

2017

The Value of Prevention of Child Maltreatment in Boulder County

A PFS Feasibility Study



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Executive Summary

Pay-for-Success financing (PFS) is a structure that allows a government to “buy outcomes.” Essentially, it uses private investment to solve a working capital problem when funding for services is needed before measurable outcomes of the programming can be determined. The private capital allows governments to invest in prevention, avoid higher cost remedial spending, and, most importantly, pay only for successful outcomes.

In 2014, the Early Childhood Council of Boulder County (ECCBC) enlisted Social Impact Solutions (SIS) to support the Council in exploring the feasibility of using PFS to expand services for children in Boulder County. The initial work for the project involved assessing the needs and priorities of community partners and stakeholders, including service providers, the County, the Cities of Boulder and Longmont, the St. Vrain Valley School District and the Boulder Valley School District. The ECCBC then chose to focus its PFS exploration on the potential to expand home visiting for at-risk children from birth to age three. The second phase of exploration inventoried home visiting services currently being offered in the county, their target populations, program overlap, service demand, costs and evidence of effectiveness. Following this phase of work, the ECCBC selected the Community Infant Project (CIP), a program of Mental Health Partners (MHP) of Boulder County, for deeper PFS feasibility exploration.

When investing in primary prevention, the greatest return occurs in the early years of a child’s life. Most of a child’s brain development including sensory pathways, language, and higher cognitive function, occurs during their first two years. Therefore, children under two are more at risk of long-term cognitive damage when falling victim to child maltreatment. In 2015, 24 percent of all referrals about suspected abuse and neglect in Boulder County for children birth to eighteen were for children under two. This is consistent with national research that indicates one of the greatest risk factors for abuse and neglect is the age of a child, with the youngest children disproportionately victims.

In order for the stakeholders in the final phase, the Boulder County Department of Housing and Human Services (DHHS), CIP, and MHP, to determine the appropriateness of an expansion of CIP, or other policy, program, or funding strategies, SIS and the project partners examined data on CIP families and those in the child welfare system. In addition, SIS used county, state and national research to quantify potential benefits from child welfare avoidance, as well as discrete monetizable cost savings.

As a part of this work, an analysis was conducted to project the lifetime costs of child maltreatment for new victims in 2015 under two living in Boulder County. That analysis estimated the total lifetime costs of child maltreatment to be \$218,612 per victim, as depicted in the table below.

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<i>Lifetime Costs</i>	Total All 2015 New Cases under Two	Cost per Each Victim
<i>Child Welfare Costs</i>	\$4,017,808	\$8,084
<i>Education</i>	\$3,526,739	\$7,096
<i>Juvenile Justice</i>	\$521,832	\$1,050
<i>Adult Justice</i>	\$2,359,406	\$4,747
<i>Short Term Health Care</i>	\$21,600,322	\$43,461
<i>Long Term Health Care</i>	\$5,045,267	\$10,151
<i>Productivity Loss</i>	\$71,578,740	\$144,022
<i>Total Lifetime Costs</i>	\$108,650,113	\$218,612

In addition to the full lifetime costs for each victim, SIS constructed a CIP expansion scenario using estimated values from three discrete areas of public expenditure that are realized over a nine-year period as a part of a limited PFS feasibility analysis. That analysis shows benefits are \$539,304 larger than costs over that time, with benefits returning \$1.29 for every \$1 dollar invested.

There are several qualifications to the cost benefit scenario. First, impact data was imputed from other home visiting programs due to limitations with CIP-direct data. Second, estimated savings accrue to three different public funding sources, and, third, “savings” are not entirely cashable as a portion of the value is represented by fixed costs.

Although all PFS projects launched to date involve some component of cost savings or avoidance, not all “success measures” that trigger payments by governments are cashable. In many cases projects assign a value to non-monetizable public benefits (e.g. third grade reading, kindergarten readiness, or days in stable housing). In the end, the viability of a project for PFS depends on whether the government partner is willing or able to pay for the outcomes, and whether the service provider and investors have confidence that the intervention is able to deliver those outcomes.

The final section of this report discusses suggested next steps. There are various funding opportunities in Colorado that could support a pilot program for the expansion of CIP and/or a rigorous evaluation of CIP’s services. In addition, suggestions are made around where the County could benefit from CIP expansion including prevention for at-risk populations who have yet to enter the child welfare system, in the early intervention space where referrals are screened out, or in collaboration with other services such as substance abuse.

Background

Pay-for-Success (PFS) is an innovative financing mechanism that allows government to buy outcomes. Through a series of contracts, private investors provide working capital to launch or scale a proven program and a state or local government agrees to make future payments based on pre-agreed-upon success measures, only if those measures are met. The financial risk is borne by the investors, not the taxpayers or the service providers. The Early Childhood Council of Boulder County (ECCBC) considers PFS a promising tool for enhancing collaboration and shifting funding toward early childhood interventions to improve long-term outcomes for Boulder County children.

ECCBC engaged Social Impact Solutions (SIS) in a multi-staged process to explore PFS in support of early childhood programs in Boulder County. The initial work for the project involved assessing the needs and priorities of the community partners and stakeholders, including service providers, Boulder County, the Cities of Boulder and Longmont, the St. Vrain Valley School District and the Boulder Valley School District. This work identified five promising areas for potential PFS efforts and found sufficient support in Boulder County for a PFS initiative. The ECCBC then chose to focus its PFS exploration on the potential to expand home visiting for at-risk children from birth to age three. The next phase of exploration inventoried the home visiting services currently being offered in the county, their target populations, program overlap, service demand, costs and evidence of effectiveness. Following this phase of work, the ECCBC selected the Community Infant Project (CIP) for deeper PFS feasibility exploration.

In preparation for this feasibility analysis, SIS completed a readiness assessment of CIP and conducted initial commitment interviews with key partners—MHP, CIP, and DHHS. During the final stage of the analysis, SIS continued collaboration with Boulder County partners to investigate the cost of child maltreatment, data trends, and construction of a PFS scenario for the expansion of CIP. This report is a summary of that work.

Early Childhood Council of Boulder County (ECCBC)

The ECCBC was created as an early childhood council authorized by House Bill 07-1062 to “improve and sustain the availability, accessibility, capacity, and quality” of early childhood services. It is a collaboration of over 150 people and organizations. ECCBC acts as a backbone organization for Boulder County and helps coordinate efforts to enhance early childhood school readiness. In addition, ECCBC works with funders to support programs, provides testimony and consultation with policy makers, enhances public education through community engagement, and works to improve the quality of early childhood education facilities.¹ In keeping with its commitment to children in Boulder County as well as its history of leadership and innovation, ECCBC was the first organization in the state to begin active PFS exploration.



Social Impact Solutions (SIS)

Building on the growing need for new strategies to finance and scale public programs, SIS helps clients position successful programs for innovative finance. Additionally, SIS supports clients in discussions with potential partners, financial analysis and modeling, feasibility studies, identification of funders and structuring deals. With PFS clients that include governments, intermediaries, service providers and investors, SIS has worked in all stages of PFS development, from feasibility analysis to transaction structuring. SIS led the financial structuring, capital raise and investor engagement portions of the recently closed Denver Social Impact Bond (another term for PFS) for permanent supportive housing, making it one of only a few organizations nationally to have structured and closed a transaction.

Boulder County's Community Infant Program (CIP)

Housed in MHP, Boulder County's CIP is a prevention and intervention program serving children and families prenatally to preschool. Through home visits delivered by a parent-infant psychotherapist and a certified nurse that focus on mental health and health services, CIP works to improve parent-child relationships and health, as well as prevent child maltreatment. CIP's mission is to "1) Ensure the health, safety, and development progress of infants zero to three years; 2) strengthen family development during the early parenting experience, and 3) engage in community education concerning the importance of prevention for infants aged zero to three years."ⁱⁱ

CIP was created by the Boulder County Commissioners in 1984 and has been a state leader in early childhood mental health services ever since. The program was designed to focus on improving outcomes for children and mothers with an expected result that they would not become involved with the County's child welfare system, as well as a number of other positive outcomes. The theory of change envisioned providing treatment to mothers and children identified as at-risk due to unresolved trauma and loss, but before maltreatment had occurred. In this way, the program was designed to straddle both prevention and early intervention.

Central to its service model, CIP employs the evidence-based Parent Child Psychotherapy and is one of only a few home visiting programs that focuses on child and maternal mental health. Unlike other home visiting programs, it also targets families with a history of trauma and uses trauma-informed care in its programming. For these reasons, in addition to prevention and early intervention, CIP has become a central partner in the County's toolbox of crisis-intervention services for very young children involved with child welfare.

Currently, CIP provides services to about 280 families in Boulder County, predominately in the cities of Longmont, Boulder, and Lafayette. The majority of CIP's clients are mothers and their babies. About half of the mothers served by CIP are first-time parents and are under thirty years old.ⁱⁱⁱ About three-quarters of CIP families make less than \$15,000 a year and are Temporary Assistance for Needy Families (TANF) eligible.^{iv}

Most children are enrolled in CIP before their first birthday, but recently the program has expanded to enroll children any time under three, especially if there is a high need due to abuse and neglect trauma. CIP normally stops working with families when children turn three but they have some clients that are involved in the program until they reach four or five years of age. Some families have stayed with CIP for five years, but the average length of service is about a year.^v

CIP receives referrals from DHHS, People’s Clinic and other clinics in the County, the Department of Public Health through Genesis and Nurse-Family Partnership, the dependency and neglect (D&N) court, hospitals and pediatricians, self-referrals, and the school districts.^{vi} Although there are several other home visiting programs in Boulder County, CIP’s focus on mental health and trauma-impacted families differentiates it from others. While CIP does not duplicate services, it does work with organizations in the County to enhance and support services offered by others.

Throughout interviews with social workers and DHHS personnel, CIP was mentioned as a crucial and necessary service, on which families and caseworkers rely. They have been described as importantly different from other home visiting programs that neither have a strong mental health expertise nor serve the number and severity of children/families in crisis, as measured by child welfare involvement.

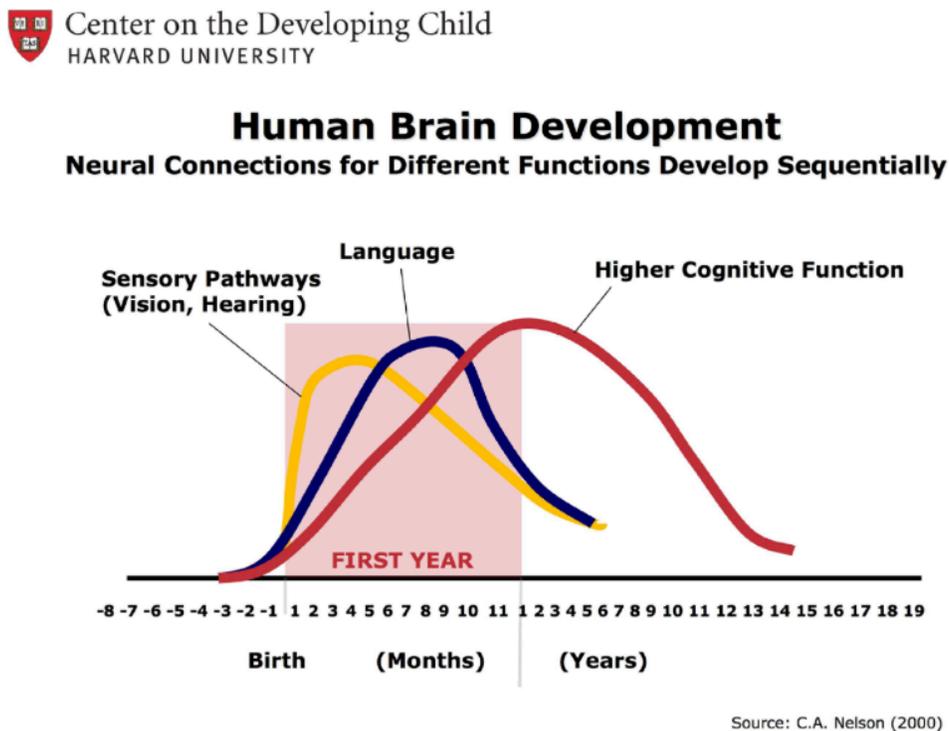
Currently, CIP receives funding from the County through a fee-for-service agreement for the families it serves that are involved with the child welfare system. The transition to fee-for-service funding has been relatively recent, and the County and CIP are still working out how the program can optimize billing for prevention services (i.e. for families not involved in child welfare). CIP also receives funding through Medicaid. Eighty-six percent of CIP clients are insured through Medicaid and approximately 51 percent of program funding comes from this source.

Why Focus on the Youngest Children

As discussed in the methodology appendix, background research was conducted to determine the risk factors associated with child maltreatment, in addition to the lifetime costs of child maltreatment. When investing in primary prevention, the greatest return occurs in the early years of a child’s life. Therefore, the focus of this analysis is Boulder County children under two. In 2015, 24 percent of all referrals about suspected abuse and neglect in Boulder County for children just born to eighteen were for children under two. This is consistent with national research that indicates one of the greatest risk factors for abuse and neglect is the age of a child, with the youngest children disproportionately victims. Finally, for fatal abuse and neglect, the youngest children are even more disproportionately represented- children younger than three account for more than 70 percent of fatalities from abuse and neglect.^{vii}

As depicted in Figure 1 below, most of a child’s brain development including sensory pathways, language, and higher cognitive function occurs during their first two years. Therefore, children under two are more at risk of long-term cognitive damage when falling victim to child maltreatment. Adverse childhood experience (ACE) is the terminology used to describe traumatic events in a child’s life that may have long-term impacts on brain development. The prevalence of ACEs in very young children alters the long-term trajectory of their lives in three ways. First, it impedes healthy development of brain architecture (neural pathways) which impacts social, emotional and cognitive development. Second, it produces an overabundance of stress hormones that, if sustained over prolonged periods, can cause permanent health effects. Finally, the consequences of these two processes create a vicious cycle of behavioral and social consequences including high-risk and anti-social behaviors.

Figure 1: Human Brain Development



An ACE study conducted for the Colorado Department of Public Health and Environment (CDPHE) found that nearly 62 percent of Colorado adults had experienced at least one ACE event in their childhood, and a third of Coloradans had experienced two or more.^{viii}

Figure 2: Distribution of ACE Scores Among Colorado Adults 2014



The Center for Disease Control (CDC) categorizes child maltreatment risk factors into three groups, child risk factors, parental/family risk factors, and community risk factors. Child risk factors include children younger than four and children that have physical, cognitive, or emotional disabilities. Parental/family risk factors include a lack of understanding of children’s needs, a lack of child development and parenting skills, a parent’s history of child maltreatment, substance abuse, mental health issues, parents being young, low levels of education, being a single parent, poverty, and having a large number of dependent children. Community risk factors include community violence and concentrated neighborhood disadvantage.

Alternatively, CDC discusses multiple types of child maltreatment protective factors including nurturing parenting skills, stable family relationships, household rules and child monitoring, parental employment, adequate housing, access to health care and social services, and caring adults outside the family who serve as role models or mentors. In addition, communities that support parents and take responsibility for preventing abuse have a positive effect on decreasing child maltreatment.

Table 1 below shows risk factors of child maltreatment for births in Boulder County from data provided by CDPHE from county birth records.



Table 1: Births in Boulder County by Risk Factors for Child Maltreatment

<i>Birth statistic 2015</i>	Number	%
<i>Education of mother < HS</i>	257	8.81%
<i>Low income</i>	929	31.85%
<i>Concentrated neighborhood disadvantage</i>	742	25.44%
<i>Unmarried</i>	530	18.17%
<i>Mother under 20 years</i>	94	3.22%
<i>Total births</i>	2,917	

County Child Welfare Trends

In 2013, Boulder County began the planning phase for implementing Differential Response (DR), and launched the model in 2014. It was the first Colorado County to adopt DR outside of the five original pilot counties. The goal of DR is to keep children with their families while increasing their access to essential services and programs. The organizational process was developed to include enhanced screening through the creation of Red Teams (teams that review and refer cases), group supervision, facilitated family meetings, front loaded services, and support planning. The social work model includes an enhanced assessment process that is rigorous and balanced, developing strategies that include children, increased sharing of information and consultation between case workers, using evidenced-based assessment tools, incorporating risk and goals statements, increased network participation, and plans that support behaviorally-based safety.^{ix}

Boulder County has long been a leader in adopting policies to reduce child abuse and neglect and serve the children and families that do enter the system in a way that provides them with the most long-term benefit. Although the County’s adoption of DR and the State’s implementation of a state-wide child maltreatment emergency hotline in 2014 make comparison of some historical and trend data difficult, there has been a long-term downward trend in substantiated abuse and out-of-home placement in the County, and overall safety and permanency rates are below statewide averages and state targets. However, recently some numbers have started to move in the opposite direction.

As shown in the graphs below (Figure 3 and Figure 4), total referrals have increased from 2011 to 2016, in part due to the implementation of the hotline. There is a corresponding increase in cases that are screened out, resulting in a slight decrease in the total number of assessments over that time. However, in looking at the numbers of highest risk cases, those with open involvements and where children have

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been removed from the home, there has been an increase over the past two-to-three years, with a sharp increase in 2016.

From a low rate in 2014, the number of open involvements doubled in 2016 and is 58.5 percent higher than 2011. Out-of-home placements have also increased by 40 percent since 2011. In other words, while the number of assessments is going down, the number and percent of those cases that are severe enough to begin court proceedings is increasing. This data suggests an increase in the acuity of cases of child welfare-involved families, which confirms the many anecdotal reports we heard during meetings and interviews.

Figure 3: Boulder County Referrals and Assessments

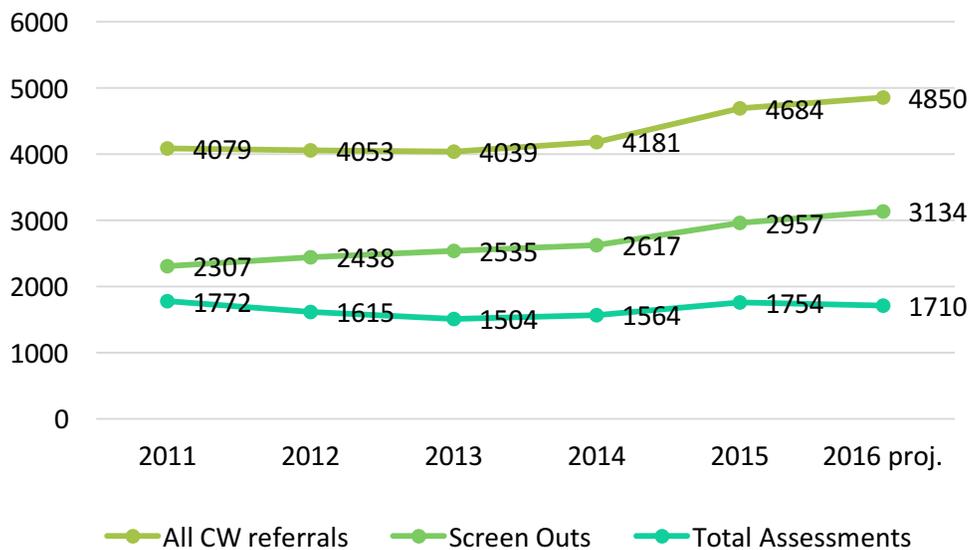
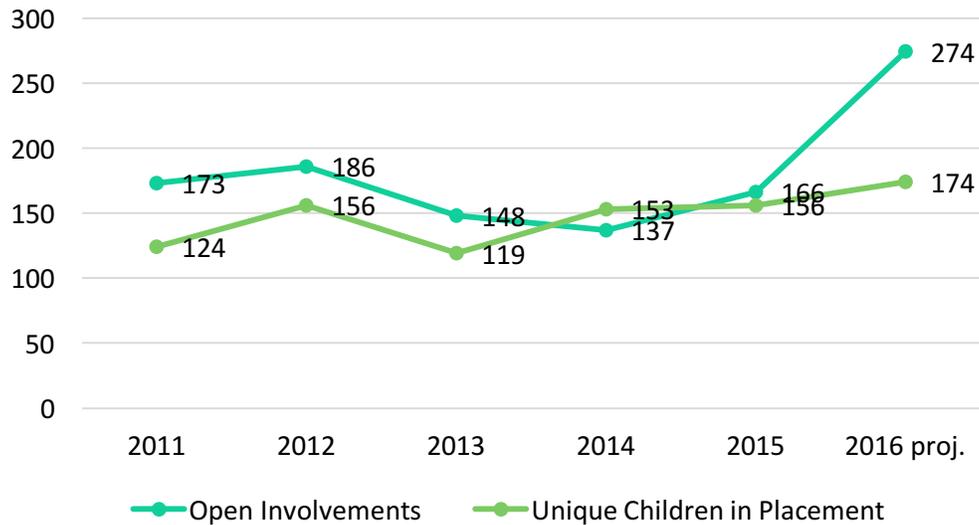


Figure 4: Boulder County Open Involvement and Out-of-Home Placements



Due to these trends, CIP, which was originally designed as a prevention/early intervention program, is allocating an increasing share of its resources to serve children with the highest needs referred by DHHS. CIP works to serve all families needing services, but due to high-service demand in 2015, there were eighty families that were not able to be immediately enrolled into the program. The fact that CIP has a waiting list for families has been a fairly stable feature of the program since its inception and differentiates it from other home visiting programs in Boulder County. Since responding to the children that have the most acute needs is a priority, and since the number and acuity of those cases has been increasing, CIP's ability to function in a prevention capacity and serve children families at risk, but not in crisis, is constrained.

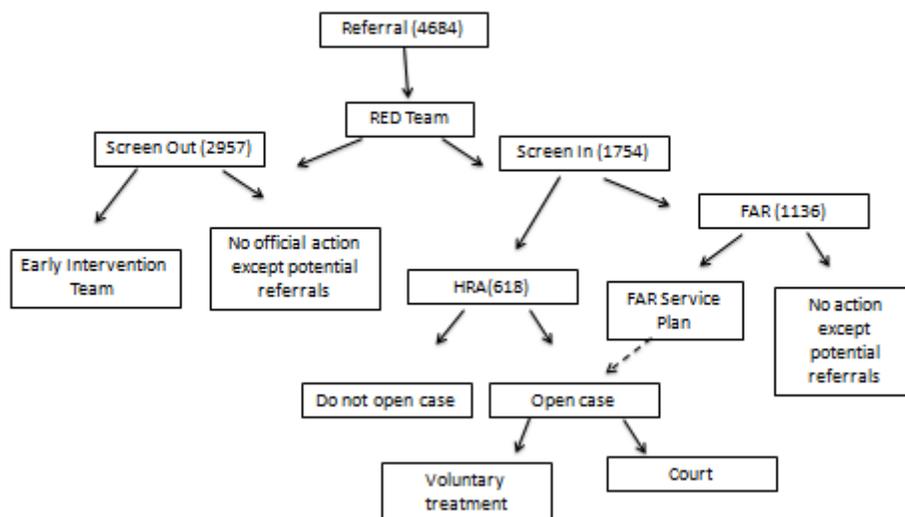
Observations on County Child Welfare Trends

County data showing an increase in out-of-home placements and open involvements over the past two-to-three years corroborates interview accounts about increasing acuity in child welfare cases. Although many interviewees had experience-informed opinions about the cause, a universally cited factor was increased substance abuse, specifically methamphetamine and heroin.

Mapping the Boulder County Child Welfare System

Based on discussions with stakeholders, SIS mapped the child welfare system to facilitate the cost of child maltreatment analysis as well as analysis about maltreatment prevention expansion opportunities. To give context to later discussions, these maps are presented and described below. Figure 5 represents the child welfare process and Figure 6 represents the D&N court process. In addition, Figure 7 details the steps undertaken by families that volunteer to participate in the family integrated treatment court (FITC) as part of the D&N court.

Figure 5: DHHS Child Welfare Process



When DHHS receives a referral or a report of potential child maltreatment through the twenty-four-hour hotline, the call is processed through the Intake Division (Intake). In 2015, 4,684 referrals were received by DHHS. Once information is gathered, it is reported to the Red Team that, during daily meetings, reviews each referral and determines whether it should be screened in for further assessment or screened out. The Red Team is composed of approximately six representatives of DHHS including supervisors from Intake, Ongoing, caseworkers, and a clerk.

In 2015, 2,957 referrals, or 63 percent of calls, were screened out. In the past, only a portion of those referrals were served by the Early Intervention Team (EIT), which links eligible families to different programs based on children’s ages and family needs. However, as of July 1st, 2016, every child under the age of six is now being served by the EIT. All the services provided by the EIT for screened out individuals are voluntary. EIT supervises seven programs including two preventative services, Colorado Community Response (CCR) which serves children under six and Early Intervention Program (EIP) which serves children six and over; Family Unification Program (FUP) and Short Term Housing & Assessment (STH)

which are housing programs in which EIT provides casework; and, Tenancy Coaching & Support, Volunteer Office & FRT Supports, and Truancy-Prevention Supports, which are specialized programs.^x Additional services include linking families to food assistance, mental health support, substance abuse support, domestic violence services, child care support, help with budgeting and understanding available assistance and benefits, and referring families to other programs including CIP. CIP is part of a group of services known as the Boulder County Home Visitation Programs which also include Parents as Teachers, Nurse-Family Partnership, GENESIS, Early Head Start, and Bright by Three.

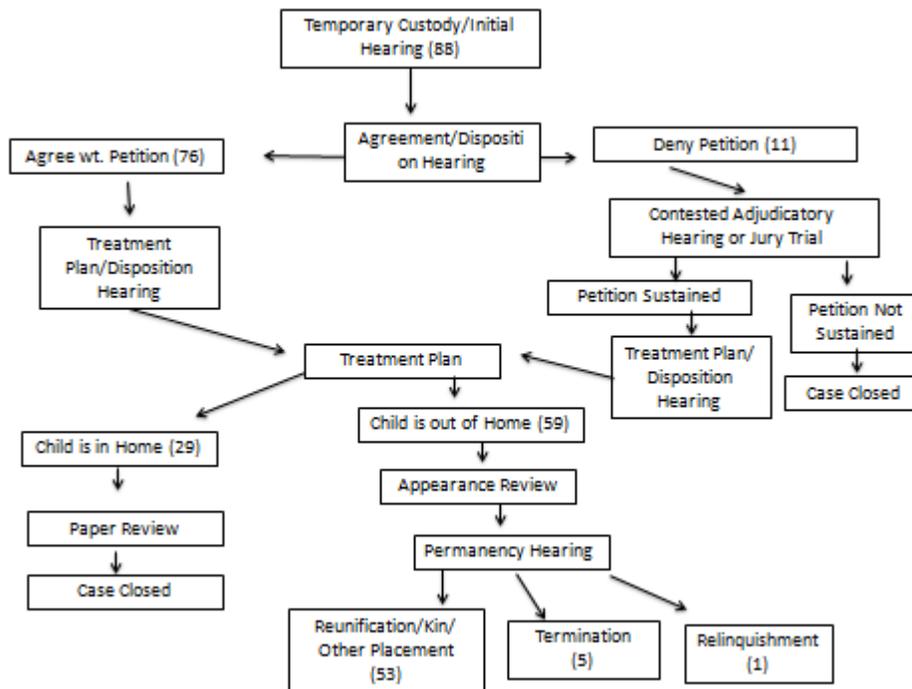
If a referral is not screened out, it is assessed based on safety and risk. Safety includes current danger, protective factors, support systems, and child vulnerability. Risk is determined based on the risk of harm over time or the likelihood that a family will reenter the system within two years. Safety and risk are evaluated through a series of interviews, family meetings, research, background, and continual assessment of needs.

Through the DR model, the County uses a dual track assessment response. The traditional investigative assessment, High Risk Assessment (HRA), is used to respond to cases deemed high risk. Cases deemed low and moderate risk are assessed through Family Assessment Response (FAR). Of the 1,754 cases (37 percent of all referrals) that were screened in by the Red Team in 2015, 618 (35 percent) were assessed through HRA. Through the HRA process, Intake determines whether the referrals should become open cases or not. If a referral becomes an open case, the Ongoing team provides continuing case management. Open cases can result in voluntary treatment plans or proceed to D&N action.

FAR is focused on intensive family preservation and supporting families through programs that are voluntary. In 2015, two thirds, or 1,136 referrals were assessed and served through FAR. Through the FAR assessment process, a determination is made as to whether clients should receive a voluntary service plan or no action. Services are contracted out through IMPACT, a Boulder County multi-agency partnership that manages referrals, contracts, and services with forty-three core service providers. In some instances, FAR-assessed cases can become open cases, which may be resolved through voluntary treatment plans or proceed to D&N action.

If at any time, it becomes necessary to remove a child from the home, in addition to management by the Ongoing team, the Visitation team oversees interactions between the child and his/her parents for the duration of the permanency determination process. Based on the court's decision, parents will meet with their children up to three times per week. Family support workers supervise parent-child interaction during visitation, conduct parent coaching, and do therapeutic work with children who are older than three. For younger clients, CIP is usually involved at this time and will come to scheduled meetings with parents and their children once a week. Visits last on average four-and-a-half hours a week per parent and visitation and typically extend for ten months. Visitation will end with a permanency decision from the court (see below).

Figure 6: Child Welfare Process- D&N Court



If a case is subject to D&N proceedings, it is heard in Boulder District Court. D&N is the “threshold for legal involvement” where the court finds that adjudication, or government involvement in a child welfare case, is in the best interest of the child.^{xi} A guardian ad litem (GAL) is assigned to represent the child or children and a respondent parents’ counsel (RPC) represents each parent involved. Both types of attorneys are subcontracted through the Colorado Office of the Child’s Representative and the Office of Respondent Parents’ Counsel, respectively. Additional personnel involved in D&N cases include the Magistrate, county attorneys, judicial assistants, paralegals, case workers, and relevant program staff.

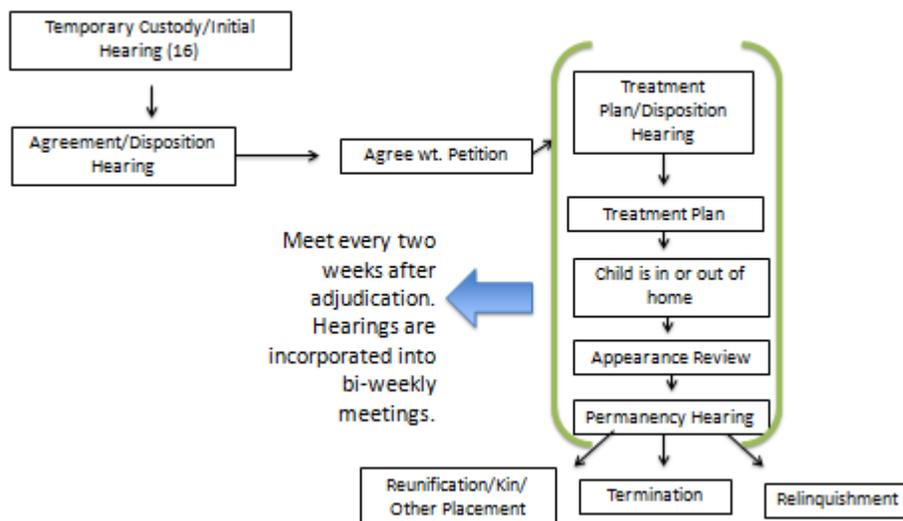
In 2015, eighty-eight new cases were brought through the D&N court. The full docket in 2015 was 172 cases. While most cases are completed within one and a half years, 10 percent of cases are court-involved for a longer period. The average length of time spent on a case with a child out-of-home is about fifteen months while the average case length with a child in-home is about eighteen months.

The first step in the court process is a temporary custody/initial hearing. This hearing will occur within seventy-two hours of a child being removed from his or her parents. This is followed by a first hearing in which the defendant will agree with or deny the court’s D&N finding. At this hearing, the majority of families agree with the petition. A home visit will be scheduled within thirty days of the first hearing. They will then return to court thirty days later for the treatment plan or disposition hearing to determine their treatment plan.

If the defendants deny the petition, they will come back to court for a contested adjudicatory hearing or jury trial. However, this is rare. In 2015, about ten percent of cases denied the petition and only one went to trial. If at this point the petition is sustained, the family will follow the same path as if they had agreed with the petition, and will meet one month later for a treatment plan or disposition hearing. If the petition is not sustained, the case will be closed and the child will be returned to their parents.

Once a treatment plan is determined, the families will follow one of two paths depending on whether their child is at-home or out-of-home. About one-third of children are at home while two-thirds of children are in out-of-home placement. If a child is in-home, paper reviews will be conducted by court staff and case workers on average three times a year. If it is determined that the child is safe, the case will be closed. If a child is out-of-home, families will report to court every one-to-three months for appearance reviews. Three months after the treatment plan hearing, a permanency hearing will be held. Permanency hearings are held at least every six months, but on average there are four hearings a year until a final permanency determination is made. For children under six years old, permanency must be achieved within a year of when children were removed from their homes. Although not legally required for children older than six years, this policy has been adopted for all children in D&N court in Boulder County. Permanency results include: reunification with the child’s birth parents, long-term placement with kin, and other placement with non-kin; and relinquishment or termination of parental rights. In 2015, of the fifty-nine cases that reached permanency hearing, fifty-three cases or 89 percent resulted in reunification, kin or another placement. Only five resulted in termination and only one case resulted in relinquishment.

Figure 7: Child Welfare Process- FITC



An intensive court track, called Family Integrated Treatment Court (FITC), is also available to families with substance abuse issues who are also involved in D&N court. In 2015, sixteen cases went through FITC. After the temporary custody or initial hearing, families will attend an adjudicatory hearing. Families must agree with the petition to participate in FITC. Once this occurs, FITC participants will meet every two weeks after adjudication. Hearings are incorporated into bi-weekly meetings and include the treatment plan or disposition hearing, ongoing treatment plan, appearance reviews, and permanency hearings with the same result as the standard D&N court process described above. Attorneys for family members and the County, caseworkers and treatment providers are also present during these meetings.

Understanding How CIP Interacts with the County's Child Welfare System

Through the summer and fall of 2016, a data working group for the project, with members from CIP, MHP, and DHHS, met periodically to examine data to more fully understand the relationship between CIP and the County's child welfare and child protection systems. To facilitate data analysis and reporting, MHP and DHHS entered into a data sharing agreement, making it possible to combine datasets on children and families that are served by both organizations.

Concurrently, SIS began the mapping of the County child welfare processes both to gauge the CIP expansion need and to quantify the child welfare-related costs of abuse and neglect in the County. The results of that mapping are presented above. However, this analysis also sheds light on partnership between CIP and the County—the places where CIP is involved, the process through which children involved in child welfare become connected to CIP, and the views of County and Court personnel about the value and demand for expanded CIP services. Both the data analysis and the results of the mapping/interview process helped inform a picture of the current and potential role of CIP.

Role of CIP in Child Welfare-Involved Cases

Currently, cases with children under two that are the subject of suspected abuse and neglect referrals can be connected to CIP in several ways. If a referral is screened out, the EIT can make referrals to CIP. This does happen, although there does not appear to be a standard process for determining which families should be referred to CIP, and the rate at which these families are connected to CIP is low. Since these cases are screened out, data about these clients was not included in the data analysis of the overlap of the child welfare and CIP population.

If a case is screened in, the most common way that CIP would become involved is if the case were high-risk (HRA track). A significant percentage of children under two in open cases are referred to CIP, and CIP services become a part of the voluntary or court-mandated treatment plan. From the Court's perspective, virtually all D&N cases involving children under two have CIP as a part of the treatment plan. Similarly, when it is necessary to remove children from the home, a very high percentage of those



children under two are also referred to CIP and CIP is directly involved in everything from Court hearings to parent/family visitation.

For screened-in cases that proceed through the FAR track, there appear to be far fewer referrals to CIP. Since our evidence on this is entirely from interviews, it is difficult to say with certainty why these families, when age appropriate, are not connected to CIP in the same way HRA cases are. Anecdotal reports range from the lack of familiarity Intake workers have with CIP (as opposed to Ongoing workers that provide case management for HRA cases) to the feeling that CIP is not an appropriate intervention for low-to-moderate risk cases.

Thus, the evidence provided through the mapping/interview process suggests the role CIP plays in child welfare-involved children under two is significantly skewed toward the most acute, highest risk cases, many involving out-of-home placements and the Court. This picture was reinforced by the data analysis.

Data Working Group Analysis

As a part of the data sharing agreement, MHP originally shared ten years of data, including 4,350 distinct counts of CIP projects IDs, with DHHS. However, due to inconsistencies in data collection and matching, a total universe of 1,008 distinct project IDs composed of 481 distinct families was included in the analysis. Each family unit has at least one child present, with 530 children included in the final data set.^{xii}

Using this data set, DHHS and MHP examined the relationship between CIP and child welfare from each organizations' perspective. In both cases, that involved looking at how the CIP/DHHS population differed (or didn't differ) from their other respective clients. In the case of DHHS, they looked at the interaction of CIP clients with child welfare compared to non-CIP families (e.g. number of referrals, number of out-of-home placements, length of service, etc.). In the case of MHP, they also looked at the usage of CIP services of DHHS (CIP/DHHS) clients compared to their non-DHHS (CIP-only) families.

Much of the DHHS analysis substantiates the anecdotal reports from the interviews, showing that CIP is more often involved with children at higher levels of involvement who tend to persist in the system for a longer duration. The reasons for this are partially or mostly explained by the fact that, for a significant portion of the CIP clients that are involved in child welfare, CIP became involved precisely because DHHS referred high-risk acute clients to CIP after they became involved with child welfare. In only 18 percent of cases of an abuse and neglect referral involving a child served by CIP did the referral happen after the term of CIP service.

The DHHS analysis showed referrals involving children served by CIP were less likely than non-CIP clients to be screened out of the child welfare process and more likely to have a finding of substantiated abuse/neglect (and less likely to have the report deemed unfounded). In interpreting this data, it is important to remember that referrals and abuse findings were likely to have occurred before CIP

involvement—the analysis covers the child welfare outcomes of children that were at some point served by CIP.

Figure 8 compares referrals of CIP-only, DHHS-only, and CIP/DHHS clients. Of the 2,503 children under two for which there were referrals, 225 (9 percent) were CIP clients and 2,278 were not. Of the 530 CIP records, 225 children, or 42 percent of CIP clients, were the subject of a referral to child welfare while 315 were not. Combined with the mapping/interview reports, the low percent of referrals that involve CIP clients may be explained by the fact that high risk HRA cases, which are the primary interface with CIP, were a relatively small percentage of total referrals (approximately 17 percent of 2015 referrals involving children under two). On the other side, the fact that less than half of all CIP clients were ever the subject of a referral to child welfare underscores the program’s role and focus on prevention of maltreatment rather than crisis intervention, which represents a majority of their clients.

Figure 8: CIP and Child Welfare Referral Comparison

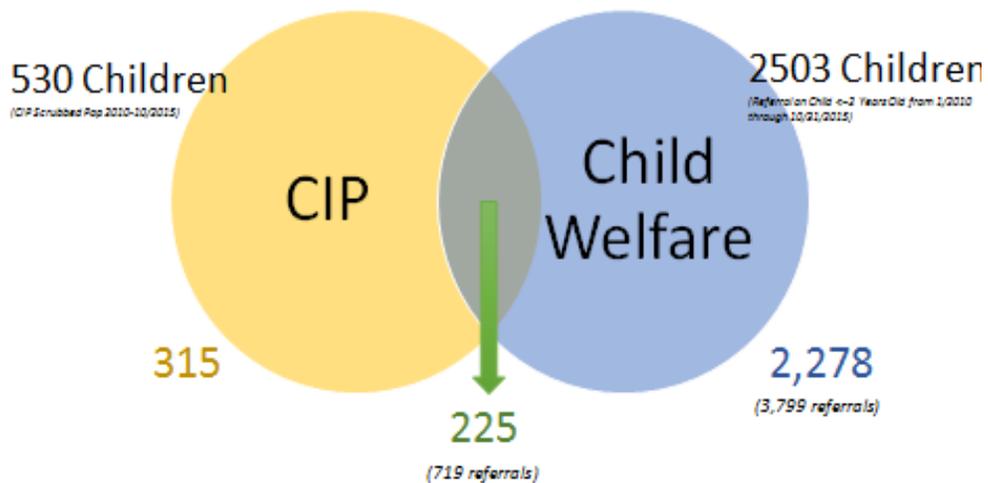


Figure 9 compares 1) the number of CIP children that were and were not involved with child welfare, and 2) the number of child-welfare-involved children under two that were and were not CIP clients. Of the 355 children with child welfare involvement, 109 (31 percent) were CIP clients. Within CIP, 109 children, or 21 percent of CIP clients were also involved in child welfare while 432 CIP clients were only involved in CIP.^{xiii} This data again underscores the role of CIP in primary prevention, and the increasing percent of the CIP/child welfare overlap, compared to referrals, again highlights the fact that CIP is more likely to be involved with higher risk cases, compared to referrals.

Figure 9: CIP and Child Welfare Involvement Comparison

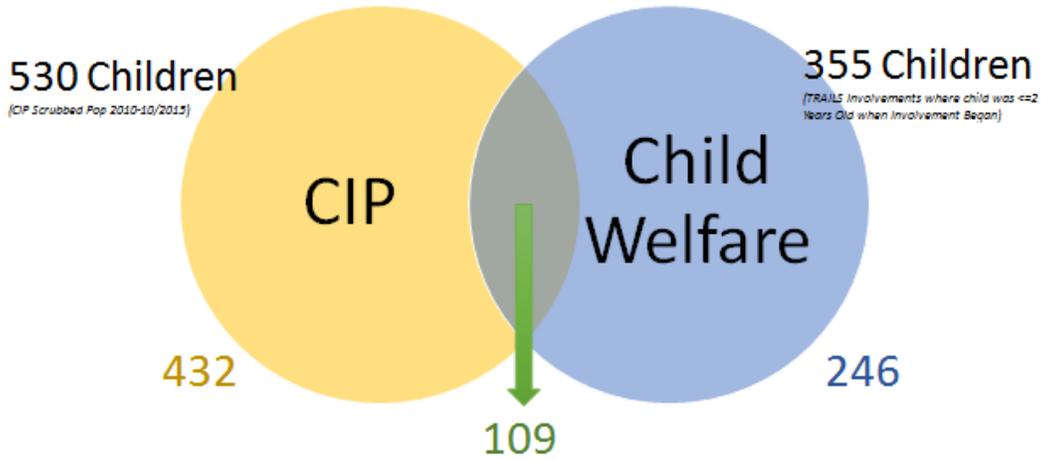
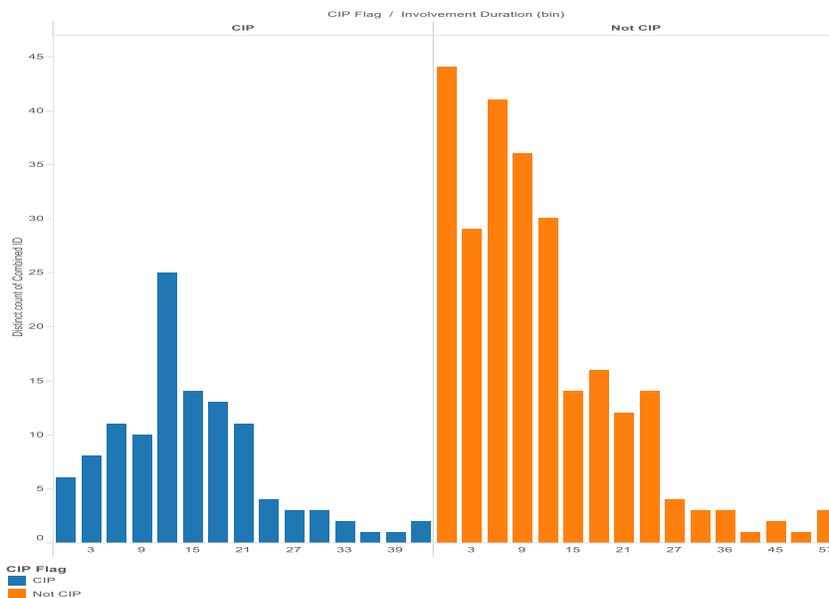


Figure 10 shows the length of time CIP and non-CIP clients spend in child welfare. This data demonstrates that CIP children are more likely to be involved past six months than non-CIP children. A similar comparison of the duration of out-of-home placement between CIP and non-CIP clients found the average duration in out-of-home placement for CIP clients was 361.2 days and for non-CIP clients was 289.4 days. Again, CIP is more likely to be involved, through DHHS, with the most acute cases, which explains the longer duration.

Figure 10: CIP and Child Welfare Involvement Duration



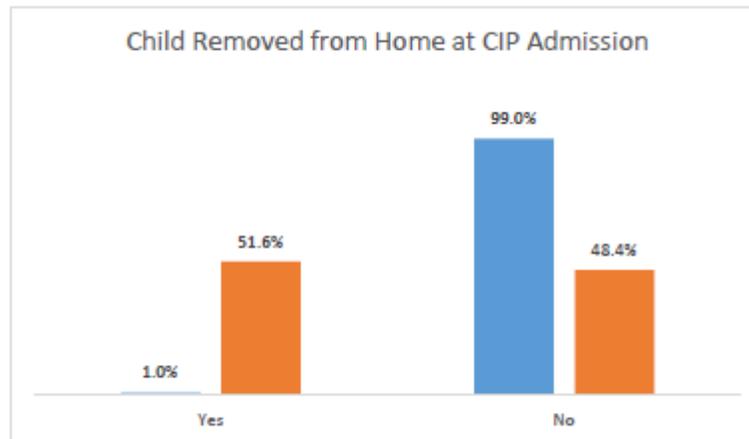
When focusing in on CIP clients, MHP conducted an analysis to compare CIP-only clients and CIP clients who were also involved in child welfare. Of the 531 CIP clients MHP analyzed, 77 percent were CIP-only clients and 23 percent were CIP/DHHS clients (which is similar to the DHHS analysis that found 21 percent of CIP clients were child-welfare-involved).

Much of the data from the MHP analysis found higher risk among CIP clients that were child welfare involved, compared to CIP-only clients, and also showed more intensive use of CIP/MHP services compared to CIP-only clients. Again, this substantiates the interview accounts that when CIP is brought into a child welfare case, it is frequently for the highest-risk cases.

According to the MHP analysis^{xiv}:

- When DHHS was involved, 52 percent of CIP clients had already been removed from the home at the time of CIP admission.
 - When DHHS is not involved only 1 percent of CIP clients had been removed from the home at CIP admission.
- 53 percent of CIP clients that were not involved with DHHS had been admitted to CIP prenatally.
 - For those families that were DHHS involved, that rate was 29.1 percent.
- More CIP-only children were living in a home with both parents.
 - 42 percent of CIP mothers were living with the father of the child when DHHS was not involved.
 - 36.9 percent of CIP mothers were living with the father of the child when DHHS was involved.
- More CIP-DHHS families had a history of substance abuse.
 - 43 percent of CIP-DHHS clients had abused substances.
 - 19 percent of CIP only clients had abused substances.
- More CIP-DHHS families had a history of trauma.
 - 73 percent of CIP-DHHS clients had experienced traumatic events.
 - 59 percent of CIP-only clients had experience traumatic events.
- The area of residence for CIP families differed between DHHS and non-DHHS families, with DHHS families more likely to have been from Longmont.
 - 57 percent of DHHS-CIP families resided in Longmont, while 25 percent resided in Boulder.
 - 44 percent of CIP-only families resided in Longmont, while 41 percent resided in Boulder.

Figure 11: Child Removed from Home at CIP Admission



In addition to having higher risk and more acute needs, the MHP analysis showed that CIP clients who were involved with child welfare used significantly more service than CIP-only clients. Table 2 demonstrates the difference in services accessed by CIP-only versus CIP/DHHS Clients. CIP-only clients attended fewer events, had fewer no-shows, and received less CIP and MHP services.

Table 2: Differences in Services between CIP-Only and CIP/DHHS Clients^{xv}

Services Averages	CIP Only	DHHS	Ratio
Total Attended Events	48.2	89.9	1 : 1.9
Total Attended Events per Week	0.9	1.6	1 : 1.8
<hr/>			
No Shows	4.3	7.6	1 : 1.8
No Shows per Week	0.1	0.2	1 : 2
<hr/>			
CIP Services	43.4	69.6	1 : 1.6
CIP Services per Week	0.8	1.2	1 : 1.5
<hr/>			
CIP Service Duration	2739.9	4083.8	1 : 1.5
CIP Service Duration per Week	48.0	70.0	1 : 1.5
<hr/>			
Other MHP Services	4.8	20.4	1 : 4.3
Other MHP Services per Week	0.1	0.4	1 : 4
<hr/>			
Other MHP Service Duration	148.5	2071.1	1 : 13.9
Other MHP Service Duration per Week	2.8	57.3	1 : 20.5

In examining what types of services CIP and CIP/DHHS clients received, MHP produced Table 3. On average, CIP-only clients used fewer services than CIP/DHHS. Case management and behavioral health prevention is used twice as much on average for CIP/DHHS clients than for CIP-only clients.

Table 3: CIP-only and CIP/DHHS Client Service Type Averages^{xvi}

Service Type Averages	CIP (N = 401)	DHHS (N = 120)	Ratio
Clinical Services	27.2	46.8	1 : 1.7
RN Services	3.6	5.6	1 : 1.6
<hr/>			
Individual Therapy	6.1	7.7	1 : 1.3
Family Therapy	15.5	19.5	1 : 1.3
Case Management	6.3	13.8	1 : 2.2
Behavioral Health Prevention	2.2	4.1	1 : 1.9
Psychiatric Services	1.2	1.1	1 : 1

Consistent with the service usage data above, the MHP analysis found CIP-DHHS clients cost significantly more money to serve—on average about 63 percent more.^{xvii}

Observations from the Mapping, Interviews and Data Analysis

1. Under-utilization of CIP for prevention: CIP and DHHS have formed a strong partnership in serving

the highest-risk cases in the child welfare system. Both organizations value this partnership and each organization's contribution. However, DHHS personnel tend to view CIP as a high-intensity, harm-mitigation, intervention program, not a prevention program, which has influenced the use of CIP by DHHS. During interviews, some DHHS personnel were surprised to learn that the majority of CIP clients (about 75 percent) are in the prevention space and will never be involved with child welfare. This is likely since these caseworkers and other personnel interact with CIP on the highest-acuity cases. The MHP data certainly substantiates the fact that CIP provides much more intensive services to its children and families that are involved in child welfare. That said, CIP views its own primary mission as prevention, and believes that its services are much more effective in the prevention /early intervention space rather than the later stage intervention space, when the situation has already escalated. Although CIP does provide intensive services where needed, its standard case does not require the level of intensity it provides for its child welfare families. Accordingly, the CIP program may be underutilized by DHHS for lower risk and early intervention cases.

2. Data limitations: Although the data analysis was extremely useful, analysis of CIP and DHHS data was unable to answer the central research question—What is the effectiveness of CIP: 1) for primary prevention of child abuse and neglect (i.e. preventing children from becoming involved in child welfare altogether); and, 2) for secondary prevention of escalation of needs once a child is in the child welfare system?
 - a. The use of CIP as a crisis-intervention program by DHHS interferes with an analysis of both the primary prevention and secondary prevention impact. Data on CIP clients is affected by the fact that the program has partnered with DHHS to take on many of the highest-acuity cases, after they have already become severe.
 - i. Primary prevention analysis: In order to assess the impact of CIP on lowering the incidence of child welfare involvement overall, it is necessary to analyze the involvement rate of CIP children who did not become involved with CIP through DHHS (i.e. separating out those children that are CIP clients only because they already have become child-welfare-involved and connected to CIP by virtue of DHHS referral). Neither the MHP nor the DHHS analyses were able to fully disaggregate those children—i.e. in many cases it was impossible to determine whether child welfare involvement began before or after CIP services.
 - ii. Secondary prevention analysis: Since CIP is primarily used by DHHS for open involvements and D&N cases, it is impossible to meaningfully compare the outcomes of those children to non-CIP child welfare children that are typically lower risk/involvement.
 - b. To determine the effectiveness of the program at primary prevention, in addition to disaggregating the CIP data as suggested above, it would be necessary to identify a

meaningful comparison group. Since CIP focuses on high risk families/children, specifically at risk of maltreatment, and research is not available that estimates the child welfare involvement rate of families with several co-occurring risk factors, it is difficult to estimate the effect of the program without conducting an evaluation using a comparison group.

The Cost of Child Maltreatment Analysis

A PFS analysis includes the costs of the negative outcomes the program is intended to prevent. Accordingly, this study estimated the total lifetime costs of child maltreatment for children in Boulder County. Table 4 presents the total lifetime cost per each victim under two in Boulder County.

Table 4: The Total Lifetime Cost of Child Maltreatment for Children in Boulder County

<i>Lifetime Costs</i>	Total All 2015 New Cases under Two	Cost per Each Victim
<i>Child Welfare Costs</i>	\$4,017,808	\$8,084
<i>Education</i>	\$3,526,739	\$7,096
<i>Juvenile Justice</i>	\$521,832	\$1,050
<i>Adult Justice</i>	\$2,359,406	\$4,747
<i>Short Term Health Care</i>	\$21,600,322	\$43,461
<i>Long Term Health Care</i>	\$5,045,267	\$10,151
<i>Productivity Loss</i>	\$71,578,740	\$144,022
Total Lifetime Costs	\$108,650,113	\$218,612

The most important, intensive, and detailed part of this analysis as it relates to PFS exploration was costs associated with the County’s child welfare system. Table 5 presents the specific costs to the County’s child welfare system and Court.



The Value of Prevention of Child Maltreatment in 2017 Boulder County

Table 5: The Costs of Child Maltreatment to the Boulder County Child Welfare System, per Each New Victim

Cost of Child Welfare Services in Boulder County

Total Costs	Total All 2015 New Cases under Two	Cost per Case Receiving Services	Cost per Each Victim
Child Welfare	\$1,164,655		\$2,343
Screen In/Out	\$89,258	\$119	\$180
FAR/HRA Assessment	\$114,799	\$231	\$231
Ongoing Cases	\$960,598	\$12,639	\$1,933
Core Services	\$579,339	\$7,623	\$1,166
Out-of-Home Placement	\$593,880	\$16,968	\$1,195
Subtotal DHHS	\$2,337,873		\$4,704
Court Costs	\$1,679,935	\$16,153	\$3,380
Total CW Costs	\$4,017,808		\$8,084

To construct a per victim cost analysis of each step of the child welfare and child protection systems, interviews were conducted with representatives from CIP, Nurse Family Partnership, DHHS, Public Health, MHP, the police department, and the court (see list of interview participants in the Appendix). After constructing a map of the processes, the analysis attempted to collect the number of personnel involved and hours spent at each step. Through this process, costs and hours worked by each publicly funded attorney and all District Court personnel who may interact with a family in a child abuse or neglect case were gathered. However, descriptions of personnel involved and hours spent for each step by DHHS in the child welfare process was not able to be collected. Instead, DHHS provided a child welfare workload study conducted for the State in 2014, which covered four weeks. This analysis used that report as a basis to estimate hours and matched it with Boulder County hourly rate data from DHHS.

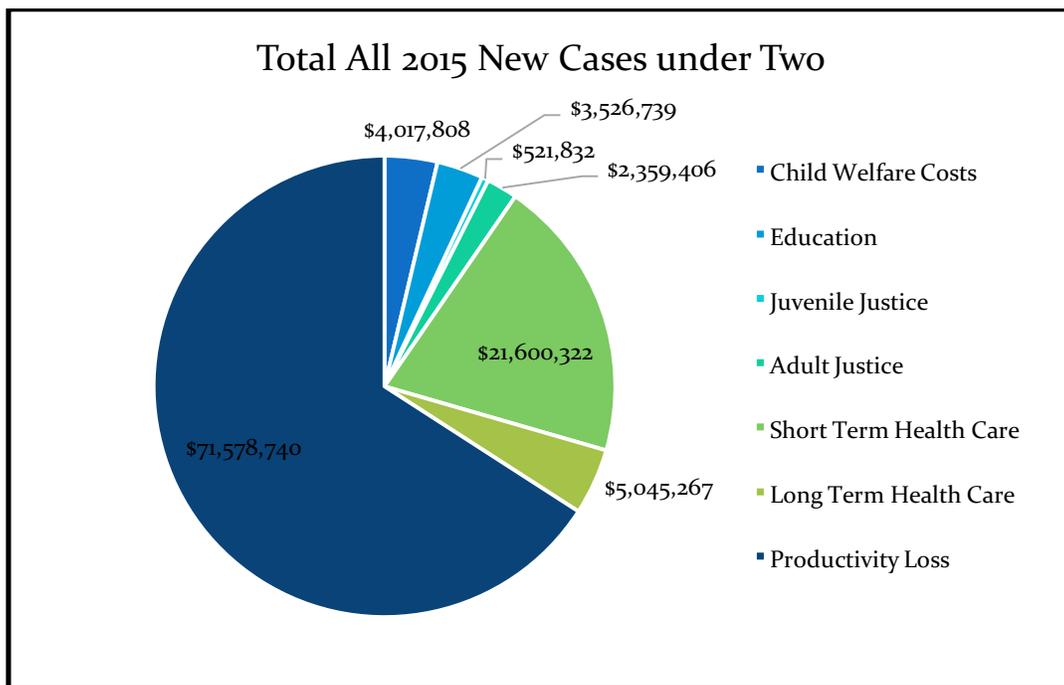
The result was an estimated child welfare-related cost, for victims of child maltreatment under two, in 2015, of \$4,017,808 for all new victims under two that year, and \$8,084 per each victim. Since this is an incidence-based analysis, the costs incurred through the child welfare system just for new victims under two in the county over a ten-year period would be over \$40 million. In addition, since costs for child welfare are incurred in the year of maltreatment, these costs are immediate and do not extend beyond the first year.

Due to the importance of early intervention and the particular focus on CIP, this analysis focused on children under two. Wherever possible, Boulder-specific data was used, but Colorado and national cost

data was also used to supplement the analysis. More detail on the methodology of this analysis is included in the Appendix. Included are child welfare costs, short and long-term health care costs, education costs, justice system costs including juvenile justice and adult justice, and productivity losses. A review of the literature identifies many other areas of cost/savings that are not quantified by this analysis. These include law enforcement costs related to child welfare, early intervention costs, costs to education including grade retention and dropout, costs of homelessness, intangible victim costs, and loss of future tax revenues. Therefore, this analysis will necessarily understate the total overall costs of child maltreatment.

The total lifetime costs of child maltreatment are borne by a variety of public sources in addition to child welfare systems, including health care, education, and criminal justice at the local, state, and federal levels. In addition, individuals bear costs from a loss of earnings and some health care. Figure 12 below shows the relative proportion of lifetime costs of child maltreatment for all new victims under two in Boulder County in 2015. Making up 64 percent of lifetime costs, productivity losses is the highest cost of child maltreatment. This is followed by short term health care at 19 percent of lifetime costs.

Figure 12: Lifetime Costs of Child Maltreatment



In education, the estimated lifetime costs of victims of maltreatment in Boulder County under two in 2015 alone was \$3,526,739 for all victims under two, which includes \$3,322,198 in additional costs for special education and another \$204,541 in costs for early literacy interventions associated with the READ Act. Child maltreatment victims are nearly 50 percent more likely to require special education

services. Once identified for special education, students rarely exit, thereby incurring significant annual costs. The average special education expenditure, above general education, is \$12,393 for Boulder Valley School District and \$7,822 for St. Vrain Valley School District, the two school districts that serve Boulder County. In addition to special education and remedial literacy interventions, research shows many other negative educational outcomes associated with maltreatment including lower academic achievement, lower IQ, greater incidence of grade repetition, lower high school graduation rates, increased absenteeism, and increased disciplinary referrals and suspensions.^{xviii}

The estimated juvenile justice lifetime costs for victims of maltreatment in Boulder County under two years old in 2015 is \$521,832 for all victims combined and \$1,050 per victim. For adult criminal justice, the estimated lifetime costs are \$2,359,406 for all victims combined and \$4,747 per each victim. Being abused or neglected as a child increases the likelihood of arrest as a juvenile by 53 percent, as an adult by 38 percent, and for a violent crime by 38 percent.^{xix} Twenty percent of victims of maltreatment are involved in juvenile crime.^{xx} In some studies, nearly 80 percent of all incarcerated juvenile offenders report a history of child abuse or neglect.^{xxi} Thirty-one percent of women in prison were abused as children.^{xxii} Over 60 percent of people in drug rehabilitation report being abused or neglected as a child.^{xxiii}

Short-term health care is the second largest piece of all lifetime costs. In Boulder, short-term health care costs \$21,600,322 for all victims under two combined and \$43,461 for each victim. Nationally, children who were identified as being at risk of child maltreatment or have been abused or neglected increased Medicaid expenditures by greater than \$2,600 per year per child. This finding accounted for about 9 percent of all Medicaid expenditures for children.^{xxiv}

For long-term health care, Boulder county victims under two cost \$5,045,267 or \$10,151 per each victim. The correlation between victims of ACEs and poor health indicators indicates that Colorado adults with four or more ACEs have a greater number and increased intensity of associations with poor health indicators including being between two times and six times more likely to be in fair or poor health, ailments including depression, arthritis, cancer, COPD, heart disease, frequent physical and mental distress, frequent activity limitations, and are more likely to binge drink, smoke, and be obese.^{xxv}

Victims of child maltreatment also see a decline in lifetime earnings. The estimated lifetime costs for victims of maltreatment in Boulder County under two in 2015 is \$71,578,740 for all victims combined and \$144,022 per victim. According to the CDC, the reduction in annual earnings associated with child maltreatment is higher than many other childhood health events including smoking, and teen pregnancy, and obesity.^{xxvi}

As described above, this is an incidence rather than prevalence analysis. An incidence study calculates lifetime costs only for the new victims in one year—short of efforts to bring down the rate of



maltreatment, these total costs would repeat for victims in each subsequent year, making the total costs for Boulder County victims, only under two, over a ten-year period, over a billion dollars.

Observations on Lifetime Cost Analysis

1. Education and child welfare are the most relevant costs for a PFS analysis: The most direct nexus with avoided costs for prevention of child maltreatment are child welfare, education, and immediate health care. These costs are incurred either immediately in the case of child welfare and some short-term health care costs, or beginning within four years in the case of education costs. In addition, from a PFS perspective, these costs are borne by local governments that have a much more direct commitment to the community.
2. Child welfare cost are comparatively small, but sizable in the context of total child welfare budget: The cost associated with child welfare, although the smallest portion of the total lifetime costs, are sizable enough that accumulated costs associated just with new victims under two would be larger than the County's entire child welfare budget within four years.

Limitations

Child Welfare Costs: As described above, where SIS was able to obtain hour estimates for all involved Boulder District Court personnel, for the DHHS portion of child welfare costs, this analysis had to rely on a child welfare workload study conducted for the state in 2014.^{xxvii} Using this study to estimate Boulder County costs poses several problems. First, the study was conducted over a four-week period. Therefore, it is difficult to estimate what portion of work in any given category a four-week period would represent (e.g. what portion of Ongoing services would four weeks represent?). Second, within the month analyzed, the study divided total work in any category by all cases provided services in that category to arrive at a time per task, regardless of whether it was one day of service or twenty-eight days. Therefore, even for tasks that average less than twenty-eight days, any given month will have many partial service durations. Third, as is discussed in the study, many categories of work required more time than was actually documented—for example, the study showed low percentages of recipients receiving TRAILS documentation, or low percentages of child contact for assessments (both of which are required for 100 percent of recipients). Some of this can be attributable to a single month, including many partial service periods (e.g. a referral coming in the last days of the study and not having received documentation yet), but even with that consideration the study recommended significant increases in many of these categories. This means the data bakes into the analysis an assumption that county child welfare personnel do not allocate time sufficient to perform all statutorily required actions. Finally, this was a statewide workload study and it is an open question as to whether Boulder County is similar to statewide averages. In particular, in 2014, Boulder implemented DR, whereas most other state counties had not. Similarly, Boulder County has been a part of the State's Title IV E waiver pilot,



which involves more funding and effort for family preservation and other services, unlike most other Colorado counties.

Total lifetime costs: As described, this analysis relies on the methodology from the Fang study. Where possible county-specific data was used, if that was not available, state data was used. In some instances (e.g. health care) the specifics of the study methodology were such that it was impossible to use local or state data and underlying data from the Fang study was used instead. Therefore, not all the costs in the lifetime cost analysis represent Boulder-specifics.

PFS Scenario for the Expansion of CIP

PFS financing is a structure that allows a government to “buy outcomes.” Essentially, it uses private investment to solve a working capital problem when funding for programming is needed before measurable outcomes of the programming can be determined. The private capital allows governments to invest in prevention, avoid higher cost remedial spending, and, most importantly, pay only for successful outcomes.

One of the possible benefits of PFS is to monetize cost savings/avoidance by using the finance structure to invest in prevention. This report has discussed the many different potential cost savings and/or individual and societal benefits of investing in a prevention program designed to prevent child maltreatment, with an amplified effect for very young children. However, many, or even most, of these potential “savings” are not cashable, would accrue to many different levels of government and/or would occur over a length of time prohibitively long for PFS.

Although all PFS projects launched to date involve some component of cost savings or avoidance, not all “success measures” that trigger payments by governments are cashable cost savings/avoidance. In many cases, projects assign a value to non-monetizable public benefits (e.g. third grade reading, kindergarten readiness, or days in stable housing). In the end, the viability of a project for PFS depends on whether the government partner is willing or able to pay for the outcomes, and whether the service provider and investors have confidence that the intervention can deliver those outcomes.

In addition, there are many other financing structures that are something short of full PFS. For example, SIS structured and raised a million dollars of capital for a pilot project in Westminster Public Schools. In this project, the district wanted to implement full-day preschool for at-risk students, but did not have the evidence-base to ground a full blown PFS transaction. There was, however, some promising national research, as well as interested philanthropic funders. The funders provided partially recoverable grant funding to run a three-year pilot with a randomized control trial evaluation to measure outcomes. The funding was structured with PFS elements to test the viability of expanding



through PFS after the pilot. This sort of “proof of concept” pilot helps build evidence where it is lacking while also expanding programming.

Although the data analysis undertaken by the project partners was unable to determine the impact of CIP on avoidance of involvement in child welfare, to construct the PFS model that estimates isolated potential savings from an expansion of CIP, we used impact data from other home visiting programs. We focused primarily on the Child FIRST program.

Child FIRST is a home-based intervention that is very similar to CIP. Child FIRST uses the same intervention (Child Parent Psychotherapy), a similar home visiting model (i.e. visitor teams include therapists), and target population (children prenatal through age five with mental health needs or families with multiple challenges including extreme poverty, maternal depression, domestic violence, substance use, homelessness, abuse and neglect, incarceration, and isolation).

Child FIRST has tracked program outcomes through randomized control trial and made them public through peer-reviewed journal articles in *Child Development*, *Best Practices in Mental Health: An International Journal*, and *Journal of Infant Mental Health*. Specifically, Lowell et al.’s study found that children who participated in the Child FIRST intervention were 42 percent less likely than children in usual care to demonstrate externalized mental health symptoms such as aggressive behavior; children were 68 percent less likely to have language problems; mothers who participated in the intervention were 64 percent less likely than mothers in usual care to report mental health issues; and, children were 39 percent less likely to be engaged with child welfare services.^{xxviii}

Considering the Child FIRST evidence, and the fact that certain cost savings are more suitable for PFS analysis—i.e. savings/avoidance that accrue over a relatively short time after the intervention—this scenario focuses narrowly on the potential cost savings/avoidance for child welfare, and special education services (the scenario includes a small line for emergency-room visits, which is an immediate savings, but this amount is relatively immaterial).

With respect to special education, “speech or language impairment” (SLI) is by far the most common category of special education identified disabilities for children PK through grade three. Data obtained from BVSD for 2015 shows SLI accounted for more than 40 percent of all children identified as needing special education in first grade, by far the single most common reason for special education referral. One national study reported that over 70 percent of children ages three to five years identified with a disability have delayed communication and language development.^{xxix} The fact that Child FIRST showed a 68 percent reduction in “clinically concerning” speech and language delays is predictive of the program’s ability to reduce special education in preschool and beyond.

This report has already discussed costs associated with the child welfare system at length. That said, it is worth noting here that the PFS scenario below shows it is not the primary savings source. This is mostly



since child welfare costs are incurred only once, whereas special education costs typically occur annually for an average duration of eleven years. It is important to highlight that the child welfare cost savings in this analysis, which are based on the overall cost study, include many elements that would be difficult to monetize—for example the costs associated with the Court D&N process.

The scenario shown in Table 6 models expanding CIP to serve fifty additional children with prevention rather than intervention services, each year over a five-year period. It assumes CIP children will be served on average for one year, which is the average CIP service duration found by both the DHHS and MHP data analyses. It uses costs of CIP services as supplied by MHP, and assumes Medicaid will cover 51 percent of the cost—a number also supplied by MHP. Table 7 shows the analysis assumptions.



Table 7: PFS Scenario Assumptions

Assumptions	
Enrollment assumptions	
Average length of service (year)	1
Mobility rate (annual)	10%
New annual enrollment	50
Cost of a child in CIP	
Do nothing assumption CW/CPS involvement	31.00%
CIP CW/CPS involvement	18.91%
Total CW/CPS costs per child assessed	\$8,084
Do nothing % children with concerning speech delays	
CIP % children with concerning speech delays	10.66%
Likelihood of children with speech and language delays requiring SPED	75.00%
Do nothing % children with concerning behavior	
CIP % children with concerning behavior	16.88%
Cost of a child in SPED (annual)	\$9,259
District share	\$8,009
State share	\$1,250
Do nothing assumption injury-related ER visits	
CIP injury-related ER visits	17.39%
Cost of an injury-related ER visit	\$2,521
% CIP children publicly insured	
% CIP services potentially Medicaid reimbursable*	51%

* There are future funding uncertainties around Medicaid. The numbers used in this analysis are based on 2016 Medicaid reimbursement.

In this PFS scenario, analyzing only a small portion of potential benefits, benefits exceed costs by \$539,304 and the return on investment is approximately \$1.29 for every \$1 dollar invested. The primary benefit is in avoidance of need for special education, accounting for nearly two-thirds of the analyzed benefits.

Observations on PFS Expansion Scenario

1. In the scenario benefits exceed costs: In the PFS scenario that models a five-year expansion of CIP to fifty additional children in the programs primary prevention focus, benefits exceed costs by \$539,304 and the return on investment is approximately \$1.29 for every \$1 dollar invested.
2. Education benefits are by far the largest component: The primary benefit is in avoidance of need for special education, underscoring the broad benefits of prevention of child maltreatment beyond immediate child welfare savings.
3. Many of the costs modeled are not directly cashable: These include both the fixed costs of salaried personnel as well as Court costs.
4. Need for CIP-specific evaluation: This analysis is narrow, partly by design, to focus on immediate cost savings/avoidance, and partly due to the limitation of the Child FIRST outcomes on which it was modeled. If CIP were to conduct an experimental or quasi-experimental evaluation of program impact, including outcomes outside of these narrow measures, it could yield a richer array of potential benefits.

Limitations

The most significant limitation to this analysis is the use of Child FIRST impact data as a proxy for CIP-specific data. The Child FIRST data was the result of a randomized control trial study, which is rated as “near top tier” by the Coalition for Evidence-Based Policy, and initiative of the John and Laura Arnold Foundation, which only failed to get the absolute highest rating since there is only one study. That said, even though the Child FIRST program is substantially similar to CIP, it is not CIP and Connecticut is not Boulder, Colorado. As mentioned in the observations for this section as well as the potential next steps section that follows, one of the most meaningful ways CIP could advance its understanding of its program’s impact is to conduct an experimental or quasi-experimental study.

Medicaid numbers included in this analysis are based on 2016 Medicaid reimbursement for CIP. However, as of Spring 2017, MHP, which is a behavioral health organization, can no longer code the nursing services performed by CIP as Medicaid eligible. Therefore, while the therapy portion of CIP is eligible for Medicaid reimbursement, there is uncertainty as to what percentage of total CIP services will be reimbursable in the future. It could be less than the 51 percent included in this analysis. In addition, due to the current political climate and the potential for the repeal and replacement of the Affordable Care Act by Congress, there is also uncertainty around what services and who will be covered under Medicaid in the future.

Opportunity for Prevention

As presented in this report, there is an opportunity for primary prevention for at-risk families and their young children. While Boulder already has several programs, including CIP, that serve families, there are still parents and children who need further services. CIP is a program that is designed to prevent early childhood abuse and neglect while fostering relationships between parents and their children. Through prevention and intervention at such young ages, programs like CIP can decrease the risk of toxic stress incurred through ACEs, thus decreasing the need for immediate direct impacts including child protective services response and/or abuse related hospital and outpatient care. In addition, as documented through research on early childhood education, home-based visiting programs that prevent child maltreatment, like CIP, can prevent long-term consequences of child abuse and neglect including lower educational attainment, poor health outcomes, adult justice involvement, reduced lifetime earnings, and increased chance of child victimization that begins the cycle again. Additional benefits of early childhood, home-based visiting programs include improved parenting practices, improved education outcomes, and future prevention of maltreatment.

Assuming an average of three home visiting programs' (Child FIRST, Nurse Family Partnership, and Health Access Nurturing Development Services) marginal reduction of child maltreatment (13.7 percentage points), serving an additional 100 at-risk children/families could avoid over \$15 million in costs associated with child maltreatment. Considering only education and child welfare costs, reducing the number of child victims by these fourteen children would create over a million dollars in value.

Where to Go from Here

In addition to analyzing the feasibility of using PFS to expand CIP in Boulder County, the feasibility study process also produced many other benefits. Because of the nature of PFS, where a successful project involves the tight cooperation of many parties—the government, service providers, funders, etc.—the study process engaged these partners in a collective effort to prioritize, identify challenges and assets, and map a path forward. This collaboration was in itself valuable, and produced many additional benefits related to data analysis and data sharing, surfacing new information and questioning assumptions, mapping the home visiting programs in the county, mapping the county's child welfare process, a thorough analysis of the costs of child maltreatment, quantifying the costs of several discrete components of the child welfare process, identifying options beyond PFS, and focusing community attention on the urgency of child maltreatment prevention.

Listed below are some options identified over the course of this study for advancing the exploration and/or implementation of expanded services to prevent child maltreatment for very young children in the county.



Where to Go From Here: Exploration and Implementation of CIP Expansion

1. Next steps for exploring financing options:
 - a. Explore interest from the foundation community to fund a pilot or “proof of concept” expansion.
 - i. Some Colorado foundations are actively supporting state efforts to implement the State’s child abuse and neglect prevention framework. This process will involve having local communities develop prevention plans, which may include PFS.
 - b. Pursue funding to conduct an experimental or quasi-experimental evaluation of CIP.
 - c. Reach out to county school districts (Boulder Valley School District and St. Vrain Valley School District) to gauge interest in exploring PFS for expansion of CIP in partnership with the County.
2. Areas for potential expansion:
 - a. *Before Entering the System:* The greatest opportunity for CIP expansion is before a referral is made. The type of service would be purely preventative, thus decreasing the risk that families would enter the child welfare system. This early intervention function is the reason the County Commissioners, in 1984, created CIP. Resource usage is less intensive, and therefore more affordable, and the program has the greatest conditions for success. Although most of CIP’s clients are in this space, the rising numbers of acute cases in Boulder County and CIP’s partnership with DHHS to support those clients has shifted limited resources to intensive cases and limited CIP’s ability to serve a larger population who has yet to enter the child welfare system. Targeted families would be those that are at risk and in need of specific services and support related to mental health and child-parent relationships, but not yet in crisis. Creating screening processes to identify the target early intervention population could help the program be most effective. There are examples of such screening tools, including a simple tool used in Orange County, California for new mothers at publicly funded hospitals.
 - b. *Screened-Out/Early Intervention Team:* By partnering more closely with the EIT to serve referred families that have been screened out by the Red Team, CIP could provide both preventative and early intervention services. Increased engagement between the two programs could create a standard procedure through which the EIT is able to assess specific needs for CIP and refer eligible families. Engaging CIP with these families could help prevent them from continuing along the child welfare system or re-referring.
 - c. *“Lower-intensity CIP” or “CIP plus”:* During interviews two of the themes that emerged were: 1) there is a need for expansion of mental health services for young children/families, but not at the intensity level at which DHHS personnel perceived CIP to be operating; and 2)

there is a need to address the increased prevalence of substance abuse with child welfare involved families.

- i. The “lower-intensity CIP” idea is that, for families on the FAR track, or whose cases have been closed with child welfare (i.e. “step-down” situations), there could be a benefit to utilizing CIP services, but at a “lower” intensity level. As discussed previously, there might be a misunderstanding about CIP’s primary target population and service structure by DHHS staff that interacts with CIP exclusively in partnership with high-acuity cases. That said working with DHHS and CIP staff to establish a common understanding of baseline CIP services may open opportunities to connect more families with CIP.
- ii. The “CIP plus” idea is that the recent increases in acute child welfare cases (i.e. open involvements and OOH placements) are due in part to increasing opioid use in the county. Since MHP already provides substance abuse treatment for Boulder County, there could be an opportunity to more closely integrate MHP substance abuse services and CIP. A recently launched PFS transaction in Connecticut makes just that connection.



Appendix A: Methodology

Background Research

To ground our analyses in the literature on the effects of home-based visiting programs designed to prevent child maltreatment, we conducted background research on models and programs in use nationally, including Child FIRST, Zero to Three Safe Babies Court Teams, and Orange County First Five. Child FIRST is a home-based visitation program with its national office in Connecticut, and also serving Florida and North Carolina.^{xxx} Safe Babies, located in cities across the country, focuses on collaboration between service providers and the court to provide services to families with children ages zero to three years old in foster care.^{xxxi} Orange County First 5, a subsidiary of First 5 California, is an initiative that focuses on risk screening and early prevention.

In addition, we conducted an interview with Charles Micholaupolus, Chief Economist for MDRC, a consulting firm who has worked on PFS projects, to discuss the state of research and data on the costs of child maltreatment.

Cost of Child Maltreatment Analysis

For our lifetime cost analysis, we used several data and research sources. We conducted a literature review of journal articles analyzing the costs associated with child maltreatment. The main publication we used as a foundation of our cost of child maltreatment analysis was “The Economic Burden of Child Maltreatment in the United States and Implications for Prevention,” written by Xiangming Fang, et al. in 2012 and published in *Child Abuse & Neglect*.^{xxxii} The study’s objective is “to present new estimates of the average lifetime costs per child maltreatment victim and aggregate lifetime costs for all new child maltreatment cases incurred in 2008 using an incidence-based approach.” The study uses secondary data to estimate the cost of child maltreatment per case based on the following categories, average lifetime cost, special education costs, child welfare costs, child health care costs, adult medical costs, productivity losses, and short term and long term criminal justice costs.

For the Boulder county cost of child maltreatment, we combined Boulder victim data and Boulder and state 2015 cost data, where available, with data from the Xiangming Fang study. The largest part of this work involved estimating the cost associated with child welfare/child protection services in Boulder County. For this analysis, we used a combination of sources including data from DHHS, the Colorado Child Welfare County Workload Study^{xxxiii}, state reports on Boulder County out-of-home and core services expenditures, and a cost analysis of costs associated with court D&N procedures constructed by SIS through interviews and data provided by Boulder County District Court.

To construct the PFS model that estimates isolated potential savings from an expansion of CIP, we used impact data from other home visiting programs. Since the majority of CIP’s data regarding effectiveness



is based on pre- and post-evaluations, and CIP has not conducted an experimental or quasi-experimental study, SIS used Child FIRST impact data as a part of the PFS model.

All individual data sources for this analysis are clearly indicated in the accompanying spreadsheets.

Data Working Group

In Spring 2016 DHHS and Mental Health Partners of Boulder County executed a data sharing agreement to cover data sharing associated with this project. Through this partnership, MHP and DHHS are now able to combine datasets regarding clients that are served by both organizations, thus allowing for a more in-depth understanding of the ways in which the CIP program interacts with children involved in DFCS. During the summer and fall of 2016, a data working group was formed and met approximately five times. The group discussed the data analyses conducted by DHHS and MHP and identified research questions for further data analysis.

Meetings and Interviews with County and MHP

Throughout each phase of this project, this study has benefitted from the generous time and expert insight from a variety of County personnel and MHP and CIP staff members. In the most recent stage of work, SIS met with multiple DHHS staff members to understand the child welfare system in Boulder, CIP's services and the potential for expansion, and to collect data to inform the cost of child maltreatment and the cost/benefit analysis. Below is a list of the individuals with whom we had informational meetings or conducted semi-structured interviews.

DHHS

Frank Alexander, Department Director
Kit Thompson, Family and Children Services Division Director
Emma Webster, Visitation
Terrie Ryan-Thomas, Screening and Intake Manager
Sara Boyland, Integrated Managed Partnership for Adolescent and Child Community Treatment
Barbara Park, Child Services
Wade Branstetter, Early Intervention Team
Wendy Ingham, Ongoing Manager
Jason McRoy, Business Operations and System Support Division Director

MHP

Kelly Phillips-Henry, Chief Executive Officer
Matt Meyer, Chief Strategy Officer
Christine Vogel, Director of Child and Family Services
Lisa Potter, Chief Financial Officer
Andrea Foote, CIP Program Manager

Marvin Yeung, Data Analyst

County Court

Magistrate Carolyn McLean, 20th Judicial District Magistrate, D&N Court

Sharon Plettner, Guardian ad Litem/Representative Parent Counsel

Jeanne Bergman, Deputy County Attorney

Cheryl Sicotte, Assistant County Attorney

Public Health

Jeff Zayach, Executive Director

Jane McKinley, Program Coordinator Nurse Family Partnership

Heather Matthews, Division Manager Family Health Division

Boulder County Sheriff's Office

D.J. Rogers, Crime and Intel Analyst



End Notes

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- ^{xix} Kempe and Kempe 1976.
- ^{xx} Noor and Caldwell 2005.



^{xxi} Noor and Caldwell 2005.

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^{xxiii} National Institute on Drug Abuse 1998.

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