhood special education programs*. Retrieved June 1st, 2010 from <http://www.cde.ca.gov/sp/se/fp/documents/eciacolbrtn.pdf>

⁵ The outcome evaluation is based on data collected from the 41 counties active in SFY16.

SFY 18 CMP Participating Counties



2. PROCESS EVALUATION

The process evaluation examines the implementation of the Collaborative Management Program to provide practitioners, policymakers, and stakeholders with essential information about how 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, and interagency collaboration. The primary data sources for the process evaluation are the Efforts to Outcomes (ETO) database, Trails, collaboration surveys, and family surveys. The evaluation team piloted new surveys to ensure that the most reliable and valid data are being collected to capture the key processes of the CMP.

2.1.1. Measuring Collaboration

Identifying strengths and barriers to improve collaboration is a critical part of demonstrating the effectiveness of the CMP. Thus, the evaluation team developed a survey to ask members of county IOGs and ISSTs their experiences in the collaborative process. The following structures, qualities, and processes were measured: program planning, program goal setting, organizational aspects, contextual factors, barriers to implementation, and policies/procedures.

The survey was adapted from the Process Quality (PQ) Scale developed by Hicks, Larson, Nelson, Olds, and Johnson (2008), which was designed to evaluate the collaborative process and outcomes of a community health program. Findings from their research suggest that the quality of a collaboration process, and in particular, perceived authenticity of the process, is significantly associated with participants' participation and program completion.⁶ Based on these findings, a new survey was developed that combined questions from the PQ scale with

⁶ Hicks, D., Larson, C., Nelson, C., Olds, D. L., & Johnston, E. (2008). The influence of collaboration on program outcomes: The Colorado Nurse-Family Partnership. *Evaluation Review*, 32, 453-477.

additional questions created to address areas specific to collaborative management, including shared vision, interpersonal relationships, and leadership and team dynamics.

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 and the variation in local approaches, statewide progress in these areas can be difficult to quantify. Process measures developed for the CMP evaluation are used as proxy indicators to assess system 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 in order to receive the meaningful minimum:⁷

- 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 be in attendance at 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

To measure family engagement in the CMP context, the evaluation team worked with DCW staff and the CMP Evaluation Subcommittee to test and pilot the CMP Family Voice Survey with

⁷ Because of challenges in accurately measuring the “evidence of cost-sharing among IOG members” process measure, results for this measure were not included in this year’s evaluation report.

a sample of families from CMP sites. The evaluation team developed an instrument that is user-friendly to make it more of an effective and efficient approach to evaluating family engagement (e.g., communication between providers and parents) in ISST activities.

2.2. Process Evaluation Results

The results from the process measures, collaboration survey, and family voice 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 use of evidence-based practices was achieved by 100% of CMPs that selected that process measure; the contribution of resources at the service level by 75% of agencies was achieved by 96% of CMPs; the use of CQI by IOGs was achieved by 94% of CMPs; family participation in IOGs was achieved by 82% of CMPs; attendance by mandatory members of the IOGs was achieved by 66% of CMPs. The high level of achievement for process measures was consistent from SFY16 to SFY17. In addition, there was a 10% increase in CMPs that achieved the IOG attendance measure from SFY16 to SFY17.

Table 1: SFY17 Process Measures Achieved by CMPs

| Process Measures | CMPs Achieving | |
|--|----------------|-------------|
| | Number | Percent (%) |
| Use of evidence-based or evidence-informed practices (<i>n</i> = 22) | 22 | 100.0 |
| Seventy-five percent (75%) of the agencies contribute resources at service level, either in-kind or actual monies (<i>n</i> = 26) | 25 | 96.2 |
| Process of CQI used by the IOG (<i>n</i> = 18) | 17 | 94.4 |
| Family agency or member participation on the IOG as a voting member (<i>n</i> = 27) | 22 | 81.5 |
| IOG meeting attendance (<i>n</i> = 32) | 21 | 65.6 |

2.2.2. Collaboration Survey

During the SFY17 evaluation, the Collaboration Survey was administered to all CMP sites. Survey links were emailed to CMP coordinators, who then forwarded the link to IOG and ISST

members from their site. Coordinators were asked to share the survey with IOG members from each of the 10 mandated partners, and with a representative sample from their most frequent ISST participants. The survey was administered to 45 CMP sites, and data collection took place from mid-October through November of 2017. As displayed in Table 2, a total of 257 respondents completed the survey by the end of the data collection period.

Table 2: Collaboration Survey Respondents by County (N = 257)

| County | Survey Respondents | |
|----------|--------------------|-------------|
| | Number | Percent (%) |
| Mesa | 22 | 8.5 |
| Boulder | 19 | 7.4 |
| El Paso | 14 | 5.5 |
| Pueblo | 14 | 5.5 |
| Eagle | 13 | 5.1 |
| Logan | 12 | 4.7 |
| Montrose | 11 | 4.3 |
| Garfield | 10 | 3.9 |
| Grand | 10 | 3.9 |
| Larimer | 10 | 3.9 |
| Weld | 10 | 3.9 |
| Douglas | 9 | 3.5 |
| Morgan | 9 | 3.5 |
| Adams | 8 | 3.1 |
| Gunnison | 8 | 3.1 |
| Alamosa | 7 | 2.7 |
| Elbert | 6 | 2.3 |
| Moffat | 6 | 2.3 |
| Prowers | 6 | 2.3 |
| Fremont | 5 | 1.9 |
| La Plata | 5 | 1.9 |
| Pitkin | 5 | 1.9 |
| Teller | 5 | 1.9 |
| Other | 33 | 12.8 |

Specifically, responses were received from 119 IOG members, 80 ISST members and 58 members who serve on both IOG and ISST committees. Responses were received from 39 of the 45 sites surveyed. Due to a few counties having only a few respondents, the table only lists counties that had five or more responses to the survey.

As displayed in Table 3, all ten agency partners mandated by CMP were represented among survey respondents. Respondents from Departments of Human Services (DHS) comprised the highest percentage of the sample at 22%, followed by education/schools at 13%, and probation at 9%. Representatives from non-profit and community-based organizations that serve children and families, as well as a handful of persons who described themselves as a family or community member representatives, comprised 28% of the sample. As for position, 30% of respondents reported being a director, 26% held a direct service position, 20% were in mid-level management, 13% were program supervisors, and 12% had other positions.

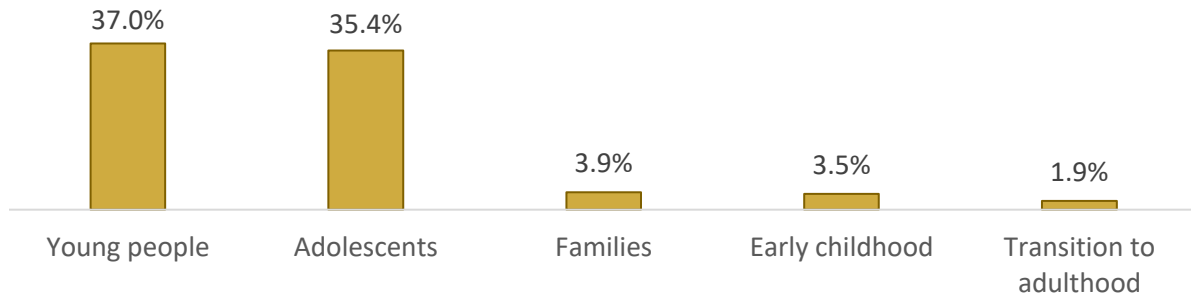
Table 3: Characteristics of Collaboration Survey Respondents (N = 257)

| Characteristics | Survey Respondents | |
|----------------------------------|--------------------|--------------------------|
| | Number | Percent (%) ⁸ |
| Agency | | |
| DHS | 50 | 21.6 |
| Education/Schools | 31 | 13.4 |
| Probation | 21 | 9.1 |
| County Health | 14 | 6.0 |
| Domestic Violence Provider | 11 | 4.7 |
| Mental Health Provider | 10 | 4.3 |
| Judicial System | 7 | 3.0 |
| Division of Youth Services (DYS) | 6 | 2.6 |
| Behavioral Health Provider | 6 | 2.6 |
| Substance Abuse Provider | 3 | 1.3 |
| Other | 73 | 28.4 |
| Position | | |
| Director | 76 | 29.6 |
| Direct Service | 67 | 26.1 |
| Mid-level Management | 50 | 19.5 |
| Program Supervisor | 34 | 13.2 |
| Other | 30 | 11.7 |

As displayed in Figure 1 on the following page, a large majority of respondents (72%) who answered this question reported a focus on serving young people or adolescents through their CMP. Additional areas of focus include families (4%), early childhood (4%), and transition to adulthood (2%). The remaining respondents (18%) were unsure of their area of focus or indicated addressing specific needs or services (not displayed in Figure).

⁸ Percent represents a county's percentage of the total sample.

Figure 1: CMP Area of Focus (N = 210)



2.2.3. Collaboration Survey Results – IOG

This section discusses results of the IOG collaboration survey, presented as key themes related to shared vision, informal relationships, authenticity and trust, and leadership and team dynamics. The survey included a set of statements relevant to each theme (e.g., shared vision) and respondents were asked to select the degree to which they agreed or disagreed with each statement, as it related to their IOG committee and processes. Results for each theme’s domain are presented below. Responses regarding process and performance measures, data collection for CMP, strengths, and challenges are also discussed.

Shared Vision. The first set of questions on collaboration related to aspects of shared vision. Questions in this domain focused on group goals, priorities, and their development processes. As displayed in Table 4, over 80% of respondents agreed or strongly agreed with all items in this domain. A large majority of respondents agreed that their fellow IOG members share a similar focus on collaboration and vision, that the CMP focus area is relevant to their own agency, and that the focus area was developed based on input from all or many group members.

Table 4: IOG Respondents’ Views on Shared Vision (N = 177)

| | Strongly Agree | Agree | Neither | Disagree | Strongly Disagree |
|--|----------------|-------|---------|----------|-------------------|
| The CMP focus area is important to my agency | 61.0% | 26.6% | 5.1% | 3.4% | 4.0% |
| The CMP focus area is the result of input from all or most group members | 53.1% | 32.8% | 7.3% | 4.0% | 2.8% |
| IOG members share the same vision for the CMP | 41.8% | 38.4% | 11.3% | 6.2% | 2.3% |
| IOG members are focused on supporting the CMP collaborative process | 55.9% | 33.3% | 5.1% | 3.4% | 2.3% |

Relationships. The next collaborative domain focused on relationships, and included questions related to the nature of relationships and interpersonal interactions between group members. Some research suggests that also knowing colleagues outside of the professional setting may help to facilitate more open communication and willingness to work through challenges and conflict in collaborative efforts.⁹ As displayed in Table 5, about 51% of IOG members who responded to the survey agreed or strongly agreed that they knew their fellow IOG members outside of the professional setting. A large majority (87%) also agreed that IOG meetings are positive experiences, and slightly over two-thirds (69%) reported looking forward to their meetings.

Table 5: IOG Respondents' Views on Relationships (N = 174)

| | Strongly Agree | Agree | Neither | Disagree | Strongly Disagree |
|---|----------------|-------|---------|----------|-------------------|
| I know other members of the IOG outside of our professional setting | 17.8% | 33.3% | 12.6% | 27.0% | 9.2% |
| Members of the IOG make efforts to ensure our meetings are positive experiences | 54.6% | 32.2% | 7.5% | 4.0% | 1.7% |
| I look forward to attending IOG meetings | 35.6% | 33.3% | 19.5% | 7.5% | 4.0% |

Authenticity and Trust. Authenticity and trust was the next domain and included questions related to members' perception of the collaborative process, such as communication, decision-making and sharing of resources. As displayed in Table 6 on the following page, most respondents held positive views of how their collaboration was working, with more than 80% agreeing or strongly agreeing that members respect each other, listen to one another, and work well together. Two statements (bold in the table), while still reaching over 50%, elicited lower levels of agreement. Only 59% of respondents agreed that decision-making was not dominated by only one or a few members, and 62% agreed that resources are shared equally among members.

⁹ Perrault, E., McClelland, R., Austin, C., & Sieppert, J. (2011). Working together in collaborations: Successful process factors for community collaboration. *Administration in Social Work, 35*, 282-298.

Table 6: IOG Respondents' Views on Authenticity and Trust (N = 174)

| | Strongly Agree | Agree | Neither | Disagree | Strongly Disagree |
|---|----------------|-------|---------|----------|-------------------|
| I have a lot of respect for the other members in the IOG | 69.0% | 24.1% | 2.9% | 2.9% | 1.1% |
| I feel that members of the IOG listen to each other | 57.5% | 30.5% | 5.7% | 5.7% | 0.6% |
| I feel that members of the IOG are polite to each other | 67.8% | 24.7% | 3.4% | 2.9% | 1.1% |
| Other members of the IOG are genuinely interested in my agency's concerns | 39.7% | 39.7% | 12.1% | 6.3% | 2.3% |
| Members of the IOG give consistent attention to each member's perspectives | 48.3% | 35.6% | 8.0% | 6.9% | 1.1% |
| Members of the IOG reach consensus when making a decision | 57.5% | 30.5% | 7.5% | 1.7% | 2.9% |
| Decision-making activities are not dominated by one or a few IOG members | 27.6% | 31.0% | 12.1% | 20.7% | 8.6% |
| Resources for the IOG are shared equally among members | 24.7% | 36.8% | 27.0% | 8.6% | 2.8% |
| Members of the IOG share information with the group | 56.9% | 31.0% | 6.9% | 4.0% | 1.1% |

Leadership and Team Dynamics. The last domain focused on leadership and team dynamics, with responses again indicating high levels of agreement (> 75%) on 17 out of 22 statements, presented in Table 7 on the following page. Respondents mostly agreed that leadership and team processes were working well. Specifically, members agreed that their IOG has a clearly defined leader(s), their leadership is able to bring people together when needed, information is communicated to members in a timely manner and decisions are based on accurate information.

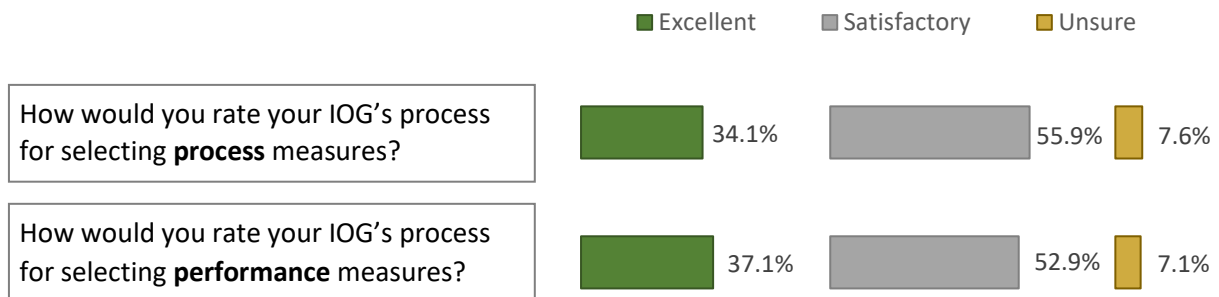
Responses revealed less agreement, however, about selected aspects related to leadership and team dynamics. Most notably, fewer than half of respondents (45%) agreed or strongly agreed that their IOG leadership did not take a top-down approach, while close to one-third (31%) chose “neither” and near one-quarter (24%) disagreed. Other items with less agreement include whether there are clearly defined group roles for each IOG member (57%) or whether decisions are pre-determined rather than based on input and involvement of the group process (59.9%). Also related to decision-making, 67% of respondents agreed or strongly agreed that outside strings are not pulled to influence important decisions, and 65% agreed that leadership regularly checks in with members regarding group processes.

Table 7: IOG Respondents' Views on Leadership and Team Dynamics (N = 172)

| | Strongly Agree | Agree | Neither | Disagree | Strongly Disagree |
|---|----------------|-------|---------|----------|-------------------|
| The IOG has a designated leader(s) | 69.4% | 24.9% | 3.5% | 0.6% | 1.7% |
| Leadership is shared by more than one person | 38.2% | 38.7% | 12.1% | 8.1% | 2.9% |
| IOG leadership is able to bring people to the table even when faced with challenges | 43.4% | 43.4% | 6.4% | 5.2% | 1.7% |
| IOG leadership helps people work together productively | 47.4% | 38.7% | 6.9% | 4.0% | 2.9% |
| IOG leadership does not take a top-down approach | 17.9% | 26.6% | 31.2% | 18.5% | 5.8% |
| IOG leadership brings together the right stakeholders relevant to our area of focus | 44.5% | 43.4% | 9.2% | 1.7% | 1.2% |
| IOG leadership helps each IOG member feel that their participation is valued | 50.3% | 35.8% | 8.1% | 3.5% | 2.3% |
| IOG leadership regularly checks in with members about process | 29.5% | 35.8% | 23.7% | 7.5% | 3.5% |
| IOG leadership regularly provides relevant updates to the group in a timely manner | 48.6% | 40.5% | 7.5% | 2.3% | 1.2% |
| There are clearly defined roles for each IOG member | 17.3% | 39.9% | 23.1% | 16.8% | 2.9% |
| IOG members make sure to celebrate small successes along the way | 34.1% | 41.6% | 17.3% | 5.8% | 1.2% |
| IOG members are focused on broader goals, rather than individual agendas | 41.9% | 40.7% | 11.6% | 4.7% | 1.2% |
| The IOG process is free of favoritism | 47.7% | 28.5% | 15.7% | 6.4% | 1.7% |
| IOG decisions are not made in advance to be simply confirmed by the process | 24.4% | 35.5% | 19.2% | 17.4% | 3.5% |
| In the IOG process, everyone has an equal opportunity to influence decisions | 39.5% | 40.1% | 12.8% | 7.0% | 0.6% |
| Decisions made in the IOG process are based on fair criteria | 44.8% | 41.3% | 10.5% | 1.2% | 2.3% |
| Decisions made in the IOG process are based on accurate information | 50.0% | 36.7% | 9.9% | 1.7% | 1.7% |
| The allocation of IOG resources is decided fairly | 47.1% | 33.7% | 15.1% | 2.9% | 1.2% |
| In the IOG process there is sufficient opportunity to challenge decisions | 44.8% | 37.2% | 10.5% | 5.2% | 2.3% |
| IOG members are not discounted based on the agency they represent | 50.6% | 26.7% | 14.5% | 6.4% | 1.7% |
| In the IOG process, strings are not pulled from the outside to influence imp. decisions | 43.0% | 23.8% | 25.6% | 3.5% | 4.1% |
| Decisions about process and performance measures were based on group consensus | 45.3% | 34.9% | 12.2% | 5.8% | 1.7% |

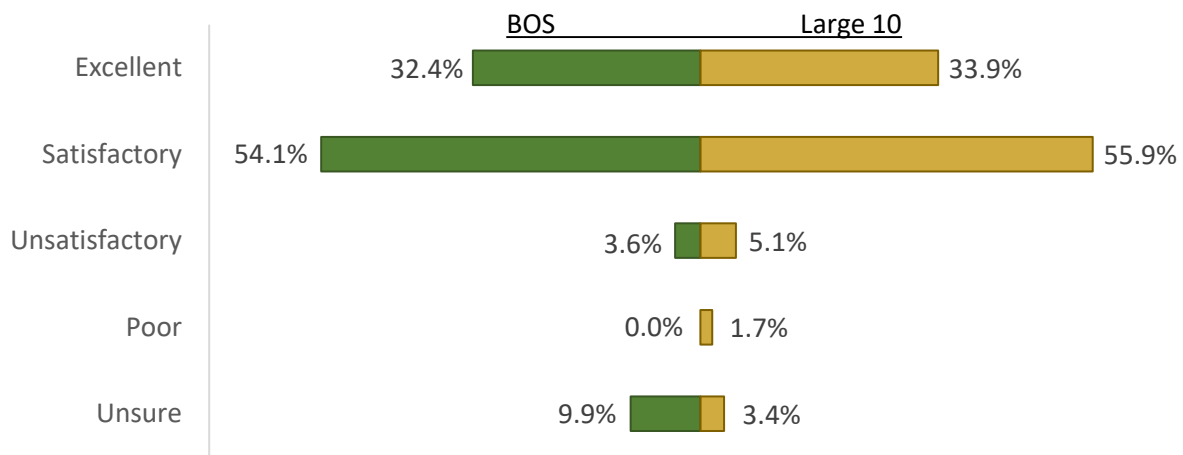
Process and Performance Measures, Data Collection. The survey also included questions related to data collection and selection of process and performance measures. As displayed in Figure 2, 90% of respondents rated both of their IOG’s processes for selecting process and performance measures as excellent or satisfactory.

Figure 2: Selection of Performance and Process Measures (N = 170)



As displayed in Figure 3, a large majority of respondents also rated their IOG’s process for collecting CMP data as satisfactory or excellent. Specifically, over 86% of respondents from a “Balance of State” county and 90% of respondents from a “Large 10” county reported that their data collection process was satisfactory or excellent.

Figure 3: IOG Processes for Data Collection (BOS n = 111; Large 10 n = 59)



IOG Strengths. The last questions of the IOG survey asked respondents to discuss strengths and challenges of their IOG. Table 8 on the following page presents the most common strengths identified by members.¹⁰ Respondents valued the commitment of their IOG to the collaborative process, highlighted the dedication of their fellow members in serving young people and families, and appreciated the consistent attendance and participation of partner members.

¹⁰ Percentages are based on total number of responses. 125 respondents identified approx. 220 “strengths.”

Some members also praised the leadership of their IOG and their group’s focus on building relationships and involving community members.

Table 8: Main Strengths Reported by IOG Members (N = 125)

| Strength | Percent (%) | Sample Quote |
|------------------------|-------------|--|
| Collaboration | 37.5 | <p><i>“True commitment to collaboration. Willingness to work through disagreement or challenges.”</i></p> <p><i>“Very committed to agencies working together and not duplicating each other’s work. Communication and collaboration are very strong to meet outcomes and goals.”</i></p> |
| Fellow IOG Members | 21.9 | <p><i>“Everyone is strongly invested in the process. They genuinely care about our community and how we can effect positive change and sustain the good things that are happening.”</i></p> <p><i>“The level of commitment and expertise at the table.”</i></p> |
| Participation | 15.6 | <i>“Consistency in attendance by members, respect given to decisions made in group, bringing professionals together, and allowing families to engage in the process.”</i> |
| Implementation/Process | 11.2 | <i>“We try to work on difficult challenges and come up with a good solution. We try to get rid of silos.”</i> |
| Leadership | 8.9 | <i>“Strong dedicated leader who works tirelessly to get attendance and buy in from partners. Strong group of mandatory members who are usually close to the same page.”</i> |
| Community Involvement | 3.1 | <i>“Good representation of community organizations. All care about youth.”</i> |

IOG Challenges. On the following page, Table 9 presents the most common challenges identified by members.¹¹ Specific implementation challenges include data collection and a lack of clarity in group direction. Respondents in rural areas spoke of the difficulty in coordinating meetings with members spread across vast distances. Members also pointed to a lack of engagement in the collaborative process by some, or having one or a few members who dominate. Inadequate funding and resources, and disagreement with funding allocation guidelines were also cited.

¹¹ Percentages are based on total number of responses. 119 respondents identified approx. 151 “challenges.”

Table 9: Key Challenges Reported by IOG Members (N = 119)

| Challenge | Percent (%) | Sample Quote |
|------------------------------|-------------|---|
| Implementation/ Process | 43.0 | <p><i>“Keeping this group from just becoming another meeting. Knowing what we are working towards.”</i></p> <p><i>“The group is just starting to get on track with implementing ISSTs and collecting data. Establishing these processes has been a challenge for the group.”</i></p> |
| Collaborative Process | 24.5 | <p><i>“Find ways to make sure each agency feels valued and is able to contribute to programming.”</i></p> <p><i>“All agencies taking an active role. Only 3 or 4 agencies seem to drive the direction. Others don't disagree, they just aren't very involved.”</i></p> |
| Funding/Resources | 16.6 | <i>“Distributing funding that best meets the overall needs of the client base. Too much funding is allocated to operations and salaries and not enough for direct programming.”</i> |
| Participation | 10.6 | <i>“Struggle to get some important partners to the table.”</i> |
| Leadership/State Guidance | 5.3 | <p><i>“Working through the complexities of local relationships to state departments and sometimes conflicting policy and initiatives is a fundamental challenge.”</i></p> <p><i>“We would like to see strong alignment and partnering with state departments to inform policy and rule to facilitate seamless, focused improvement and innovation.”</i></p> |

2.2.4. Collaboration Survey Results – ISST

This section discusses results of the ISST collaboration survey, which focused on key themes related to informal relationships, authenticity and trust, leadership and team dynamics, and implementation processes. Similar to the IOG survey, each theme’s domain included a set of statements related to collaboration that respondents were asked to review and indicate the degree to which they agreed or disagreed. Results for each domain are presented below.

Relationships. The first domain of the ISST survey focused on relationships, and included questions related to the nature of relationships and interpersonal interactions between ISST group members. As displayed in Table 10 on the following page, respondents overwhelmingly agreed or strongly agreed (92%) that ISST meetings are positive experiences, and most respondents look forward to attending (74%). Similar to IOG members, responses were more mixed regarding the degree to which ISST members know each other outside of the professional setting, with just under half of respondents (49%) indicating that they know their fellow ISST members outside of their professional context.

Table 10: ISST Respondents' Views on Relationships (N = 132)

| | Strongly Agree | Agree | Neither | Disagree | Strongly Disagree |
|---|----------------|-------|---------|----------|-------------------|
| I know other ISST members outside of our professional setting | 15.9% | 33.3% | 19.7% | 24.2% | 6.8% |
| ISST members make efforts to ensure meetings are positive experiences | 51.5% | 40.2% | 8.3% | 0.0% | 0.0% |
| I look forward to attending ISST meetings | 30.3% | 43.2% | 19.7% | 6.1% | 0.8% |

Authenticity and Trust. The next domain, authenticity and trust, included questions related to members' perception of the collaborative process, such as communication, decision-making and sharing of resources. As displayed in Table 11, over 81% of ISST members agreed or strongly agreed with six of nine statements in this section, indicating that respondents believe members of their ISST respect one another, listen to each other and generally work well together. Still reaching high agreement, 79% of respondents agreed that ISST members were interested in the concerns of each other's agencies, while 68% agreed that resources were shared equally among members. Responses showed the greatest variation on views related to decision-making, with only 46% agreeing or strongly agreeing that the decision-making process was not dominated by only one or a few ISST members.

Table 11: ISST Respondents' Views on Authenticity and Trust (N = 132)

| | Strongly Agree | Agree | Neither | Disagree | Strongly Disagree |
|--|----------------|-------|---------|----------|-------------------|
| I have a lot of respect for the other members of my ISST | 65.9% | 27.3% | 5.3% | 0.8% | 0.8% |
| Members of my ISST listen to each other | 54.5% | 34.8% | 7.6% | 3.0% | 0.0% |
| ISST members are polite to each other | 62.1% | 30.3% | 6.8% | 0.8% | 0.0% |
| ISST members are genuinely interested in the concerns of each other's agencies | 40.9% | 37.9% | 15.2% | 5.3% | 0.8% |
| ISST members give consistent attention to every member's perspectives | 40.2% | 40.9% | 15.9% | 3.0% | 0.0% |
| Members of my ISST reach consensus when making a decision | 42.4% | 40.9% | 12.1% | 3.8% | 0.8% |
| Decision-making activities are not dominated by one or a few ISST members | 18.9% | 27.3% | 22.0% | 24.2% | 7.6% |
| Resources for ISST planning and services are equally shared among members | 23.5% | 44.7% | 22.7% | 6.1% | 3.0% |
| Information is communicated among members of my ISST in a timely manner | 41.7% | 39.4% | 13.6% | 3.8% | 1.5% |

Leadership & Team Dynamics. As displayed in Table 12, most respondents agreed that fellow ISST members make efforts to find solutions to challenges (90%), work together productively (92%) and believe that each ISST member’s participation is valued (87%). Close to two-thirds of respondents agreed that their ISST committee makes efforts to celebrate small successes along the way (70%), and that there are clearly defined roles for every ISST member (67%). Respondents had the lowest level of agreement (60%) regarding whether ISST members regularly check in with each other regarding process.

Table 12: ISST Respondents’ Views on Leadership and Team Dynamics (N = 131)

| | Strongly Agree | Agree | Neither | Disagree | Strongly Disagree |
|---|----------------|-------|---------|----------|-------------------|
| ISST members make an effort to work on solutions when faced with challenges | 57.3% | 32.8% | 6.1% | 3.8% | 0.0% |
| Members of my ISST make an effort to work together productively | 54.2% | 38.2% | 5.3% | 2.3% | 0.0% |
| Each ISST member's participation is valued | 52.7% | 34.4% | 9.2% | 3.8% | 0.0% |
| Members of my ISST regularly check in with each other about process | 19.8% | 39.7% | 23.7% | 16.0% | 0.8% |
| Each member of my ISST has a clearly defined role | 32.1% | 34.4% | 24.4% | 6.9% | 2.3% |
| ISST members make sure to celebrate small successes along the way | 30.5% | 39.7% | 19.1% | 9.9% | 0.8% |

ISST Implementation and Service Planning. ISST participants were asked about the overall implementation process, service planning, and engagement with family members during team meetings. As displayed in Table 13 on the following page, most respondents indicated high levels of agreement (> 78%) in response to five of six statements related to implementation, with most agreeing that implementation was generally going well, integrated service plans are consistently provided to families, and fellow ISST members are involved and contribute to the service planning process. One statement elicited more varied responses, with just 50% agreeing that service planning was not dominated by one or a few service providers.

ISST members were also asked if there are persons absent from ISST meetings who they would like to see attend. Of the 84 members who responded to this question, close to one-third reported that no one was absent from their ISST meetings who they thought should be there. Other respondents agreed that there were valuable partners who attend ISST meetings infrequently or not at all, and indicated their attendance would be helpful. Schools and mental health partners were the two most frequently cited partners that respondents would like to see be more involved with ISST meetings. Law enforcement, probation, family advocates and other community supports were the next most common partners that respondents would like to see attend more meetings.

Table 13: ISST Respondents' Views on ISST Implementation and Service Planning (N = 135)

| | Strongly Agree | Agree | Neither | Disagree | Strongly Disagree |
|--|----------------|-------|---------|----------|-------------------|
| ISST planning and service provision is going well in my county | 44.4% | 43.0% | 7.4% | 4.4% | 0.7% |
| ISST members consistently provide families with integrated, multi-system service plans | 51.9% | 34.8% | 7.4% | 4.4% | 1.5% |
| ISST service planning is not dominated by one or a few service providers | 16.3% | 33.3% | 18.5% | 19.3% | 12.6% |
| All members of my ISST are given an opportunity to have a say in service planning | 48.1% | 34.8% | 9.6% | 4.4% | 3.0% |
| All members of my ISST contribute to service planning | 38.5% | 40.0% | 8.9% | 7.4% | 5.2% |
| Service team members do their best to make families feel welcome at ISST meetings | 60.0% | 25.2% | 12.6% | 0.0% | 2.2% |

ISST Strengths. Similar to the IOG survey, the last questions of the ISST survey asked respondents to discuss strengths and challenges of their ISST. Table 14 presents the most common strengths identified by ISST members.¹² The top three areas of strength involved collaboration, fellow ISST members, and overall implementation. Respondents reported valuing how their ISST team members work together and their focus on families. Members also pointed to well-facilitated and productive meetings, consistent member participation, and strong leadership in their ISST facilitator or coordinator.

Table 14: Main Strengths Reported by ISST Members (N = 97)

| Strength | Percent (%) | Sample Quote |
|---------------------|-------------|---|
| Collaboration | 28.5 | <p><i>“Everyone works together toward safety of the children and common goals to benefit the children and their families. We sometimes agree to disagree, however, ultimately a consensus is reached and members appear comfortable with the outcome.”</i></p> <p><i>“Strong relationships between members, supportive ambassadors of each other. Improvement in open, honest conversations with family members.”</i></p> |
| Fellow ISST Members | 24.1 | <p><i>“Commitment to the families. Openness to the facilitation process. Skill of our facilitators.”</i></p> <p><i>“Welcoming and valuing family input. Being able to directly address concerns with the family. Valuing each other's input.”</i></p> |

¹² Percentages are based on total number of responses. 97 respondents identified approx. 137 “strengths.”

| | | |
|-------------------------|------|--|
| ISST Implementation | 21.9 | <i>“Strong meeting structure and facilitation. Consistent participation. Ability to respond quickly for time sensitive issues.”</i> <i>“The group generates a lot of good ideas and is willing to stretch outside the box when needed.”</i> |
| Participation | 13.9 | <i>“There are numerous professionals who come to the table and have a lot to offer at our ISST meetings as far as solutions for the youth/family.”</i> |
| Facilitator/Coordinator | 11.7 | <i>“Great leadership and foundation. The meetings are productive and everyone seems to be working on the same team.”</i> |

ISST Challenges. Table 15 presents the most common challenges identified by members.¹³ The top three challenges include group dynamics and collaboration, ISST implementation, and resources and funding. Specifically, respondents indicated that conflicting perspectives among members on how best to serve a family or child sometimes create difficulty in service planning. Other responses stated that their ISST group processes have become repetitive and could be more creative in their problem solving and service planning. Respondents also highlighted inadequate services and resources, unsustainability of funding, and absent or inconsistent participation from partners as additional challenges. Some members also noted not having a designated person or process to follow up after a service plan is developed.

Table 15: Key Challenges Reported by ISST Members (N = 91)

| Challenge | Percent | Sample Quote |
|------------------------------|---------|---|
| Collaboration/Group Dynamics | 37.5 | <i>“Sometimes each agency has very different objectives to accomplish in how they work with families.”</i> <i>“Same people go to same meetings, so sometimes group isn’t as creative. Need new ideas, new perspectives.”</i> |
| Implementation/ Follow Up | 26.0 | <i>“We will have a good meeting and then follow up does not happen.”</i> <i>“I worry that sometimes plans lose their momentum without a point person to hold accountability over the plan after the ISST is over.”</i> |
| Resources/Funding | 19.8 | <i>“Funding systems for sustainable expansion of effective approaches. Individual systems funding is not aligned for robust integration of services.”</i> |
| Participation | 16.7 | <i>“Engaging other providers outside of the IOG partners.”</i> <i>“Having people attend regularly.”</i> |

¹³ Percentages are based on total number of responses. 91 respondents identified approx. 96 “challenges.”

2.2.5. Family Voice Survey Pilot

The evaluation team collaborated with DCW staff, the CMP Evaluation Subcommittee, and the CMP Family Voice and Choice Subcommittee to pilot the Family Voice Survey to a sample of five CMP sites. Eligibility was based on having attended an ISST initial or follow-up meeting in September or October of 2017. The survey link was emailed to CMP coordinators who then sent the link to families who recently attended ISST initial and final meetings. Eligible families were offered a \$10 Amazon e-gift card for their participation in the survey. Of those who were emailed a link to the survey, seven families completed the initial survey and seven families completed the final survey. This was an increase from the SFY16 pilot, but still a small sample size because four of the five volunteer counties had only a few eligible families between them.

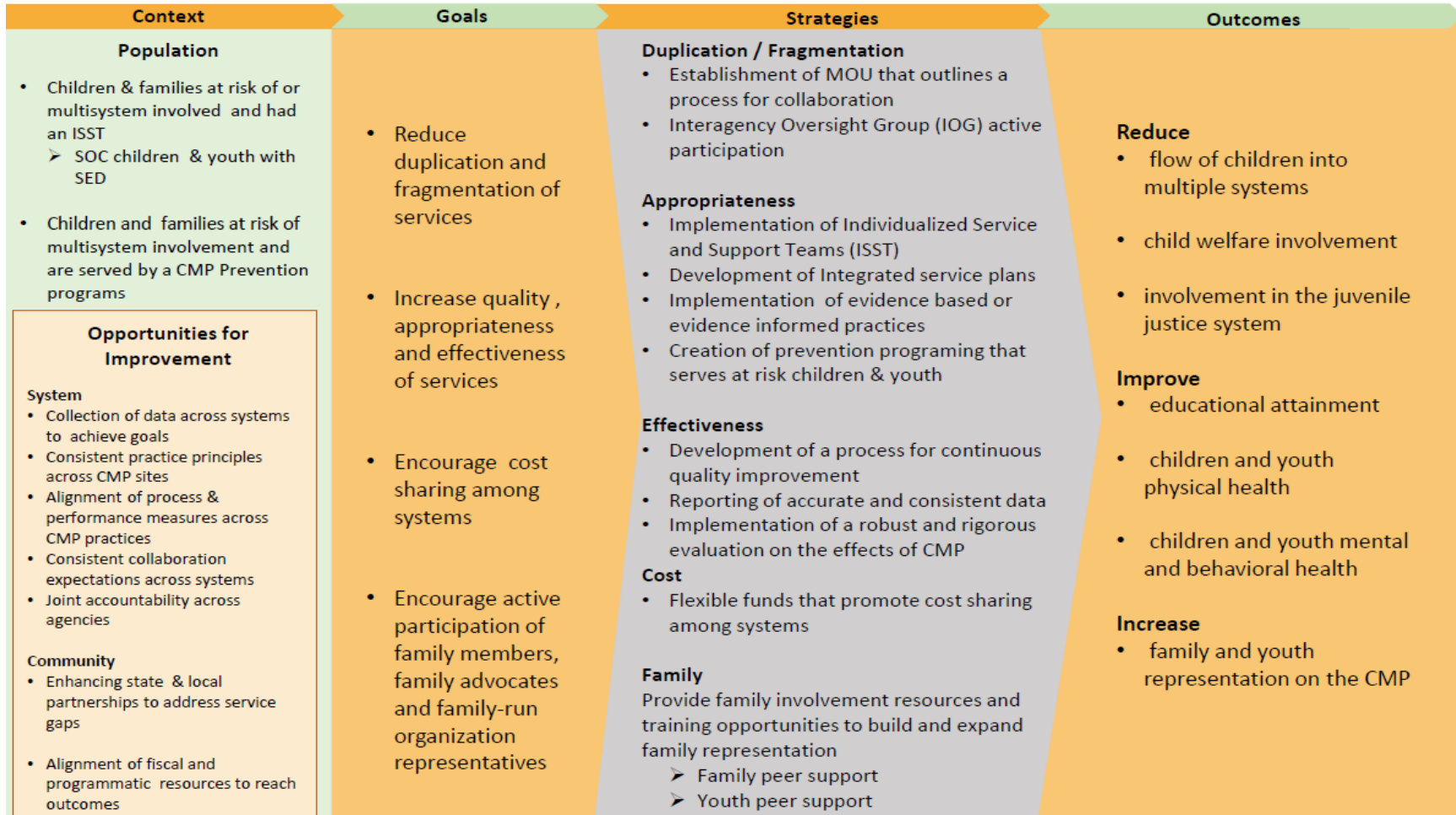
Overall, families were mixed in their perceptions of the ISST meetings. The range of responses reflects the individual nature of family needs and the ability of agencies to meet these needs. It is important to note that the pilot survey was not designed to provide generalizable results for the CMP population. Therefore, these results are exploratory. A larger sample is needed to provide meaningful descriptive data about the perceptions of families who have participated in ISST meetings. The family voice survey was piloted again this year because there are challenges in administering this type of survey, and the evaluation team wanted to experiment with several approaches including using incentives and having the CMP coordinators distribute the survey to eligible families. This pilot of the Family Voice Survey illuminated several ideas to consider for the next administration of the survey including building in more time for recruitment and giving families more time to complete the survey.

2.2.6. CMP Logic Model

As displayed on the following page, the CMP logic model informs the evaluation by ensuring alignment between the context, goals, and strategies of CMP and the outcome measures to be analyzed in the evaluation. The logic model was developed by CMP program administrators and the CMP Evaluation Subcommittee and was facilitated by Dr. Mario Hernandez from the University of South Florida and supported by the CDHS Office of Behavioral Health.

Colorado Logic Model

MISSION: a uniform system of collaborative management for agencies to effectively and efficiently collaborate to share resources, to manage and integrate the treatment and services provided to children and families who would benefit from multi-agency services.



CMP # population SFY 15 = ISST (7,027) Prevention (2,599)

3. OUTCOME EVALUATION

In combination with the process and cost evaluations, the SFY17 CMP outcome evaluation is designed to answer critical questions pertaining to the outcomes of clients served by the program. The outcome evaluation is designed to provide an improved understanding of the various client populations served by the program and answer the critical question of whether CMP is effective in improving the outcomes of children/youth 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 via a traditional CMP program (i.e., “ISST population”). The prevention population comprises children/youth who are served by CMP prevention programs designed to prevent multisystem involvement. In contrast, the ISST population consists of children/youth who are involved in the child welfare, juvenile justice, education, or health/mental health systems and are served in a collaborative manner through an ISST meeting.

Previously documented difficulties in accessing outcome data for the prevention and ISST populations pose notable challenges in rigorously evaluating the CMP. These difficulties include challenges in accessing outcome data within 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 SFY17 outcome evaluation employs a combination of research designs. A non-experimental, descriptive research design is used to provide preliminary insight into outcomes across multiple client subpopulations, while a quasi-experimental research design is used to examine the program’s effectiveness in improving child welfare outcomes. Both research designs utilize a similar period of analysis, consisting of children/youth that were served by CMP in SFY16, while a collection of performance measures are used to examine outcomes one year later.

The SFY17 outcome evaluation comprises five parts: (1) review of the SFY16 CMP performance measures; (2) overview of the outcome evaluation’s research design; (3) descriptive analyses of the CMP populations and the program performance measures; (4) detailed overview of the quasi-experimental research design and the associated findings; and (5) discussion of next steps for subsequent outcome evaluations of the program.

3.1. Performance and Outcome Measures

Throughout the history of the CMP, a collection of performance measures have been used to examine the program’s effectiveness. The performance measures were developed to examine the intermediate outcomes of children/youth in the ISST population that were served by the program under the four domains: child welfare, juvenile justice, education, and health/mental health.

CMPs were required to select from among 19 performance measures spread across the four domains that would be used to assess performance in achieving key intermediate outcomes for CMP clients. The CMPs were required to select a minimum of three performance measures that they would be required to meet. The SFY16 performance measures are presented in Table 16.

Table 16: SFY16 Performance Measures by Domain

| Performance Measure | Data Source |
|--|--------------------------|
| Child Welfare | |
| <i>Decrease number of children/youth involved with child welfare.</i> Percent of CMP children/youth with no new open involvements in Trails after CMP services began. | Trails/ETO Data |
| <i>Increase safety of child and youth.</i> Percent of CMP youth with no substantiated abuse finding after CMP services began. | Trails/ETO Data |
| <i>Increase placement stability of children/youth.</i> Percent of CMP children/youth who experienced two or fewer moves while in out-of-home placement. | Trails/ETO Data |
| <i>Increase permanency of children/youth involved in child welfare.</i> Percent of CMP children/youth discharged to a permanent home (adoption, reunification, legal guardianship). | Trails/ETO Data |
| <i>Increase the number of children/youth who remain home.</i> Percent of children/youth who remained safely in their home during CMP involvement. | Trails/ETO Data |
| Juvenile Justice | |
| <i>Increase successful involvement with juvenile justice system.</i> Percent of CMP youth who successfully completed probation or parole. | Trails/ETO/Judicial Data |
| <i>Decrease commitment to the Division of Youth Services.</i> Percent of CMP youth diverted from being committed to the Division of Youth Correction. | Trails/ETO Data |
| <i>Decrease children/youth involved with truancy court.</i> Percent of CMP children/youth who were diverted from involvement with truancy court while involved in the juvenile justice system. | Trails/ETO Data |
| <i>Prevent involvement with juvenile justice system.</i> Percent of children/youth who did not enter into detention due to CMP involvement while involved with the CMP. | Trails/ETO Data |
| Health/Mental Health | |
| <i>Decrease problem severity.</i> Percent of CMP children/youth with: a) decreased problem severity, and b) improved level of functioning on CCAR or similar tool while involved with CMP services. | Trails/ETO/OBH Data |
| <i>Increase psychological, social, cognitive and physical functioning.</i> Percent of children/youth with decreased concerns according to the Trauma Screening Tool. | Trails/ETO/OBH Data |
| <i>Increase wellbeing.</i> Percent of families with improved MST outcome indicators or successful completion of mental health treatment. | Trails/ETO/OBH Data |
| <i>Decrease substance abuse.</i> Percent of children/youth who successfully completed 90-day inpatient substance abuse treatment or intensive outpatient treatment. | Trails/ETO/OBH Data |
| <i>Increase children/youth's health.</i> 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 |

| Performance Measure | Data Source |
|--|-----------------------|
| Education | |
| <i>Increase school attendance.</i> Percent of children/youth with improved school attendance rates while involved with CMP services. | Self-Reported by CMPs |
| <i>Increase academic achievement.</i> Percent of children/youth with improved academic performance while involved with CMP services. | Self-Reported by CMPs |
| <i>Decrease disciplinary problems at school.</i> Percent of children/youth with fewer disciplinary actions (referrals, suspensions, or expulsions) while involved with CMP services. | Self-Reported by CMPs |
| <i>Increase successful graduation rates.</i> Percent of children/youth who remained in school or increase ability to graduate within four years. | Self-Reported by CMPs |
| <i>Increase school stability.</i> Percent of children/youth who had two or fewer school moves while involved with CMP services. | Self-Reported by CMPs |

The previously documented difficulties in accessing performance data for all four CMP domains poses a notable challenge in rigorously evaluating the program.¹⁴ As part of the SFY15 and SFY16 evaluations, the evaluation team conducted a series of interviews with CMP coordinators focusing on how CMPs collect, analyze, and report performance data. Throughout the interviews, CMP coordinators demonstrated that accessing performance data within the education and health/mental health domains continues to be significantly challenging. Most notably, the extent to which data within these domains are collected and reported is subject to considerable variance across the CMPs, with many being unable to effectively measure performance outcomes within these two domains. As the evaluation team has noted within previous evaluation plans, the challenges in accessing education and health/mental health data has resulted in these domains receiving comparatively less attention than the child welfare and juvenile justice domains. The cumulative effect of these data and reporting issues is a limited ability to effectively evaluate the CMP program against all 19 of the performance measures.

3.2. Outcome Evaluation Design

As summarized in Table 17 on the following page, the design of the outcome evaluation consists of three parts, with the associated findings presented in Sections 3.3–3.5. The first part (Section 3.3) consists of a descriptive analysis of the CMP prevention and ISST populations. Next, descriptive, non-experimental evaluation designs (Section 3.4) are used to examine the outcomes of the ISST population via the SFY16 performance goals. 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 children/youth served by the program. The lack of a comparison group precludes causal inference on the program’s effectiveness, but the analysis

¹⁴ Full discussions of these challenges can be found in the SFY15 and SFY16 CMP Evaluation Reports.

of outcomes provides preliminary evidence on changes in the performance outcomes of children/youth served by the program. Given the ability to access data for CMP clients with child welfare involvement and a comparable population of children/youth that were eligible, but not served by the program, a quasi-experimental design (Section 3.5) is used to evaluate the program’s effectiveness in improving child welfare outcomes.

Table 17: Overview of the Outcome Evaluation

| |
|---|
| <p>Section 3.3: Descriptive Analysis of CMP Clients A descriptive analysis of the client population served by CMP consisting of two parts:</p> <ol style="list-style-type: none"> 1. Prevention population 2. ISST population |
| <p>Section 3.4: Descriptive, Non-experimental Evaluation of the ISST Population A description of the ISST population by:</p> <ol style="list-style-type: none"> 1. Program domain 2. Performance measure outcomes |
| <p>Section 3.5: Quasi-Experimental Evaluation of Child Welfare Outcomes A quasi-experimental evaluation of child welfare outcomes, consisting of two parts:</p> <ol style="list-style-type: none"> 1. A detailed overview of the quasi-experimental design 2. The quasi-experimental evaluation comparing the outcomes of children/youth served by CMP to a comparison group of children that were eligible but not served by the program |

3.2.1. Data Collection

Working with the Research, Analysis, and Data (RAD) team within the DCW, the evaluation team extracted client-level data from the Trails and ETO databases. Children/youth who were involved with child welfare were included within the Trails database, which is 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 the CMP program but were not necessarily served by the child welfare system (or included within the Trails database). Some overlap between the two databases was evident and a de-duplication process was used to remove children/youth represented within both databases.

In subsequent steps, the evaluation team organized, cleaned, and matched the 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 that 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 B). Upon completion of this process, the evaluation team provided the dataset to the Colorado Judicial Department’s Office of

the State Court Administrator and DYS to obtain juvenile justice outcomes for CMP clients. As a final data processing step, the evaluation team provided the dataset to the CDHS Office of Behavioral Health (OBH) to match health and mental health outcomes for CMP clients.

3.3. Descriptive Analysis of CMP Clients

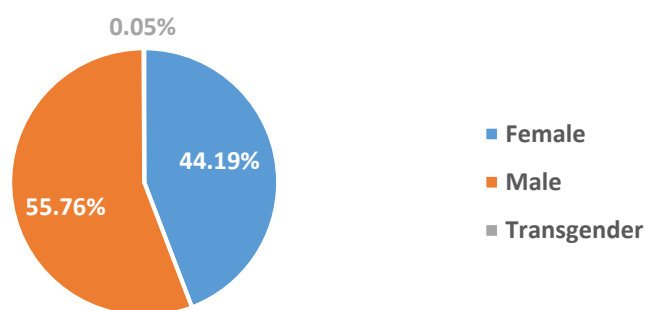
The descriptive analysis of the population served by the CMP program is presented in two parts. The first part provides an overview of the client population served by CMP prevention programs. The second describes the population of CMP clients served by an ISST meeting.

3.3.1. Prevention Population

The prevention population consists of children/youth who were at risk of multisystem involvement and were served during SFY17 by CMP prevention programs designed to prevent involvement in multiple systems. In SFY17, 4,493 children/youth were served by a CMP prevention program. Figure 4 shows that 56 percent of prevention clients were male and 44 percent were female. Figure 5 on the following page shows that the ages of prevention clients at the time of entry ranged from less than 1 to 21, with a mean age of 10.

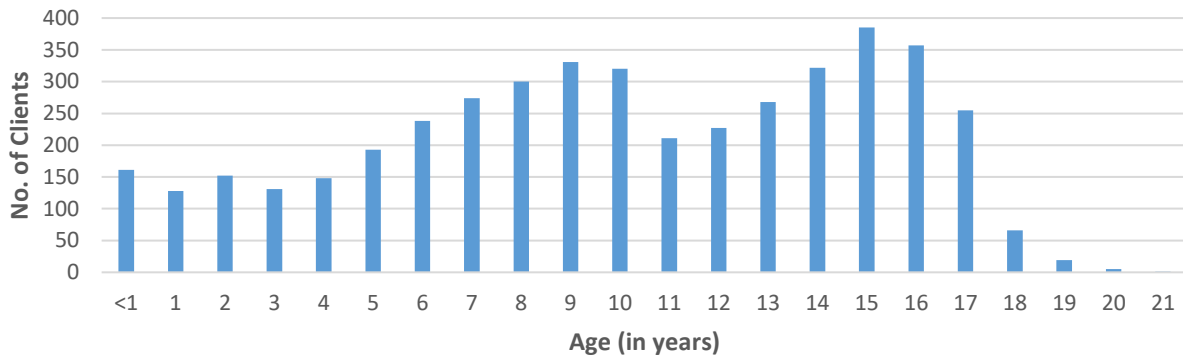
The data collected on the prevention population is currently limited to these demographic variables. Performance measures for the prevention population have yet to be established and the analysis is subsequently limited to examining the ISST population. This brief descriptive analysis can provide important context as DCW and CMP stakeholders work to develop a set of performance measures for CMP prevention programs. Together, these efforts can serve as important steps towards the design of future evaluations that examine the effectiveness of these programs in preventing multisystem involvement.

Figure 4: Prevention Population by Gender (N = 4,254)¹⁵



¹⁵ Gender was missing for 239 clients in the dataset.

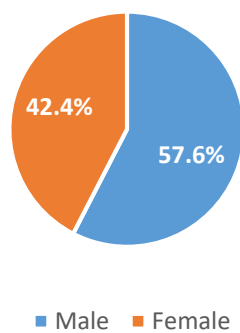
Figure 5: Prevention Population by Age Distribution (N = 4,492)¹⁶



3.3.2. ISST Population

The population of children/youth included in the outcome evaluation were served by the program (through an initial ISST meeting) during SFY16, which ran from July 1, 2015 to June 30, 2016. Outcomes of CMP clients served in SFY16 were evaluated one year later during the period of SFY17 (July 1, 2016 to June 30, 2017). The extracted data consisted of pertinent demographic and case information along with the 19 performance measures, which were measured one year after the initial ISST meeting. During SFY16, the 32 CMPs (representing 41 counties) served 7,566 distinct children/youth via ISST meetings. This population is notably larger in size than the population of clients served by CMP prevention programs (N = 4,493). As Figure 6 shows, 58 percent of ISST clients were male, while 42 percent were female.

Figure 6: ISST Population by Gender (N = 7,549)¹⁷

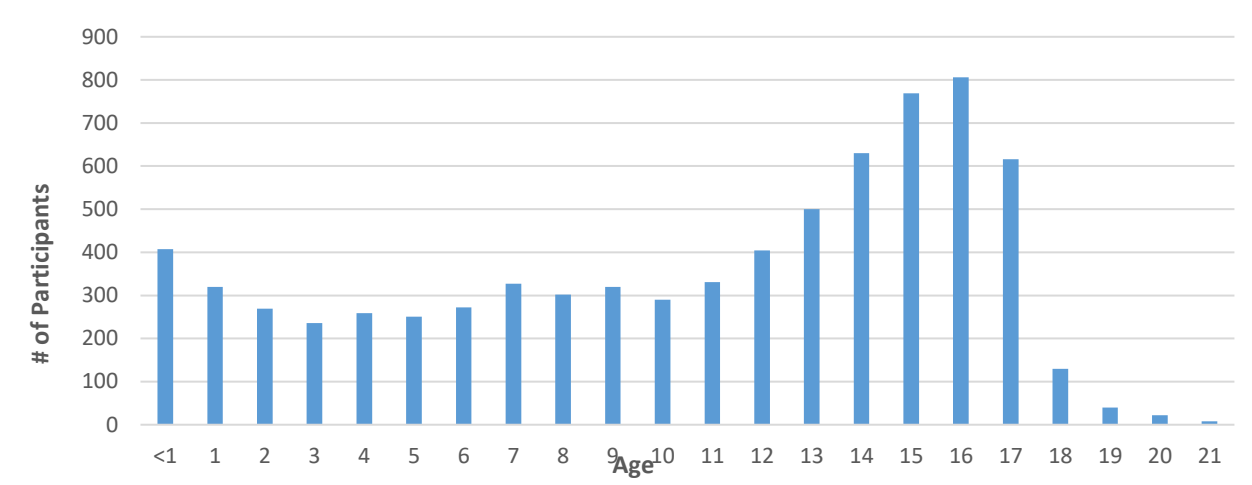


¹⁶ The client’s age at the time of entry into a prevention program was calculated by subtracting the client’s date of birth from the program start date, and then dividing by 365.25 days.

¹⁷ The sample size is lower than the total ISST population of 7,566 clients, as gender data was missing for 17 clients.

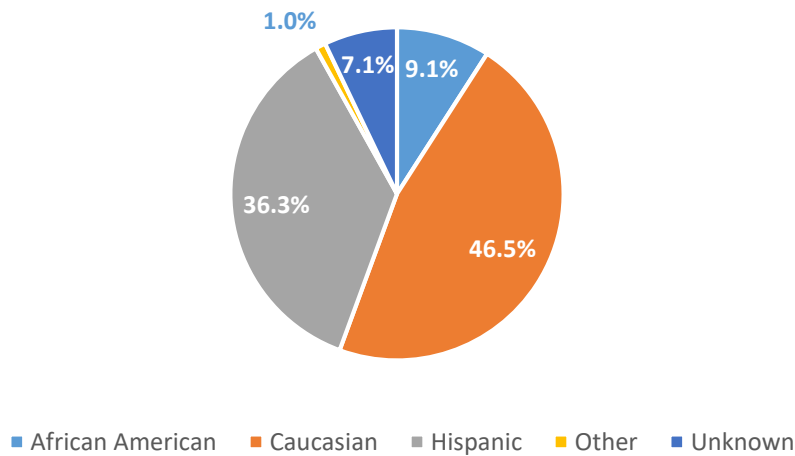
As displayed in Figure 7, the ages of CMP clients ranged from less than 1 to 21, with a mean age of 10.4, which is the same mean age of children/youth from the CMP prevention population.

Figure 7: ISST Population by Age Distribution (N = 7,507)¹⁸



As shown in Figure 8, 47 percent of clients were Caucasian, 36 percent were Hispanic, 9 percent were African American, and 7 percent were clients from “other” racial and ethnic backgrounds.¹⁹

Figure 8: ISST Population by Race and Ethnicity (N = 7,291)²⁰



¹⁸ The sample size is lower than the total ISST population of 7,566, as age data was missing for 59 clients.

¹⁹ The “other” category consists of children/youth identified as having the following racial and ethnic backgrounds: Asian, Hawaiian, or Native American.

²⁰ The sample size is lower than the total ISST population of 7,566, because race and ethnicity data were missing for 275 clients.

3.3.3. ISST Population by Performance Goal Type

As Table 18 shows, the vast majority of SFY16 CMP clients had performance goals under the child welfare domain (97%). Considerably fewer CMP clients had performance goals under the other three domains, with education (58%) serving the second largest percentage of clients, followed by health/mental health (43% percent), and juvenile justice (20%).

Table 18: Number of Clients by Performance Goal Type (Duplicated Counts)

| Program | # of Clients |
|-----------------------------|---------------|
| Child Welfare | 7,356 (97.2%) |
| Education | 4,355 (57.6%) |
| Health/Mental Health | 3,247 (42.9%) |
| Juvenile Justice | 1,490 (19.7%) |
| Total CMP Population | 7,566* |

*Percentages do not sum to 100 because a CMP client may have performance goals under multiple domains.

With nearly all CMP clients having child welfare performance goals, an examination of key variables pertaining to involvement with the child welfare system is warranted. As previously noted, CMP clients have higher levels of risk than the general population of children/youth served by Colorado’s child welfare system. Table 19 on the following page presents the differences in risk and presenting factors between CMP clients and the overall population of children/youth that were involved in the child welfare system at the assessment-level or higher during SFY17.

CMP clients come from diverse family structures, with the majority coming from single-parent families (56%), followed by married (26%) and unmarried couples (18%). The average age of caregivers among CMP clients was 36.9 years old. Similar to the overall child welfare population, CMP clients had high levels of previously received food assistance (77%) and Medicaid coverage (84%).

However, CMP clients had higher rates of previous adoption (4%) than did children/youth within the overall child welfare population (1%). CMP clients also had higher levels of previous involvement with the child welfare and DYS systems. For example, CMP clients had a higher average number of prior referrals and prior assessments. In addition, CMP clients had a higher average number of prior child welfare cases and a higher number of cases involving a removal from the home than did the overall child welfare population. A notably higher percentage of CMP clients had previous involvement with DYS (14%) than did children/youth from the overall child welfare population (3%).

Table 19: Differences in Risk and Presenting Factors between CMP and Child Welfare Populations

| Factor | CMP Population | Child Welfare Population |
|-----------------------------|----------------|--------------------------|
| Family Structure | (N = 3,816) | (N = 13,599) |
| <i>Single Parent</i> | 55.6% | 56.3% |
| <i>Married Couple</i> | 26.5% | 22.9% |
| <i>Unmarried Couple</i> | 17.9% | 20.8% |
| Primary Caregiver’s Age | 36.9 | 34.9 |
| Prior Adoption | 3.6% | 1.1% |
| Prior Food Assistance | (N = 7,121) | (N = 63,628) |
| <i>Yes</i> | 77.0% | 76.5% |
| <i>No</i> | 23.0% | 23.5% |
| Previously on Medicaid | (N = 6,162) | (N = 63,628) |
| <i>Yes</i> | 83.9% | 85.2% |
| <i>No</i> | 16.1% | 14.8% |
| Number of Prior Referrals | 6.03 | 5.46 |
| Number of Prior Assessments | 3.08 | 2.73 |
| Number of Prior Cases | 0.54 | 0.46 |
| Number of Prior Removals | 0.25 | 0.18 |
| Prior DYS Involvement | 13.6% | 3.3% |
| Population Size | 7,566 | 63,685 |

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

3.4. Non-experimental Evaluation of ISST Population

This section uses a descriptive, non-experimental evaluation to examine the outcomes of the ISST population via the performance goals within the four program domains. A non-experimental, single group evaluation design was used to examine outcomes, given the “data silo” challenges in accessing the requisite outcome data for the education and health/mental health domains, as well as accessing data on a comparison population of children with juvenile justice, education, and health/mental health performance goals. As previously noted, a non-experimental evaluation design does not rely on a comparison group for an assessment of program impact, but instead uses descriptive statistics to examine the outcomes of children/youth 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 outcomes of children/youth served by CMP. The quasi-experimental evaluation was subsequently conducted to more effectively answer the critical question of whether CMP is effective in improving child welfare outcomes.

3.4.1. Child Welfare Clients

As shown in Table 20, the CMP was associated with high levels of success in increasing the safety of clients, with 95 percent having no substantiated abuse findings after CMP services began; in decreasing the number of clients involved with the child welfare system (93%); and in increasing the number of clients that remained home (90%). The program was associated with moderate success in achieving placement stability, with 81 percent of CMP clients having two or fewer placement moves while in out-of-home care. Finally, the program was associated with less success in increasing permanency, with 62 percent of CMP clients discharged to a permanent home. Collectively, these findings provide preliminary insight into the effectiveness of CMP in improving child welfare outcomes.

Table 20: Child Welfare Performance Goals for SFY17

| Performance Measure | # Children & Youth with Goal | # Achieving Goal | % Achieving Goal | % Achieving Goal in SFY16 |
|---|------------------------------|------------------|------------------|---------------------------|
| Child Welfare | | | | |
| Increase safety of children/youth | 7,356 | 6,986 | 95.0 | 83.5 |
| Decrease number of children/youth involved in child welfare | 7,356 | 6,840 | 93.0 | 59.8 |
| Increase # of children/youth who remain home | 5,298 | 4,766 | 90.0 | 68.6 |
| Increase placement stability of children/youth | 2,717 | 2,195 | 80.8 | 99.6* |
| Increase permanency of children/youth | 2,717 | 1,670 | 61.5 | 60.0 |

*The higher percentage for the 2016 placement stability goal is largely attributed to measurement error. The operationalization of the SFY17 performance goal represents a more accurate calculation.

3.4.2. Juvenile Justice Clients

As Table 21 on the following page shows, CMP was associated with high levels of success in decreasing commitments to DYS (97%) and preventing involvement with the juvenile justice system (90%). The program was associated with moderate success in increasing successful involvement with the juvenile justice system, with 57 percent of CMP clients successfully completing probation. The fourth performance goal of decreasing involvement in truancy court was not selected by any of the CMP counties.

Table 21: Juvenile Justice Performance Goals for SFY17

| Performance Measure | # Children & Youth with Goal | # Achieving Goal | % Achieving Goal | % Achieving Goal in SFY16 |
|---|------------------------------|------------------|------------------|---------------------------|
| Juvenile Justice | | | | |
| Decrease commitment to DYS | 7,556 | 7,338 | 97.1 | 87.1 |
| Prevent involvement with juvenile justice system | 7,556 | 6,830 | 90.4 | 94.6 |
| Increase successful involvement with juvenile justice system (probation only) | 976 | 559 | 57.3 | 32.0 |
| Decrease children/youth involved in truancy court* | N/A | N/A | N/A | N/A |

*None of the CMP counties selected the “Decrease children/youth involved in truancy court” performance goal.

3.4.3. Education Clients

Unlike the other three domains, the data for calculating education performance goals were obtained via the annual reports submitted by CMP counties. As displayed in Table 22, self-reported data suggests that CMP was associated with relatively high levels of success in increasing successful graduation rates (92%, though only one CMP county selected this goal and the results should be interpreted cautiously); decreasing disciplinary problems at school (91%); increasing school stability (86%); increasing academic achievement (79%); and increasing school attendance (68%).

Table 22: Education Performance Goals for SFY17*

| Performance Measure | # Children & Youth with Goal | # Achieving Goal | % Achieving Goal |
|--|------------------------------|------------------|------------------|
| Education | | | |
| Increase successful graduation rates | 13 | 12 | 92.3** |
| Decrease disciplinary problems at school | 91 | 83 | 91.2 |
| Increase school stability | 452 | 387 | 85.6 |
| Increase academic achievement | 1,625 | 1,287 | 79.2 |
| Increase school attendance | 2,760 | 1,889 | 68.4 |

*Performance goals were not calculated in the SFY16 evaluation due to a lack of available data.

**Performance on the “Increase Successful Graduation Rates” goal is subject to a single county, and the results should be interpreted cautiously.

3.4.4. Health/Mental Health Clients

As shown in Table 23 on the following page, the CMP was associated with moderate success in increasing children/youth health, as 61 percent of clients were provided linkages to primary care, oral care, substance abuse, mental health, or health insurance providers. The program was associated with moderate success in decreasing substance abuse, as 55 percent of clients

successfully completed 90-day inpatient substance abuse treatment or intensive outpatient treatment. The CMP was associated with less success in decreasing problem severity, as only 18 percent of applicable clients showed decreased problem severity and improved functioning on the Colorado Client Assessment Record (CCAR) while receiving CMP services.²¹ Data were not available for the performance measures for increasing psychological, social, cognitive, and physical functioning, and increasing well-being.

Table 23: Health/Mental Health Performance Goals for SFY17

| Performance Measure | # Children & Youth with Goal | # Achieving Goal | % Achieving Goal |
|---|------------------------------|------------------|------------------|
| Health/Mental Health | | | |
| Increase children/youth health | 4,602 | 7,566 | 60.8 |
| Decrease substance abuse | 44 | 80 | 55.0 |
| Decrease problem severity | 569 | 3,187 | 17.9 |
| Increase psychological, social, cognitive, and physical functioning** | Data Not Available | | |
| Increase well-being** | Data Not Available | | |

**The requisite data was not available for measuring the “Increase psychological, social, cognitive, and physical functioning” and “Increase wellbeing” goals.

3.5. Quasi-experimental Evaluation of Child Welfare Outcomes

The outcome evaluation employed a quasi-experimental design that builds on previous evaluations and increases the statistical rigor by obtaining causal evidence on the program’s effectiveness in improving child welfare outcomes. For the purposes of the quasi-experimental evaluation, the treatment group is defined as the population of children/youth that were involved with the child welfare system and were served by CMP through an initial ISST meeting in SFY16. In contrast, the comparison group consists of a comparable group of children/youth that were newly involved with the child welfare system in SFY16, 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 that resided in CMP counties and were eligible for CMP but were not served by the program due to capacity issues. The evaluation team engaged in conversations with members of the CMP Evaluation Subcommittee regarding the feasibility of identifying children/youth that were eligible but not served by the program. The Evaluation Subcommittee confirmed that capacity issues were the primary basis for these children/youth not being served by their county’s

²¹ The measure currently excludes clients who maintain or show no change in functioning from the numerator. As discussed further in Appendix B, additional consideration may be needed for how this measure is operationalized.

CMP, and that members of the proposed comparison group would have similar risk profiles as the treatment group.

3.5.1. Constructing Comparison Groups using Matching Methods

The evaluation team constructed matched treatment and comparison groups. Separate matched groups were constructed in accordance with three populations associated with the child welfare performance goals. The first matched group was 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 and was used to examine the placement stability and permanency performance goals. The final matched group consisted of the subpopulation of children/youth that entered into a child welfare case but remained in their homes and was used to examine the remain home performance goal.

Within each of the matched groups, the treatment group consisted of children/youth with child welfare performance goals in CMP counties that were served by the program (by an initial ISST meeting) during SFY16. The comparison group consisted of children/youth with child welfare involvement residing in the same CMP counties that were eligible for CMP, but not served by their county's program.

Two of the counties, Boulder and Larimer, enroll all eligible children in their CMPs. Accordingly, comparison groups could not be identified for these counties, as a comparable population of children that were not served by the program did not exist. In addition, a subpopulation of 121 CMP clients were served not by a CMP county, but were instead served by DYS. Notably, a comparison group of children/youth that were served only by DYS has yet to be identified. Along with the population of CMP clients from Boulder and Larimer Counties, the subpopulation of CMP clients served by DYS were excluded from the quasi-experimental analysis. Excluding this subset of CMP clients from the quasi-experimental evaluation had minimal impact on the evaluation's findings. Subsequent sensitivity analyses revealed that outcome achievement on each of the five child welfare performance goals differed by less than one percent when CMP clients served by Boulder and Larimer Counties and DYS were excluded. The results of the sensitivity analyses are discussed in further detail within the discussion section of the report. Table 24 on the following page provides an overview of the unmatched treatment and potential comparison groups that were associated with each of the child welfare performance goals.

Table 24: Unmatched Treatment and Comparison Groups Associated with the Child Welfare Performance Goals

| Child Welfare Performance Goal | # of CMP Clients (Treatment Group) | # of Children/Youth that Could Serve as Potential Matches (Comparison Group) |
|---|------------------------------------|--|
| Decrease number of children/youth involved in child welfare | 6,383 | 39,078 |
| Increase safety of children/youth | 6,383 | 39,078 |
| Increase placement stability of children/youth | 2,431 | 1,433 |
| Increase permanency of children/youth involved in child welfare | 2,431 | 1,433 |
| Increase the number of children/youth who remain home | 4,509 | 38,403 |

The matched groups were constructed 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.²² Demographic variables included child/youth age, gender, race, and family structure, and the primary caregiver age. Variables pertaining to previous child/youth involvement with the child welfare system included the number of previous referrals, assessments, cases, and removals, and whether the child/youth was previously adopted. Finally, other matching variables included previous child/youth involvement with DYS, previous food assistance, and previous Medicaid coverage. Prior to matching, the evaluation team conducted initial analyses of the imbalance between the groups on the aforementioned variables. This analysis utilized descriptive statistics and bivariate statistical tests to assess imbalance on factors associated with receiving treatment and the associated outcomes.

The matched comparison groups were then constructed using the Coarsened Exact Matching (CEM) methodology.^{23,24} The CEM methodology approximates a randomized block experimental design, where 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 (L_1) and a collection of univariate measures of imbalance across the selected covariates. After assessing the initial levels of imbalance, the CEM algorithm

²² Rubin, D. B., & Thomas, N. (1996). Matching using estimated propensity scores: relating theory to practice. *Biometrics*, 52, 249–264.

²³ 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.

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

was used to match children in the treatment group to all members of the comparison group with the same covariate values.²⁵ In the ensuing steps, covariates with considerable imbalance were “coarsened” into substantively indistinguishable values and a collection of strata with identical values was created. Strata that did not contain a minimum of one member of the treatment and comparison groups were dropped from the sample. In the next step, the L_1 measure and the univariate measures were used to assess imbalance among the matched groups, and to calculate the degree of imbalance reduction.

In the following step, the matched sample was compared 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 design and findings of the quasi-experimental evaluation.

To examine the subsequent involvement and safety performance goals, 2,933 members of the treatment group were matched to 2,933 members of the comparison group. As shown in Table 25 on the following page, the matching process considerably reduced imbalance between the two groups, with the vast majority of the 13 matching variables having no statistically significant differences.

One exception is a statistically significant difference in the primary caregiver’s age ($p < 0.05$), which differed by 0.5 years between the groups. In comparison to the broader CMP population, the matched groups had notably fewer prior adoptions, had a mean age that was approximately two years younger, and differed in their family structure. In addition, the matched groups had fewer child welfare referrals, assessments, cases, and removals, and fewer DYS involvements. Overall, this suggests that the matched groups had a slightly lower level of risk than the broader population of CMP clients.

²⁵ In contrast to propensity score matching, the CEM methodology allows for the improvement of balance for one covariate without effecting the maximum imbalance of the other covariates. 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.

Table 25: Differences in Key Covariates within the Matched Groups Used to Examine Subsequent Involvements and Safety Outcomes

| Covariate | Matched CMP Clients | Matched Comparison Group | CMP Population |
|---------------------------------|----------------------------|---------------------------------|-----------------------|
| Prior Adoption | 0.20% | 0.20% | 3.68% |
| Prior Food Assistance | | | |
| <i>Yes</i> | 72.83% | 73.85% | 74.35% |
| <i>No</i> | 25.74% | 24.72% | 22.18% |
| <i>Unknown</i> | 1.43% | 1.43% | 3.46% |
| Previously on Medicaid | | | |
| <i>Yes</i> | 82.17% | 83.09% | 80.95% |
| <i>No</i> | 16.40% | 15.48% | 15.59% |
| <i>Unknown</i> | 1.43% | 1.43% | 3.46% |
| Age at Beginning of Involvement | 8.62 | 8.61 | 10.50 |
| Gender | | | |
| <i>Female</i> | 45.89% | 45.89% | 42.41% |
| <i>Male</i> | 54.11% | 54.11% | 57.59% |
| Race and Ethnicity | | | |
| <i>African American</i> | 6.75% | 6.75% | 9.45% |
| <i>Caucasian</i> | 47.08% | 47.08% | 44.59% |
| <i>Hispanic</i> | 40.03% | 40.03% | 36.50% |
| <i>Other</i> | 0.44% | 0.44% | 0.86% |
| <i>Unknown</i> | 5.69% | 5.69% | 8.51% |
| Family Structure | | | |
| <i>Single Parent</i> | 19.16% | 19.16% | 29.16% |
| <i>Married Couple</i> | 6.41% | 6.41% | 14.12% |
| <i>Undetermined</i> | 68.19% | 68.19% | 47.50% |
| <i>Unmarried Couple</i> | 6.24% | 6.24% | 9.23% |
| Primary Caregiver's Age* | 34.71 | 34.12 | 37.10 |
| Number of Prior Referrals | 4.03 | 4.02 | 6.03 |
| Number of Prior Assessments | 2.00 | 1.97 | 3.08 |
| Number of Prior Cases | 0.24 | 0.24 | 0.54 |
| Number of Prior Removals | 0.08 | 0.08 | 0.25 |
| Prior DYS Involvement | 4.30% | 4.30% | 13.63% |
| Number of Observations | 2,933 | 2,933 | 6,383 |

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

Unlike the broader CMP population, the subpopulation of children/youth with placement stability and permanency outcome performance goals had notably fewer members within the comparison group. As a result, one-to-one matching could not be performed without excluding a sizable proportion of the treatment group. Accordingly, one-to-k matching was used to match multiple members of the treatment and comparison groups to one another. The use of one-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.²⁶ In total, 525 members of the treatment group were matched to 547 members of the comparison group. As shown in Table 26, the matching process reduced imbalance between the two groups, though fewer of the 11 covariates were exactly matched.²⁷

Table 26: Differences in Key Covariates within the Matched Groups Used to Examine Placement Stability and Permanency Outcomes

| Covariate | Matched CMP Clients | Matched Comparison Group | CMP Population |
|---------------------------------|---------------------|--------------------------|----------------|
| Prior Food Assistance | | | |
| Yes | 63.12% | 63.44% | 77.33% |
| No | 36.88% | 36.56% | 22.67% |
| Unknown | -- | -- | -- |
| Age at Beginning of Involvement | 3.51 | 3.42 | 9.28 |
| Gender | | | |
| Female | 41.48% | 44.79% | 41.71% |
| Male | 58.52% | 55.21% | 58.29% |
| Race and Ethnicity** | | | |
| African American | 12.24% | 17.00% | 14.07% |
| Caucasian | 46.53% | 37.11% | 50.02% |
| Hispanic | 33.41% | 40.77% | 31.76% |
| Other | 2.56% | 2.74% | 1.23% |
| Unknown | 5.26% | 2.38% | 2.92% |
| Family Structure | | | |
| Single Parent | 51.97% | 59.05% | 52.69% |
| Married Couple | 22.24% | 16.09% | 26.41% |
| Undetermined | 2.42% | 2.38% | 4.36% |
| Unmarried Couple | 23.37% | 22.49% | 16.54% |
| Primary Caregiver's Age | 30.04 | 29.54 | 36.86 |
| Number of Prior Referrals | 2.62 | 2.12 | 6.53 |
| Number of Prior Assessments | 1.35 | 1.13 | 3.36 |
| Number of Prior Cases | 0.06 | 0.08 | 0.57 |
| Number of Prior Removals | 0.03 | 0.03 | 0.27 |
| Prior DYS Involvement | 2.32% | 2.56% | 12.75% |
| Number of Observations | 525 | 547 | 2,431 |

Note: ** Statistically significant at the p<0.01 level.

²⁶ 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).

²⁷ Variables that were not exactly matched were subsequently included in the placement stability and permanency models.

After matching, statistically significant differences persisted for the race-ethnicity variable ($p < 0.01$). In comparison to the broader CMP population, the matched groups had lower levels of receiving food assistance, had a mean age that was approximately six years younger, and had a younger mean age for the child's primary caregiver. In addition, the matched groups had fewer child welfare referrals, assessments, cases, and removals, and fewer DYS involvements. Once again, this suggests that the matched comparison groups had a slightly lower level of risk than the broader population of CMP clients.

To examine the remain home performance goal, 2,146 members of the treatment group of children/youth who had a child welfare case but remained in their homes were matched to 2,146 members of the comparison group. As shown in Table 27 on the following page, the matching process considerably reduced imbalance between the two groups, with the 13 matching variables having no statistically significant differences. In comparison to the broader CMP population, the matched groups had notably fewer prior adoptions. However, the matched groups had a mean age that was approximately a year and a half older, a greater number of child welfare referrals and assessments, and a higher percentage of prior DYS involvements. Overall, this suggests that the matched comparison groups had a slightly higher level of risk than the broader population of CMP clients.

Table 27: Differences in Key Covariates within the Matched Groups Used to Examine Remain Home Outcomes

| Covariate | Matched CMP Clients | Matched Comparison Group | CMP Population |
|---------------------------------|---------------------|--------------------------|----------------|
| Prior Adoption | 0.09% | 0.09% | 1.06% |
| Prior Food Assistance | | | |
| <i>Yes</i> | 75.35% | 75.35% | 73.60% |
| <i>No</i> | 22.88% | 22.88% | 25.58% |
| <i>Unknown</i> | 1.77% | 1.77% | 0.81% |
| Previously on Medicaid | | | |
| <i>Yes</i> | 83.36% | 82.67% | 82.89% |
| <i>No</i> | 14.86% | 15.56% | 16.30% |
| <i>Unknown</i> | 1.77% | 1.77% | 0.81% |
| Age at Beginning of Involvement | 9.33 | 9.31 | 8.04 |
| Gender | | | |
| <i>Female</i> | 46.37% | 46.37% | 48.54% |
| <i>Male</i> | 53.63% | 53.63% | 51.46% |
| Race and Ethnicity | | | |
| <i>African American</i> | 5.59% | 5.59% | 10.69% |
| <i>Caucasian</i> | 46.97% | 46.97% | 45.55% |
| <i>Hispanic</i> | 40.73% | 40.73% | 37.64% |
| <i>Other</i> | 0.42% | 0.42% | 1.52% |
| <i>Unknown</i> | 6.29% | 6.29% | 4.61% |
| Family Structure | | | |
| <i>Single Parent</i> | 9.69% | 9.69% | 7.17% |
| <i>Married Couple</i> | 1.63% | 1.63% | 2.96% |
| <i>Undetermined</i> | 86.16% | 86.16% | 87.21% |
| <i>Unmarried Couple</i> | 2.52% | 2.52% | 2.66% |
| Primary Caregiver's Age | 34.97 | 34.79 | 34.24 |
| Number of Prior Referrals | 4.75 | 4.60 | 3.48 |
| Number of Prior Assessments | 2.38 | 2.26 | 1.70 |
| Number of Prior Cases | 0.27 | 0.27 | 0.26 |
| Number of Prior Removals | 0.07 | 0.07 | 0.11 |
| Prior DYS Involvement | 4.38% | 4.38% | 2.65% |
| Number of Observations | 2,146 | 2,146 | 4,509 |

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:

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

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 . Linear probability models were used to estimate the average treatment effect while controlling for associated covariates. As one-to-k matching was used to match treatment and comparison members within the out-of-home subpopulation, weighted linear probability models were used for the placement stability and permanency outcome models. Within these weighted linear probability models, observations were weighted according to the number of observations within their strata.²⁸

Matching covariates that were not exactly matched or had statistically significant differences even after matching were included in the regression models. Matching methods and regression adjustments 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, and level of involvement. Finally, county fixed effects and county-clustered standard errors were included to account for child welfare policy and practice differences within each of the CMP counties.

Outcome: Subsequent Involvement in Child Welfare

On the following page, Table 28 provides the results for the linear probability model used to examine whether CMP clients were more or less likely to have a new involvement with the child welfare system (i.e., a case) in the year after receiving services. **The results show that CMP clients had a 4.8 percentage point increase in the probability that they will have a new involvement ($p < 0.01$) compared to youth that were eligible, but not served by the program.** CMP is found to have a small negative effect (equal to approximately 2/10 of a standard deviation) on whether clients are subsequently involved in the child welfare system. Although the magnitude of this effect is small,³⁰ it provides statistically significant evidence that CMP clients are more likely to have a new involvement than a comparison group of children/youth that were eligible, but not served by CMP.

²⁸ Iacus, S. M., King, G., & Porro, G. (2008). *Matching for causal inference without balance checking*. Retrieved from: <https://ssrn.com/abstract=1152391> or <http://dx.doi.org/10.2139/ssrn.1152391>

²⁹ Stuart, E. A. (2010). Matching methods for causal inference: A review and a look forward. *Statistical Science*, 25(1), 1-21.

³⁰ Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155-159.

Table 28: New Child Welfare Involvement Linear Probability Model

| Covariates | Outcome: New Child Welfare Involvement |
|---|--|
| Treatment: CMP | 0.048** (0.013) |
| Program Area (Base: PA3- Prevention) | |
| PA4- Youth in Conflict | 0.046 (0.029) |
| PA5/6- Abuse/Neglect | 0.001 (0.028) |
| PA Missing | 0.043 (0.037) |
| Risk Level (Base: High) | |
| Low | -0.014 (0.016) |
| Moderate | -0.008 (0.013) |
| Not Available | -0.030* (0.012) |
| Child Welfare Level of Involvement (Base: Assessment) | |
| Case | -0.085*** (0.017) |
| Prevention | 0.005 (0.023) |
| Referral | -0.022 (0.023) |
| DYS Involvement | 0.105*** (0.022) |
| Age at Beginning of Involvement | -0.004*** (0.001) |
| Primary Caregiver's Age | -0.000*** (0.000) |
| Number of Prior Referrals | 0.003 (0.002) |
| Number of Prior Assessments | -0.007 (0.003) |
| Prior Food Assistance (Base: No) | |
| Yes | 0.005 (0.007) |
| Unknown | -0.023 (0.016) |
| County Fixed Effects | Yes |
| Constant | 0.076* (0.030) |
| Observations | 5,866 |
| R-Squared | 0.053 |

Note: Robust standard errors clustered by CMP county in parentheses. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

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 3.3 and 7.8 percentage point increase in the probability of having a new involvement ($p < 0.05$). Together, these results provide strong, consistent evidence that CMP clients are more likely to have a subsequent involvement than children/youth that were eligible, but not served by the program.

Outcome: Subsequent Founded Assessment of Abuse and/or Neglect

On the following page, Table 29 provides the results for the model 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 were not significantly more or less likely to have a subsequent founded assessment compared to youth that were eligible, but not served by the program.

Table 29: Subsequent Founded Assessment Linear Probability Model

| Covariates | Outcome: Subsequent Founded Assessment |
|---|--|
| Treatment: CMP | 0.010 (0.006) |
| Program Area (Base: PA3- Prevention) | |
| PA4- Youth in Conflict | 0.011 (0.027) |
| PA5/6- Abuse/Neglect | 0.020 (0.026) |
| PA Missing | 0.051 (0.030) |
| Risk Level (Base: High) | |
| Low | 0.003 (0.009) |
| Moderate | 0.007 (0.007) |
| Not Available | 0.007 (0.011) |
| Child Welfare Level of Involvement (Base: Assessment) | |
| Case | -0.032** (0.009) |
| Prevention | 0.017 (0.011) |
| Referral | -0.009 (0.013) |
| DYS Involvement | -0.014 (0.007) |
| Age at Beginning of Involvement | -0.005*** (0.001) |
| Primary Caregiver's Age | -0.000*** (0.000) |
| Number of Prior Referrals | 0.000 (0.002) |
| Number of Prior Assessments | 0.001 (0.003) |
| Prior Food Assistance (Base: No) | |
| Yes | 0.001 (0.009) |
| Unknown | -0.017 (0.014) |
| County Fixed Effects | Yes |
| Constant | 0.076* (0.030) |
| Observations | 5,866 |
| R-Squared | 0.077 |

Note: Robust standard errors clustered by CMP county in parentheses. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Sensitivity analyses were once again conducted to examine the robustness of the model's findings. Subsequent 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 0.8 and 2.8 percentage point increase in the probability of having a subsequent founded assessment. Notably, these effects were not consistently significant. Together, these results suggest that CMP clients are not significantly more or less likely to have a subsequent founded assessment.

Outcome: Placement Stability for Children Removed from Their Homes

Table 30 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 6.9 percentage point decrease in the probability that they would experience placement stability ($p < 0.01$) compared to youth that were eligible, but not served by the program.**

Table 30: Placement Stability Weighted Linear Probability Model

| Covariates | Outcome: Placement Stability |
|---|------------------------------|
| Treatment: CMP | -0.069** (0.019) |
| Risk Level (Base: High) | |
| Low | -0.0775 (0.111) |
| Moderate | 0.035 (0.018) |
| Not Available | -0.014 (0.035) |
| Subsequent Referral | 0.013 (0.049) |
| Subsequent Assessment | 0.018 (0.052) |
| Previously Adopted | 0.110* (0.047) |
| Male | 0.005 (0.010) |
| Race & Ethnicity (Base: Caucasian) | |
| African American | -0.102*** (0.024) |
| Hispanic | -0.015 (0.017) |
| Other | -0.051 (0.054) |
| Unknown | -0.136* (0.059) |
| Family Structure (Base: Married Couple) | |
| Single Parent | 0.012 (0.016) |
| Undetermined | 0.036 (0.021) |
| Unmarried Couple | -0.002 (0.031) |
| Age at Beginning of Involvement | -0.008 (0.005) |
| Primary Caregiver's Age | 0.000* (0.000) |
| Number of Prior Referrals | -0.012 (0.008) |
| Number of Prior Assessments | 0.024 (0.017) |
| Number of Prior Cases | -0.088 (0.053) |
| Number of Prior Removals | 0.121 (0.060) |
| Prior DYS Involvement | 0.055 (0.118) |
| Prior Food Assistance | -0.014 (0.009) |
| County Fixed Effects | Yes |
| Constant | 1.952*** (0.129) |
| Observations | 1,072 |
| R-Squared | 0.131 |

Note: Robust standard errors clustered by CMP county in parentheses. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

CMP is found to have a small negative effect (equal to approximately 2/10 of a standard deviation) on whether clients experience placement stability. Again, the magnitude of this effect is once again small, but provides statistically significant evidence that CMP clients are less likely to experience placement stability than a comparison group of children/youth that were eligible, but not served by CMP.

Sensitivity analyses were conducted 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 5.6 and 6.9 percentage point decrease in the probability of experiencing placement stability ($p < 0.05$). Together, these results provide strong, consistent evidence that CMP clients are less likely to experience placement stability than children/youth that were eligible, but not served by the program.

Outcome: Permanency for Children/youth Removed from their Homes

As displayed in Table 31 on the following page, the fourth model was used to examine whether CMP clients were more or less likely to achieve permanency in the year after they began receiving services. **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 1.7 and 5.2 percentage point decrease in the probability of achieving permanency. Notably, neither of these effects were statistically significant. Together, these results suggest that CMP clients were not significantly more or less likely to achieve permanency.

Table 31: Permanency Weighted Linear Probability Model

| Covariates | Outcome: Permanency |
|---|-----------------------|
| Treatment: CMP | -0.018 (0.057) |
| Risk Level (Base: High) | |
| Low | 0.357** (0.119) |
| Moderate | 0.178** (0.055) |
| Not Available | 0.010* (0.037) |
| Subsequent Referral | -0.130 (0.115) |
| Subsequent Assessment | 0.038 (0.085) |
| Previously Adopted | 0.449*** (0.047) |
| Male | -0.018 (0.037) |
| Race & Ethnicity (Base: Caucasian) | |
| African American | -0.040 (0.048) |
| Hispanic | 0.078 (0.044) |
| Other | 0.142 (0.096) |
| Unknown | -0.041 (0.092) |
| Family Structure (Base: Married Couple) | |
| Single Parent | -0.087** (0.030) |
| Undetermined | -0.014 (0.133) |
| Unmarried Couple | 0.014 (0.072) |
| Age at Beginning of Involvement | -0.000 (0.006) |
| Primary Caregiver's Age | -0.000*** (0.000) |
| Number of Prior Referrals | -0.013 (0.009) |
| Number of Prior Assessments | 0.034 (0.019) |
| Number of Prior Cases | -0.082 (0.079) |
| Number of Prior Removals | -0.128 (0.189) |
| Prior DYS Involvement | 0.055 (0.118) |
| Prior Food Assistance | 0.121 (0.095) |
| County Fixed Effects | Yes |
| Constant | 1.695*** (0.088) |
| Observations | 1,072 |
| R-Squared | 0.141 |

Note: Robust standard errors clustered by CMP county in parentheses. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

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

As displayed in Table 32 on the following page, the final model examined 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.

Sensitivity analyses were conducted using a matched group with a larger number of observations but a higher degree of imbalance, and on the full, unmatched treatment and comparison groups.

In these models, CMP clients were found to have between a 0.3 and 8.1 percentage point decrease in the probability of remaining home, but 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 that were eligible, but not served by the program.

Table 32: Remain Home Linear Probability Model

| Covariates | Outcome: Remain Home |
|--------------------------------------|-----------------------|
| Treatment: CMP | -0.008 (0.013) |
| Program Area (Base: PA3- Prevention) | |
| PA4- Youth in Conflict | -0.018 (0.017) |
| PA5/6- Abuse/Neglect | -0.008 (0.008) |
| PA Missing | -0.021 (0.011) |
| Risk Level (Base: High) | |
| Low | 0.007 (0.127) |
| Moderate | 0.002 (0.007) |
| Not Available | -0.007 (0.009) |
| DYS Involvement | -0.173*** (0.029) |
| Age at Beginning of Involvement | 0.005*** (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) |
| Previously on Medicaid (Base: No) | |
| Yes | 0.005 (0.007) |
| Unknown | 0.006 (0.011) |
| County Fixed Effects | Yes |
| Constant | 1.925*** (0.016) |
| Observations | 4,292 |
| R-Squared | 0.078 |

Note: Robust standard errors clustered by CMP county in parentheses. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

3.6. Outcome Evaluation Summary

The findings from the quasi-experimental evaluation show that children/youth served by CMP were found to not be significantly more or less likely to have a subsequent founded assessment, to achieve permanency, or to remain in their homes. However, the findings show that CMP clients had a 4.8 percentage point higher probability of a new involvement ($p < 0.01$) and a 6.9 percentage point lower probability of experiencing placement stability ($p < 0.01$). Collectively, these findings demonstrate that CMP has neutral impacts on several child welfare outcomes and small negative effects on child welfare re-involvement and placement stability (as summarized in

Table 33). Given these findings, the remainder of this section discusses several factors that could impact the findings on the program’s effectiveness.

Table 33: Summary of the Quasi-Experimental Evaluation’s Findings for Child Welfare Outcomes

| Outcome (Performance Goal) | Finding | Statistically Significant Finding |
|-------------------------------|--|-----------------------------------|
| Subsequent Involvement | CMP clients had a 4.8 percentage point increase in the probability that they will have a new involvement compared to youth that were eligible, but not served by the program. | ✓ ($p < 0.01$) |
| Subsequent Founded Assessment | CMP clients are not significantly more or less likely to have a subsequent founded assessment compared to youth that were eligible, but not served by the program. | |
| Placement Stability | CMP clients had a 6.9 percentage point decrease in the probability that they would experience placement stability compared to youth that were eligible, but not served by the program. | ✓ ($p < 0.01$) |
| Permanency | CMP clients were not significantly more or less likely to have achieved permanency compared to youth that 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 that were eligible, but not served by the program. | |

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 34 on the following page, excluding these clients from the analysis had minimal impact, with performance goals between the two populations differing by less than one percentage point. Accordingly, these results cast doubt on the likelihood that excluding these clients had a considerable impact on the quasi-experimental evaluation’s findings.

Table 34: Comparison of Performance Goal Achievement with and without Clients Served by Boulder and Larimer Counties and DYS

| Outcome (Performance Goal) | % Achieving Goal (Full Population) | % Achieving Goal (Excluding Boulder and Larimer Counties and DYS) |
|---|---|--|
| Increase safety of children/youth | 94.97% (N = 7,356) | 94.98% (N = 6,390) |
| Decrease number of children/youth involved in child welfare | 92.98% (N = 7,356) | 93.08% (N = 6,390) |
| Increase # of children/youth who remain home | 89.96% (N = 5,298) | 89.88% (N = 4,516) |
| Increase placement stability of children/youth | 80.79% (N = 2,717) | 79.93% (N = 2,432) |
| Increase permanency of children/youth | 61.46% (N = 2,717) | 61.35% (N = 2,432) |

Impact of Clients with Differing Levels of Risk

A second factor to consider is whether the risk levels of clients included in the matched comparison groups had a notable impact on the findings. As displayed earlier, the matched comparison groups had varying levels of risk that differed from the broader CMP population. The matched comparison group used to examine the subsequent involvement, subsequent founded assessment, placement stability, and permanency performance goals could be characterized as having a slightly lower level of risk. To further control for differences in level of risk, the child’s assessed level of risk, program area, and child welfare and DYS level of involvement were controlled for within the linear probability models. Furthermore, it is reasonable to assume that clients with lower levels of risk would achieve better outcomes. However, the findings consistently show that among a slightly lower risk subpopulation, CMP clients were not more likely to have better child welfare outcomes.

In contrast, the matched comparison groups used to examine the remain home performance goal had a slightly higher level of risk. The matched groups comprised slightly older children/youth with higher levels of prior referrals, assessments, cases, and removals, and a higher percentage of previous DYS involvements. Differences in risk levels were further controlled for by including the child’s assessed level of risk, program area, and DYS involvement within the linear probability models. Furthermore, it is reasonable to assume that clients with higher levels of risk would be more likely to achieve inferior outcomes. However, the findings show that among a slightly higher risk subpopulation, CMP clients were not significantly less likely to remain in their homes.

4. COST EVALUATION

The cost evaluation examines the costs associated with the implementation of ISST meetings and the potential cost-effectiveness of CMP.

4.1. Cost Survey Approach

The cost evaluation for SFY17 consisted of two objectives. Objective 1 was to estimate costs associated with ISST meeting implementation. Objective 2 was to estimate differences between youth served by CMP and youth not served by CMP (but otherwise eligible) on costs for Core Services and out-of-home placements. The tasks for Objective 2 include identifying data sources and data collection processes for estimating placement and service costs for the child welfare domain. This section provides an overview of the plan to complete both objectives.

4.1.1. Cost Survey Development

The ISST survey asks respondents to estimate averages of the number of ISST meetings per year for a typical family, the duration of meetings, the amount of preparation time for each meeting, how many people typically attended an ISST meeting, and the job titles of typical meeting attendees. It was determined that collecting IOG information would be unlikely to provide any new insights into its costs, while also being particularly burdensome. Thus, the evaluation team elected to exclude the IOG survey from counties participating in the SFY17 cost survey.

Based on feedback from the original pilot, the evaluation team modified the survey to gather official job titles from attendees, rather than salary data. The team then obtained hourly rates of pay for comparable job titles from the U.S. Bureau of Labor Statistics (BLS). Though this adjustment limits the ability to precisely estimate the costs of ISST meetings, it is unlikely that pay rates vary substantially enough between meeting attendees so that the BLS's salary data would not serve as robust estimates of meeting costs.

4.1.2. Cost Survey Administration

Overall, 30 CMP sites completed the cost survey. These sites were representative of counties participating in the CMP in regard to urbanicity and other site characteristics. Each county's contact provided the email address of an individual who regularly attends ISST. In some cases, multiple contacts were provided to account for the potential of non-respondents. Since the surveys were voluntary in nature (meeting attendees come from a diverse array of agencies and are thus not required to participate in this evaluation), contacting multiple individuals ensured at

least one response for each survey in each county. Thus, the response rate varied, with some sites having one respondent per survey, and other sites with multiple responses per survey.

4.1.3. Cost Survey Calculations

To arrive at estimates of ISST meeting costs, the following methodology was used:

- 1) The pilot survey responses were used to identify the job titles of individuals who attended ISST meetings, and respondents in subsequent surveys were asked to indicate the likelihood of these particular job titles being present at a meeting (e.g., 10% of the time). As the number of people attending meetings varied, the job titles of individuals who attended most often were included in all cost scenarios, and as the number of people attending increased, less common titles were added.
- 2) Job titles recorded by survey respondents were matched with BLS job titles as closely as possible. The advantage of BLS data related specifically to Colorado is that the wide range of occupations and wages increases the generalizability across a diverse set of counties.
- 3) Cost was calculated by summing the multiplying wages by probability of attendance, multiplying by the number of meetings per year, multiplying by the total time spent, and including a 25% fringe rate.
- 4) For ISST meeting costs in the “Low” estimate, it is assumed that there are a low number of meetings, low attendance rates for each listed occupation, and low wage rates. For the “Median” and “High” estimates, it is assumed there are median and high rates of meetings, attendance rates, and wage rates, respectively.

On the following page, Table 35 shows general job title and hourly wage information that was retrieved from the BLS to estimate costs. The BLS’s estimates are derived from data that was collected from employers in all industry sectors in metropolitan and nonmetropolitan areas in Colorado during 2015. The BLS reports hourly wages at the 10th, 50th, and 90th percentiles for each job title. In a few cases, the 90th percentile was not available due to lack of information. For these jobs, the 75th percentile was then used as the 90th percentile. Salary information on the Superintendent comes from the Colorado Department of Education (CDE) publication of salary information.

Table 35: BLS Hourly Rates (2015 Dollars; Fringe not included)

| Job Title | 10 th percentile (hourly wage) | 50 th percentile | 90 th percentile |
|---|--|-----------------------------|-----------------------------|
| Community and Social Service Occupations | 11.81 | 20.20 | 35.85 |
| Substance Abuse and Behavioral Disorder Counselors | 12.43 | 19.22 | 30.30 |
| Educational, Guidance, School, and Vocational Counselors | 15.52 | 25.80 | 42.14 |
| Marriage and Family Therapists | 14.68 | 23.37 | 39.40 |
| Mental Health Counselors | 12.65 | 20.13 | 33.07 |
| Rehabilitation Counselors | 10.07 | 16.54 | 29.21 |
| Counselors, All Other | 12.25 | 21.89 | 35.65 |
| Child, Family, and School Social Workers | 13.31 | 20.36 | 35.29 |
| Healthcare Social Workers | 15.48 | 25.18 | 37.44 |
| Mental Health and Substance Abuse Social Workers | 12.61 | 20.28 | 35.26 |
| Social Workers, All Other | 16.05 | 28.15 | 40.10 |
| Health Educators | 14.54 | 24.98 | 44.69 |
| Probation Officers and Correctional Treatment Specialists | 15.82 | 23.73 | 41.41 |
| Community and Social Service Specialists | 11.72 | 20.14 | 33.63 |
| Clergy | 10.76 | 21.27 | 37.12 |
| Directors, Religious Activities and Education | 9.30 | 18.65 | 38.88 |
| Lawyers | 26.86 | 55.69 | 83.79 |
| Judges, Magistrate Judges, and Magistrates | 17.66 | 61.03 | 89.77 |
| First-Line Supervisors of Correctional Officers | 18.28 | 28.71 | 45.23 |
| Chief Executives | 32.98 | 53.88 | 84.19 |
| School Superintendent | 43.50 | 51.00 | 96.00 |

Source: Bureau of Labor Statistics: http://www.bls.gov/oes/current/oes_co.htm; low represents the 10th percentile hourly rate, Median the median hourly rate, and High the 90th percentile hourly rate, all specific to Colorado in 2015. School Superintendent comes from Colorado department of education’s publication of salary information, however.

On the following page, Table 36 present job titles that survey respondents indicated were commonly present at their associated meetings, along with hourly wage data obtained from Table 35. For ISST meetings, probation officers, therapists, counselors, and teachers were common participants, along with an ISST coordinator.

To determine which occupations were matched, hourly data in Tables 36 can be compared to Table 35. For example, the Probation Officer’s hourly wages in Table 36 comes from the “Probation Officers and Correctional Treatment Specialists” wages in Table 35. In addition, the 10th percentile column corresponds with the Low estimate, the 50th percentile with the Median estimate, and the 90th percentile with the High estimate.

Table 36: Most Common ISST Attendees and Assumed Hourly Wages (not including fringe)

| Job Title | Attendance Probability | 10 th percentile (hourly wage) | 50 th percentile | 90 th percentile |
|--|------------------------|---|-----------------------------|-----------------------------|
| Probation Officer | .33 | 15.82 | 23.73 | 41.41 |
| Probation Supervisor | .15 | 18.28 | 28.71 | 45.23 |
| Therapists | .47 | 14.68 | 23.37 | 39.40 |
| School Representative (Teacher, counselor) | .55 | 11.81 | 20.20 | 35.85 |
| ISST Coordinator | .68 | 16.05 | 28.15 | 40.10 |
| Pre-Trial Case Manager | .20 | 16.05 | 28.15 | 40.10 |
| Pre-Trial Supervisor | .12 | 16.05 | 28.15 | 40.10 |
| Guardian Ad-Litem | .23 | 9.30 | 9.30 | 40.10 |
| DA Representative | .07 | 16.05 | 28.15 | 40.10 |
| DYS Representative | .16 | 16.05 | 28.15 | 40.10 |
| Community person | .37 | 9.30 | 9.30 | 40.10 |

4.1.4. Cost Comparison Approach

The CMP potentially generates cost savings through two processes: 1) reduction of costs associated with integration of services across agencies; and 2) improvements in treatment outcomes to children/youth, resulting in decreased recidivism. Thus, it is hypothesized that serving dually involved youth through CMP will generate cost savings and improved outcomes by having cross-system meetings, integrated service plans, and streamlined services. The difference between costs for the CMP and non-CMP groups serve as an estimate of the cost savings that CMP provides.

To accomplish the objective of aligning the cost analysis results with the outcomes analyses, the evaluation team conducted a cost comparison between CMP-involved youth and the control sample of youth used in the outcomes analysis. 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 child care, transportation, and missing work.

Given that families are not randomly assigned to CMP, potential treatment biases in comparing costs between groups were accounted for by estimating variants of the Heckman selection model.³¹ The Heckman selection model accounts for hidden bias through a two stage sequence: first, the probability of receiving CMP is calculated by estimating a regression model with treatment as a binary outcome and model predictors being covariates, such as race, prior involvement with child welfare, or age; second, the *predicted probability of treatment* is included in the regression equation, replacing the treatment indicator. The log of costs are treated as the outcome of interest.

4.2. Cost Survey Results

The cost evaluation results are presented for the ISST meeting cost survey and the cost comparison analysis.

4.2.1. ISST Meeting Cost Results

Following are the results of the cost surveys from the 30 sites participating in the evaluation. Due to the qualitative nature of responses on job titles, three potential scenarios, along with their estimated costs, are presented for ISST meetings. As displayed in Table 37, these estimates represent lower, middle, and upper bounds of the expected number of meetings occurring annually, the number of people who typically attend, the average duration of meetings, and the preparation time needed.

Table 37: ISST Resource Consumption Responses

| Resource Category | Low | Median | High |
|--|--------------|----------------|----------------|
| Number of meetings occurring per year for a typical family | 3 | 3.5 | 4 |
| Number of people typically attending an ISST meeting | 11 | 11 | 11 |
| Typical length of meetings (hours) | .9 | 1.2 | 1.5 |
| Time spent preparing for ISST meetings (hours) | .9 | 1.3 | 1.5 |
| Estimated Annual Cost per Family | \$275 | \$1,219 | \$2,994 |
| Cost including 25% fringe | \$344 | \$1,524 | \$3,743 |

The final two rows display the estimated annual costs of ISST meetings for one family with and without a 25% fringe benefit included. Finally, rather than estimating *which* job positions were

³¹ Heckman, J., Ichimura, H., & Todd, P. (1998). Matching as an econometric evaluation estimator. *Review of Economic Studies*, 65, 261–294.

most likely to be at a given ISST meeting, the results were used to calculate *probabilities* of each job title being represented at a given meeting, and estimate the expected value of the job title being present. This is calculated as the probability of attending multiplied by hourly wage rate. Therefore, the estimates account for the uncertainty in what job titles are represented at each meeting.

The annual cost of ISST meetings for an individual family (with fringe) is estimated to be between \$344 and \$3,743 with a median estimate of \$1,524. This is an increase from the median annual cost per family of \$746 reported in the SFY16 report. The difference is the result of a higher estimate for the number of annual meetings per family from 2 to 3.5. The change in number of annual meetings is likely related to the larger sample size for the cost survey, which reduces the effect of outliers. **Despite the increase in median number of meetings, the median cost per meeting (with fringe) remained relatively stable from \$373 in SFY16 to \$435 in SFY17.**

The wide range of estimates is not without purpose. First, the diversity in practices between counties in Colorado is evident, as a small number of counties indicated that the average number of people who attend ISST meetings was as high as 12, the number of meetings per family varies by county and potentially by severity of the case, and salaries are due to vary substantially. Secondly, due to the request by sites to refrain from collecting salary information from meeting attendees, the calculation was limited by using estimated salary data from the BLS. However, providing a wide range of estimates increases the chances of capturing the true costs of ISST meetings in each county. Thus, the purpose of the estimates are to give an indication of the lower and upper bounds of the true costs of ISST meetings.

4.3. Cost Comparison Results

On the following page, Table 38 provides results with separate models run for OOH and service costs during involvement with child welfare, and one year following exit. Overall, the results of these analyses were in line with the outcomes analyses. **After accounting for selection bias, there was not a statistically significant difference between treatment and comparison groups in Core Service and OOH placement costs during the one-year follow-up period.** However, costs trended towards being higher for CMP families than for families not receiving CMP. Furthermore, families who were deemed “high risk” or “moderate risk” were more likely to be in the CMP than families who were not classified as “at risk.” Additionally, families with prior involvement with DYS, or receipt of government services, such as food assistance, were more likely to be in the CMP. These results suggest that, overall, families having more risks and having prior system costs are more likely to be selected into the CMP.

Table 38: Results of Cost Comparison Analysis from Heckman Selection Model

| Covariates | OOH Cost during Treatment | OOH Cost 1-year Follow-up | Service Cost during Treatment | Service Costs 1-year Follow-up |
|-------------------------------|---------------------------|---------------------------|-------------------------------|--------------------------------|
| CMP (Treatment effect) | 1.53 (.00) | -.43 (.46) | 3.18 (.19) | -.44 (.46) |
| High risk status | .51 (.08) | .27 (.18) | -.91 (.26) | .27 (.18) |
| Moderate risk status | .30 (.19) | -.28 (.09) | -.31 (.55) | -.28 (.09) |
| African American | .11 (.59) | -.42 (.03) | .19 (.57) | -.42 (.03) |
| Hispanic | .29 (.02) | .08 (.41) | .17 (.37) | .08 (.41) |
| Caucasian | .13 (.55) | -.46 (.04) | -.12 (.70) | -.46 (.04) |
| Number DYS involved cases | .96 (.00) | .58 (.07) | -.30 (.59) | .58 (.07) |
| Prior case count | -.04 (.69) | .24 (.03) | .24 (.41) | .24 (.03) |
| Prior assessment count | .05 (.29) | -.03 (.40) | .00 (1.00) | -.03 (.40) |
| Prior referral count | .01 (.77) | .04 (.03) | .01 (.85) | .04 (.03) |
| Prior Medicaid | -.08 (.68) | .30 (.14) | .08 (.76) | .30 (.14) |
| Food Stamps | -.11 (.57) | -.60 (.00) | -.31 (.18) | -.60 (.00) |
| Adopted | -.92 (.00) | -.17 (.28) | -.70 (.32) | -.17 (.28) |
| Age | .00 (.40) | .00 (.82) | .01 (.49) | .00 (.82) |

*p-values in parentheses

5. CONCLUSIONS

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 increasing health and decreasing substance abuse. Finally, the program was associated with high levels of success in increasing successful graduation rates, decreasing disciplinary problems at school, increasing school stability, and increasing academic achievement, but more moderate levels of success in increasing school attendance. Although these findings provide preliminary 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 a quasi-experimental research design indicate that there is an overall neutral and small negative effect on child welfare re-involvement and placement stability outcomes. However, these results are not surprising given the emphasis of CMP on child/youth well-being outcomes, which will be measured more rigorously and across all four systems in future evaluations.

CMP stakeholders who participate in IOG and ISST meetings report high levels of collaboration in shared vision, relationships, authenticity & trust, and leadership & process. CMP sites achieved key process performance goals at high levels including the use of evidence-based practice, partner contributions at the service level, and completion of CQI.

The results from the cost comparison analysis indicate that there are no statistically significant differences on OOH placement and service costs during a one-year follow-up period between children/youth who received CMP and otherwise eligible children/youth who did not. Similar to the outcome evaluation, the program's impact may be more clearly realized when costs from juvenile justice, education, and health/mental health services are considered.

5.1. Process Evaluation Considerations

Overall, results of both the IOG and ISST collaboration surveys indicate that collaborative efforts remain strong for CMP stakeholders. For example, one IOG member commented: *"I think the IOG is one of the most, if not the most, effective collaborative efforts in our County. Our coordinator(s) do an awesome job and really care for the families and kids they work with. It is a great example of doing more "together" than each individual could accomplish on their own."* An ISST representative noted: *"The group holds a high commitment to the families that we serve. The team is willing to fund what is needed to make families successful."*

The collaboration survey revealed several areas of improvement for the IOG and ISST processes. For the IOG, there are some challenges around resources being shared equally among members, decision-making activities being dominated by a few members, leadership taking a top-down approach, and the need for clearly defined roles for each member. Some of these same issues were identified as challenges for ISST implementation, as well as resources for service planning and provision being equally shared and the need for regular check-ins about the ISST process.

5.1.1. Process Evaluation Next Steps

The primary next step for the process evaluation is to administer the Family Voice Survey to all CMP sites. The pilot illuminated several ideas to consider for the next administration of the survey. To increase the sample size and response rate, the survey will be offered to ISST family

participants on a rolling basis. Furthermore, more time will be provided for the recruitment of families and for the completion of the survey. The evaluation team will continue to investigate the viability of texting the surveys to mobile devices. Another key next step is to develop, pilot, and implement a new survey that explores CMP program components. The results could inform which program components to use for conducting sub-analyses for the outcome evaluation.

5.2. Outcome Evaluation Considerations

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 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 juvenile justice, education, and health/mental health domains. Given the program’s emphasis on well-being, it is hypothesized that CMP will improve outcomes for children/youth involved in these systems; thus the overall determination of the program’s effectiveness should be assessed only when client outcomes across all four domains are fully considered. Accordingly, the need to access outcome data across all four domains, along with the ability to construct comparison groups within each domain, will be an important task within subsequent evaluations of the program.

5.2.1. Outcome Evaluation Next Steps

Given the evaluation’s findings, a collection of recommended next steps for next year’s evaluation is provided below. These recommendations are intended to foster additional efforts to comprehensively evaluate the program and identify opportunities for improving its effectiveness.

Further Examine CMP Components

CMP has been consistently praised by stakeholders for its ability to incorporate flexibility by allowing CMP counties to tailor their programs to meet the unique needs of their client

populations. However, the results of the quasi-experimental evaluation find that CMP, in the aggregate, is not producing better outcomes for its child welfare-involved clients. Accordingly, next year's evaluation should strongly consider examining the various designs of county CMPs, and which program components are associated with improved client outcomes. This effort could provide critical insight into which components of CMP are most effective and inform subsequent efforts to improve the program's overall effectiveness.

Continue Evaluation Capacity-Building Efforts

Accessing program and outcome data remains a critical need for effectively evaluating CMP. Through collaboration with the Colorado Judicial Department, DYS, and OBH, this year's evaluation was able to obtain outcome data for CMP clients involved in the child welfare, juvenile justice, and health/mental health systems. Data for clients that are at risk for adverse educational outcomes remains elusive. Accordingly, the evaluation team will engage members of the CMP Steering Committee, the CMP Evaluation and Data Subcommittees, and the CDE to identify opportunities for addressing existing data silos and improving data collection and matching across the CMP outcome domains. This process will consist of exploring possible options, such as the development of MOUs and formal data sharing agreements, which can be used to obtain the requisite outcome data in the education domains.

Accessing Data on Comparison Populations within the Other Three Domains

Evaluating the program's overall effectiveness is dependent upon the ability to conduct quasi-experimental evaluations for all four program domains. Accordingly, subsequent evaluations will need to identify comparison groups of children that were involved with the juvenile justice, health/mental health, and education systems that were eligible for CMP services, but did not participate. For next year's evaluation, the evaluation team will work closely with DCW, CMP stakeholders, and staff from the Colorado Judicial Department, DYS, CDE, and OBH to identify appropriate comparison groups for the other three domains. If appropriate comparison groups are identified, and the requisite data can be accessed for each domain, the evaluation team will conduct additional quasi-experimental evaluations to comprehensively evaluate the program's effectiveness.

In the event that outcome data cannot be accessed for all the domains, the evaluation team may need to limit the focus to a subset of children/youth that were involved in the child welfare system and one or more of the other domains. While the former approach is preferable, either approach would represent another critical step in the evaluation and would provide an improved understanding of the program's overall effectiveness.

5.3. Cost Evaluation Considerations

Testing the cost-savings hypothesis assumed in the legislation is complicated given the range and diversity of existing programs, processes, and outcomes. In many CMPs, models 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. Furthermore, calculation of cost savings through collaboration and prevention of child welfare re-involvement is dependent on the ability of all CMP systems to estimate service costs for youth involved in each respective domain. In addition, it is important to note that collaboration is a complex process, with little published research on its costs and benefits.

There are options that the evaluation team can explore to move the CMP a step closer to measuring cost savings. For example, the cost evaluation may pilot actual measurement of service costs and outcomes with a subset of CMP sites with clear service models. In addition, with multiple years of statewide indicator data available in future years, the evaluation will be positioned to analyze change from year to year in a select set of indicators (e.g., out-of-home placements) to provide estimated costs associated with identified changes. With continued investment in model specification and aligned cost measurement through evaluation in this area, it is hoped that over time, there will be an opportunity to specify a cost model and conduct related analyses.

The current evaluation is able to measure many of the resources in use with ISST meetings, but is currently unable to answer questions on *how* the cost efficiencies are emerging. Thus, the current study is limited to examining the efficiency of services rendered between children/youth from CMP counties and those from comparison counties, which may not be similar enough to obtain adequate comparisons. More in-depth study at the agency level is needed to understand the processes that lead to streamlining of services.

5.3.1. Cost Evaluation Next Steps

The evaluation team will determine if further collection of ISST meetings costs are needed. A number of considerations must be addressed before moving forward, including:

- 1) Collecting cost data from a larger sample of individuals within counties may be warranted given that collecting data from just one respondent is subject to error, as it depends on the person's recall and their own personal experiences when attending meetings.
- 2) Accessing cost data for meetings from the other three domains would allow a better understanding if there are cost efficiencies to integrated service delivery at the system level.

APPENDIX A

CMP SFY18 EVALUATION PLAN

Process Evaluation Project Plan

| Task / Activity | Period of Performance | | | | | | | | | | | |
|--|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | FY 2018 | | | | | | | | | | | |
| | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun |
| Task 1. Documenting Coordinated Service Provision (Leads: Marc Winokur and Helen Holmquist-Johnson) | | | | | | | | | | | | |
| Review county annual reports and logic models | | | ■ | ■ | | | | | | | | |
| <i>Deliverable: Evaluation report</i> | | | | | △ | ▲ | | | | | | |
| Task 2. Measure Collaboration (Lead: Helen Holmquist-Johnson and Chris Lee) | | | | | | | | | | | | |
| Administer IOG/ISST survey | | | ■ | ■ | | | | | | | | |
| <i>Deliverable: Evaluation report</i> | | | | | △ | ▲ | | | | | | |
| Task 3. Assessing System Integration (Leads: Helen Holmquist-Johnson and Marc Winokur) | | | | | | | | | | | | |
| Collect process metrics from ETO | | | ■ | ■ | | | | | | | | |
| <i>Deliverable: Evaluation Report</i> | | | | | △ | ▲ | | | | | | |
| Task 4. Evaluating Family Engagement (Lead: Helen Holmquist-Johnson and Chris Lee) | | | | | | | | | | | | |
| Administer Family Voice survey | | | ■ | ■ | | | | | | | | |
| <i>Deliverable: Evaluation Report</i> | | | | | △ | ▲ | | | | | | |
| Key: Draft: △ Final: ▲ Work Period: ■ | | | | | | | | | | | | |

Outcome Evaluation Project Plan

| TASK / ACTIVITY | Period of Performance | | | | | | | | | | | |
|---|-----------------------|--------|-----------|---------|----------|----------|---------|----------|-------|-------|-----|------|
| | FY 2018 | | | | | | | | | | | |
| | July | August | September | October | November | December | January | February | March | April | May | June |
| Task 1. Outcome Evaluation (Leads: Dallas Elgin & Erika Gordon) | | | | | | | | | | | | |
| Conduct a Quasi-Experimental Outcome Evaluation of the CMP | ■ | ■ | ■ | ■ | ■ | ■ | | | | | | |
| <i>Deliverable: Outcome Evaluation Section of the 'SFY 16-17 CMP Evaluation Report'</i> | | | | | △ | ▲ | | | | | | |
| Task 2. Data Audit (Leads: Dallas Elgin & Dazmin Dorris) | | | | | | | | | | | | |
| Conduct Annual Data Audit of the Trails and ETO Databases | | | | | | | | ■ | ■ | ■ | ■ | ■ |
| <i>Deliverable: Memo Summarizing the Findings from the Audit</i> | | | | | | | | | | | △ | ▲ |
| Task 3. Capacity Building (Leads: Dallas Elgin & Marc Winokur) | | | | | | | | | | | | |
| Provide assistance to CDHS and the CMP counties to support evaluation capacity building | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| <i>Deliverable: Plan to address existing data silos and improve data collection and matching across the CMP outcome domains</i> | | | | | | | | | | △ | | ▲ |

Key: Draft: △ Final: ▲ Work Period: ■

Cost Evaluation Project Plan

| Task / Activity | Period of Performance | | | | | | | | | | | |
|--|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | FY 2018 | | | | | | | | | | | |
| | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun |
| Task 1. Administer Cost Survey (Lead: Zach Timpe) | | | | | | | | | | | | |
| Revise and administer cost survey for IOG and ISST meetings | | | ■ | ■ | | | | | | | | |
| <i>Deliverable: Evaluation Report</i> | | | | | △ | ▲ | | | | | | |
| Task 2. Collect Cost Data (Leads: Zach Timpe, Marc Winokur) | | | | | | | | | | | | |
| Collect child welfare and juvenile justice cost data | | | ■ | ■ | | | | | | | | |
| <i>Deliverable: Cost Datasets</i> | | | | | | | | | | | | |
| Task 3. Conduct Cost Comparison (Leads: Zach Timpe, Kristy Beachy-Quick) | | | | | | | | | | | | |
| Analyze cost data using quasi-experimental outcome evaluation | | | | ■ | | | | | | | | |
| <i>Deliverable: Evaluation Report</i> | | | | | △ | ▲ | | | | | | |
| Task 4. Develop Cost Analysis Plan (Lead: Zach Timpe) | | | | | | | | | | | | |
| Develop plan for measuring costs across education and health/mental health domains | | | | | | | ■ | ■ | ■ | ■ | ■ | |
| <i>Deliverable: Detailed plan for FY10</i> | | | | | | | | | | △ | ▲ | |
| Key: Draft: △ Final: ▲ Work Period: ■ | | | | | | | | | | | | |

APPENDIX B

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. Children and youth that 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 SFY16 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 SFY16 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 SFY16.

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:

1. Children and youth were served within a new child welfare assessment, case, prevention, or new removal in an existing adoption case during SFY15–16.
2. 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 SFY16. 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 SFY17.

3. Children and youth were served by systems in the 41 CMP counties for SFY16, excluding Larimer and Boulder Counties, and those served by DYS.
4. For children and youth with multiple events, the event used was the first eligible event in SFY16.

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 SFY16 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 that were involved with the child welfare system, including those within the Trails database, and any children that 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 SFY16. Exhibit 1 details the operationalization of the five child welfare outcomes.

Exhibit 1 | 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 SFY16 (N=7,356) | <ul style="list-style-type: none"> • New involvements were defined as a subsequent case (traditional or Family Assessment Response with services) within 1 year of the ISST date, or within 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 SFY16 (N=7,356) | <ul style="list-style-type: none"> • No substantiated abuse finding was defined as no subsequent abuse/neglect finding within 1 year of the ISST date, or within 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 SFY16 (N=2,717) | <ul style="list-style-type: none"> • The measure includes all child welfare clients who were in an out-of-home placement at some point during SFY16. • 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 SFY16 (N=2,717) | <ul style="list-style-type: none"> • The measure includes all child welfare clients who were in an out-of-home placement at some point during SFY16. • 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 SFY16 (N=1,670) | <ul style="list-style-type: none"> • 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). |

8. *Match judicial outcomes to the CMP Outcome Evaluation Dataset.* In the next step, the dataset of CMP clients (but not members of a comparison group) were sent to the Colorado Judicial Branch 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. Exhibit 2 details the operationalization of the four juvenile justice outcomes.

Exhibit 2 | 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 SFY16 (N=7,550) | 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 SFY16 that were also served by the juvenile justice system and had a probation termination outcome in the year after they began receiving services (N=976) | <ul style="list-style-type: none"> • 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 SFY16 (N=7,550) | 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 SFY16 (N=N/A) | <ul style="list-style-type: none"> • None of the CMP counties selected the ‘Decrease children and youth involved in truancy court’ performance goal. |

9. Match health and mental health outcomes to the CMP Outcome Evaluation Dataset. In the next step, the dataset of CMP clients (but not 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. Exhibit 3 details the operationalization of the five health/mental health outcomes.

Exhibit 3 | 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=3,187) | <ul style="list-style-type: none"> Measuring changes in level of functioning required a minimum of two measurements. Clients with less than two measurements were excluded from the measure. The measure currently excludes clients who maintain or show no change in functioning from the numerator. Additional consideration may be needed for how this measure is operationalized. |
| 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 | <ul style="list-style-type: none"> <i>Note:</i> The requisite data was not available to calculate this measure for SFY17. |
| 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 | <ul style="list-style-type: none"> <i>Note:</i> The requisite data was not available to calculate this measure for SFY17. |
| Decrease substance abuse | Children and youth who successfully completed 90-day inpatient substance abuse treatment or intensive outpatient treatment | CMP clients receiving substance abuse or intensive outpatient services (N=80) | <ul style="list-style-type: none"> 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 SFY17. |
| 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=7,566) | <ul style="list-style-type: none"> The CMP client population was matched to DACODS and CCAR records. The measure currently uses a broad denominator that assumes all clients are in need of 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. |