

# The Families First Program Impact on Child Maltreatment: Evaluation Report

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## Introduction

In 2018, there were approximately 678,000 victims of child maltreatment in the United States (U.S.) alone, and approximately 146,000 children who received out-of-home foster care services after a maltreatment report (U.S. DHHS, 2018). Child maltreatment, which broadly refers to all forms of abuse or neglect of children by a caregiver or other custodial relationship, has demonstrated negative long-term impacts on the physical, mental, and behavioral health of victims (Gilbert et al., 2009; Kaplow & Widom, 2007). In addition, child victims of maltreatment are more likely to experience adult poverty, unemployment, and the need for Medicaid services (Zielinski, 2009). Child maltreatment has a substantial economic impact due to the increased costs related to social services, healthcare, productivity losses, criminal justice expenses, and more (Fang, Brown, Florence, & Mercy, 2012). In recent years, the staggering socioeconomic implications of child maltreatment gained national interest, and a variety of interventions and delivery methods have since been employed to implement programs targeting the reduction of child maltreatment. As a result, the Families First Prevention Services Act was passed in 2018 enabling States to utilize Title IV-B and IV-E funds to additionally support child and family prevention services, including in-home parent skill-based programs (NCSL, 2020).

Two of the most widely evaluated and supported program types related to child maltreatment are home visiting programs and parent education programs (Mikton & Butchart, 2009). Parent training and education has long been promoted as a core component in reducing child maltreatment (Fortson, Klevens, Merrick, Gilbert, & Alexander, 2016; Temcheff, Letarte, Boutin, & Marcil, 2018). In general, parenting programs have been demonstrated as an effective approach to reducing child maltreatment both directly and/or indirectly by reducing risk factors and improving protective factors related to child maltreatment (Chen & Chan 2016).

Home-visiting programs, which largely focus on early childhood (and may include parent education components) have been promoted as an effective approach to preventing child maltreatment (Donelan-McCall, Eckenrode, & Olds, 2009). Further investigation into components of home visiting programs identified teaching new parenting skills or behaviors as a core component impacting parenting behavior, and may also serve as an important factor related to outcomes such as child development, physical health, and maltreatment (Filene, Kaminski, Valle, & Cachat, 2013). However, these types of programs have proven a challenge for evaluation efforts with regards to the outcome of child maltreatment and have yielded mixed or modest results (Casillas, Fauchier, Derkash, & Garrido, 2016, Barlow, Simkiss, & Stewart-Brown, 2006).

In general, prior research suggests that child maltreatment interventions can be effective at reducing or preventing child maltreatment, though the evidence is stronger for outcomes related to reducing risk factors related to child maltreatment and is less conclusive for direct impacts on child maltreatment (Mikton & Butchart, 2009; Euser, Alink, Stoltenborgh,

Bakermans-Kranenburg, & Van IJzendoorn, 2015; Barlow et al., 2006). One of the challenges in measuring child maltreatment is that both self-reports and official reports may underestimate the prevalence of child maltreatment (Petersen, Joseph, Feit, & IOMNRC, 2014). Surveillance bias, or an increased likelihood of maltreatment detection due to program involvement, is another factor that may counteract the appearance of program efficacy and further increase the difficulty in evaluating outcomes of child maltreatment (Avellar & Suplee, 2013; Barlow et al., 2006). Additionally, interventions aimed at reducing maltreatment in families with a history of maltreatment are more likely to have significant findings and/or larger effect sizes compared to interventions aimed at preventing child maltreatment in the general population or with families at-risk for maltreatment (Euser et al., 2015). This may be due to a difficulty in detecting treatment effects due to a lower prevalence or underreporting of maltreatment in the general population and at-risk families (Van der Put, Assink, Gubbels, & van Solinge, 2017).

While outcomes based research on child maltreatment is challenging, prior meta-analyses have identified parent training, cognitive behavioral or social learning, home visiting, family-based or multisystemic, substance abuse, and combined interventions as effective program components for targeting maltreatment (Van der Put et al., 2017; Euser et al., 2015, Temcheff et al., 2018). Overall, this evidence stresses the importance of continued research on in-home parent skill-based programs that include these components and target the direct outcome of child maltreatment. The Families First program is one such program that contains several demonstrated effective components. Currently, this program is provided by Utah Youth Village to families involved with the Utah child welfare system.

### **Study Purpose**

The primary objective of this study was to further the understanding and evidence-base of in-home parenting programs by evaluating the impact of the Families First program on subsequent reports of child maltreatment, with a secondary objective of evaluating its impact on substantiated child maltreatment. Prior research on the program has shown promising results in the domains such as child well-being, family relationships, parenting effectiveness, and reduction in recidivism for youth involved with the juvenile justice system (Lewis, 20015; Hess et al., 2012; Gray, Dawson, Grey, & McMahon, 2011). However, additional research is needed to assess program impact on other outcomes such as child maltreatment and to further add to the evidence of its effectiveness.

### **Program Description**

The Families First program is an in-home based service for parents, youth, and children and is an adaptation of the Teaching Families Model, an evidence-based trauma-informed treatment model promoting family-style relationships with a basis in cognitive behavioral approaches, social learning theory, and modeling and role-playing skills (Fixsen et al., 2001).

The program aims to help improve family functioning, improve parenting skills, and target unwanted child behaviors with the ultimate goals of improving child and adult well-being, child safety, and child permanency. Utah Youth Village has contracted to receive referrals and provide services to families involved with the Utah Division of Child and Family Service (DCFS). Through the service, families typically receive 48-52 total service hours over an 8-12 week period. Actual treatment length may be adjusted based on family need and circumstances. Completion of the program is based on skill-acquisition and successfully working through the 6 phases of the Families First model.

## **Research Questions**

The research questions were:

1. Does participation in the Families First program with Utah Youth Village reduce the likelihood of subsequent reports of maltreatment?
2. Does the participation in the Families First program with Utah Youth Village reduce the likelihood of subsequent substantiated reports of maltreatment?

## **Methods**

### **Setting and Data Sources**

This quasi-experimental study utilized retrospective data collected on in-home services spanning 35 offices across all 5 service regions in Utah; Northern, Salt Lake Valley, Western, Southwestern, and Eastern. Administrative data was obtained from the Utah Division of Child and Families Services (DCFS) which included case information for clients receiving in-home services from 2014-2020 and associated demographic information, assessments, service payment information, and prior CPS maltreatment report history. Administrative data was also obtained from Utah Youth Village Families First program for DCFS Families First participants regarding service dosage, completion, and receipt of optional extended services from 2016-2019. Individuals and families were linked across different datasets using common identifiers.

### **Sample**

Based on available treatment data and to allow for sufficient follow-up time, the study sample was narrowed to children who received DCFS services between 2015-2019. Both the treatment and comparison groups included children with in-home DCFS cases who had at least one year of follow-up information available from the case end date. DCFS involvement indicates these families already had a history or risk of child maltreatment and, consequently, are more likely to experience future reports of maltreatment (Hindley, Ramchandani, & Jones, 2006).

The treatment group consisted of children whose families were referred to the Families First program by DCFS and who successfully completed treatment. Those who initiated but did not successfully complete treatment were excluded from the sample, similarly for those who received accommodations for extended lengths of treatment beyond the 48-52 hour service period. Due to the non-random assignment to Families First services, propensity score matching methods were utilized to match children in the treatment group to a comparable population of DCFS involved families who did not receive Families First services and were receiving treatment-as-usual. Cases that involved clients who may have been involved with Family First treatment on another case were excluded from the comparison group, reducing the risk of bias from crossover or service attainment at a later time.

A total 9,019 children were identified as having an in-home case with DCFS between 2015-2019. Of which, 4.6% (n=415) were those who started and completed treatment with Families First during their in-home case. Of the remaining 8,604 children receiving in-home services with DCFS who did not also receive Families First services, 415 were matched to those who received Families First treatment based on case and person characteristics for a total of 830 eligible participants.

The required sample size for a propensity score matching design depends on how comparable the treatment group is to the control group. A sample with similar characteristics among the treatment and comparison groups has the same required sample size as a balanced experimental design with the comparison group size 20% to 200% larger than the treatment group size (McKenzie, 2011; Jung, 2007). A treatment group of 415 children and the unmatched comparison sample of 8,406 children, as well as the matched comparison sample of 415, is enough to detect statistical significance for a medium-large effect size at an  $\alpha$ -level of 0.05 with 80% power.

## **Measures**

### *Propensity Score Matching*

Variable selection for the propensity score model consisted of variables associated with the outcome of interest regardless of their association with the exposure to Families First services. This method of variable selection yields an optimal model that minimizes standard errors and the risk of non-systematic bias of chance associations between a covariate of interest and the exposure to services only (Brookhart et al., 2006; Elze et al., 2017). Prevalence of each potential covariate of interest was evaluated with regard to the treatment assignment and outcome of interest to ensure adequate sample size, while measures of association were used to further validate the matching variable selection for covariates associated with the outcome of interest (Brookhart et al., 2006). The optimal propensity score model estimating propensity for treatment included:

- Number of services paid for by DCFS (not including the Families First service)
- Number of caseworkers associated with the in-home case

- In-home case type (protective supervision services, protective services counseling and protective family preservation)
- Child age, race, and ethnicity
- DCFS office and region
- Duration of case and year of case start
- Prior reports of maltreatment with DCFS, and whether a maltreatment report was made during the in-home case (yes/no)
- Any allegation of neglect, abuse, or both on the most recent CPS investigation prior to the in-home case (yes/no), as well as the allegation history (total number)
- Family and individual needs identified using the Utah Family and Children Engagement Tool (UFACET) on the Family Together, Household, and Caregiver modules (coded as yes/no for having at least one need identified on the module)
- Primary reason for in-home case (Court Ordered, Domestic Violence, Improve Family Functioning, Neglect, Physical Abuse, Sexual Abuse)
- Referral source (CPS Investigation, Foster Care Services)

Allegation refers to an accepted referral alleging child abuse, neglect, or dependency (Utah Administrative Code, 2012). Reports/investigations of maltreatment may include multiple allegation types. The UFACET is a communimetrics tool used to engage families and help guide interventions and planning (Utah Code, 2019). The UFACET was established as an evidence based tool with strong reliability when caseworker's UFACET scores on a case vignette were compared to the standard "correct" scores and the intraclass correlation value was well above the 0.69 threshold (Davis et al., 2019). Family Together, Household, and Caregiver are three of the UFACET's core modules that evaluate a family's dynamic, ability to access supports, living environment, ability to meet basic needs, and the caregiver's strengths and needs.

Covariates including gender, whether any prior CPS maltreatment report was supported/substantiated, receipt of peer parentings services (non-Families First), allegations of dependency, and UFACET Child Functioning module needs were found to be unassociated with the outcome of interest and unnecessary to the propensity score model with regard to matching. Only one case (associated with the control group) had a missing value for age and was subsequently excluded from the analysis. In some cases a child or family member's race/ethnicity cannot be determined or they decline to provide race/ethnicity information and are considered to be "unknown".

### *Outcome Measurements*

Official reports of maltreatment are typically measured at different levels including referrals, reports, and substantiated maltreatment (White, Hindley, & Jones, 2015). Further research suggests that substantiation status is not necessarily a predictor of child maltreatment outcomes (Drake, Jonson-Reid, Way, & Chung, 2003). As such, it is valuable to consider both substantiated and unsubstantiated maltreatment as policy relevant outcomes. This study focused on maltreatment reports and substantiated maltreatment.

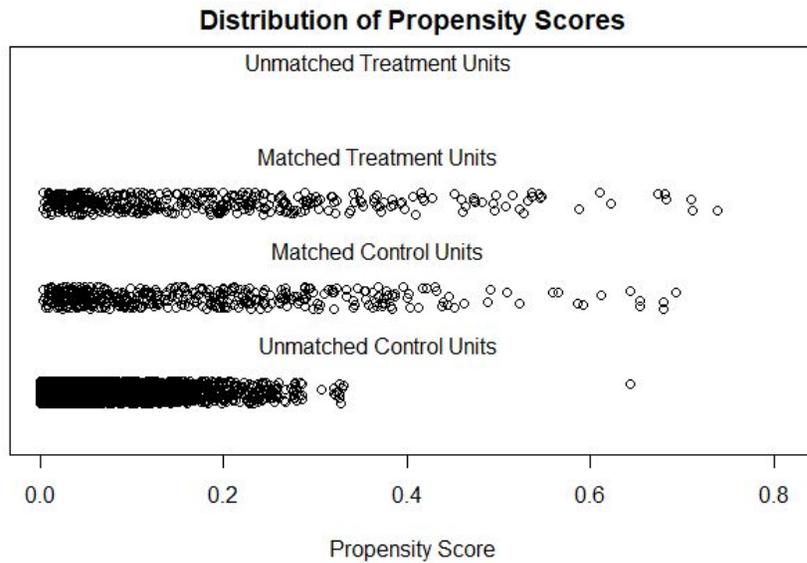
Information was taken from DCFS records of CPS investigations which included start dates and substantiation status. This study defines reports of maltreatment as any referral/allegation of maltreatment that was accepted for further investigation. Substantiation is defined as a CPS investigation that concluded there was sufficient information to reasonably conclude that abuse, neglect or dependency occurred based on state law/policies. DCFS further defines substantiation as a confirmed judicial finding and supported as a confirmed case-worker finding (Utah Code, 2019). For the purposes of this study, both substantiated and supported findings are considered as substantiated.

Reports of child maltreatment were measured within a one year time period after the DCFS in-home case end date. This was done to keep consistency in the measurement period between the groups and to analyze the impact of completed treatment on the outcome. Evaluation after case end may also have helped mitigate the potential impact of surveillance bias. Since reports of maltreatment can and do occur during the receipt of services, whether or not a maltreatment report occurred during the DCFS case was controlled for in the model. While a secondary intent of the study was to conduct an analysis on the outcome of substantiated maltreatment, the sample size for this outcome measure was too small for analysis (N=27 total, n=11 Families First) and was therefore excluded from the study.

### **Data Analysis and Procedures**

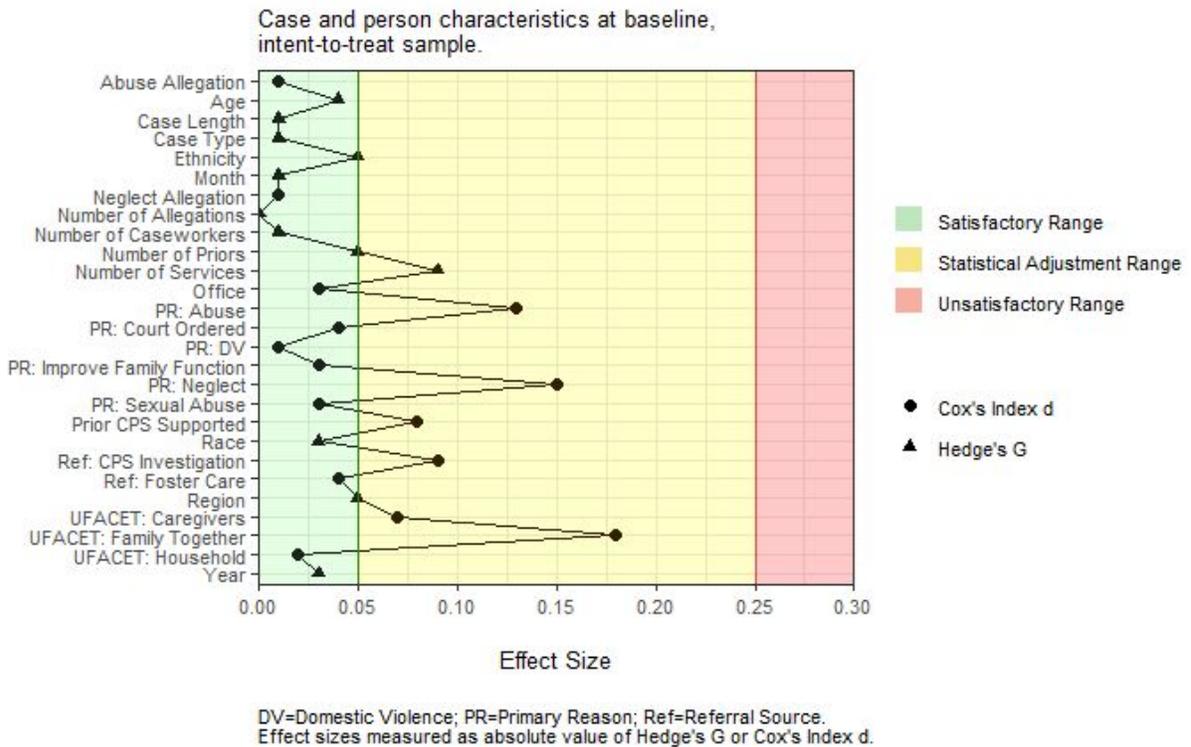
R statistical software (R version 3.5.1) was used for data analysis. Descriptive statistics were used to evaluate case and person characteristics, multicollinearity of covariates, and baseline equivalencies. Propensity score matching using the MatchIt package in R was utilized to estimate the effect of the Families First program on the outcome of repeat maltreatment within one year. Children whose families completed the Families First program were matched on demographic and case characteristics with children whose families received treatment-as-usual from DCFS in-home services.

Figure 1. Distribution and Matching of Propensity Scores



Logistic regression was used to calculate a propensity score of receiving Families First treatment services for each individual child. One-to-one nearest neighbor matching without replacement was performed to match an individual child from the Families First program to a comparable child with DCFS comparison population who received treatment-as-usual. Overall, the model produced a sufficient region of common support with every treatment unit matched to a control unit (Austin, 2009) (Fig. 1). Baseline equivalencies were evaluated on the intent to treat analytic sample using Hedge's  $G$  or Cox's Index  $d$  effect size measures depending on the nature of the covariate. All but seven covariates demonstrated a Hedge's  $G$  or Cox's Index  $d$  value between 0-0.05, with the remaining variables demonstrating baseline equivalencies within the statistical adjustment range of 0.05-0.25 (ACF, 2019) (see Fig. 2). Covariates with an effect size between 0.05-0.25 were controlled for in the final regression model.

Figure 2. Measures of Baseline Equivalence



Prior research has established that the number of prior maltreatment episodes is a predictor of repeat maltreatment (Hindley et al., 2006). Additionally, prior maltreatment has been found to be a predictor of repeat maltreatment regardless of substantiation status (Drake, Jonson-Reid, Way, & Chung, 2003). As such, the number of prior reports of maltreatment was considered as a sufficient pre-test for further establishing baseline equivalence between the treatment and comparison populations. In this study, the number of prior reports demonstrated a Hedge's *G*-value of 0.05 (rounded up), with measures of age, race, and ethnicity all demonstrating effect sizes in the satisfactory range ( $G=0.04$ ,  $G=0.03$ ,  $G=0.05$ ; respectively). While this study did not include a direct measure of socioeconomic status (e.g., Income), several measures of disadvantage are provided by the UFACET Household module assessment. The Household module consists of five items related to socioeconomic need: access to child care, access to transportation, financial resources, physical home environment, and residential stability. Overall, having a need reported on the Household module yielded a Cox's Index *d*-value of 0.02, with each individual item demonstrating baseline equivalence in the satisfactory range with no further statistical adjustment required (access to child care:  $G=0.03$ ; access to transportation:  $G=0.05$ ; financial resources:  $G=0.04$ ; physical home environment:  $G=0.05$ ; residential stability:  $G=0.02$ ).

## Results

Overall, a majority of the in-home cases received protective supervision services, followed by protective services counseling and protective family preservation (Table 1). On average, in-home cases were open for a duration of 280-282 days, with a median case start date in fiscal year 2017. Regardless of the treatment group, nearly 52% of the children were male with an average age of approximately 8 years. An 88% majority of children were reported as white and non-hispanic, with receipt of services equally distributed throughout the 5 regions for both groups; Northern being the highest at 35% and Eastern being the lowest at just over 7% (Table 1).

On average, children received two additional services throughout the course of their in-home case regardless of treatment services. There were minimal differences in the number of caseworkers assigned to the in-home case by treatment services, with Families First participants having an average of approximately two caseworkers assigned throughout their in-home case and DCFS TAU having slightly fewer (Table 1). Overall, there were 106 cases of subsequent maltreatment within one year of in-home case closure, of which 48.5% were Families First recipients; representing only 10.6% of the Families First population (Table 1).

With regard to case characteristics and circumstances, the total number of prior reports of maltreatment experienced were slightly higher for Families First participants compared to their similar DCFS counterparts with an average of 2.8 versus 2.0, respectively. The proportion of substantiated prior maltreatment on the immediate-most preceding CPS case was higher for TAU participants compared to Families First participants (20.4% and 17.3%, respectively), while the proportion of allegations made during the in-home case differed by only half a percentage point (Table 1). Overall, the total number of allegations made had a near equal distribution between the two study populations, with a slightly higher proportion of Families First participants experiencing *neglect* compared to *abuse* (Table 1).

Table 1. Distribution of Case and Person Characteristics

<b>Measure</b>	<b>Families First</b>	<b>TAU</b>
Repeat Maltreatment	10.6%	14.9%
Case Type <i>PSS</i>	64.1%	66.3%
<i>PSC</i>	34.2%	31.1%
<i>PFPP</i>	1.7%	2.5%
Child Age (Mean)	8.1 years	8.2 years
Gender <i>Male</i>	51.8%	51.9%
<i>Female</i>	48.2%	48.1%
Race <i>White</i>	88.7%	88.1%
<i>Non-White</i>	11.1%	11.6%
<i>Other/Unknown</i>	0.37%	0.24%
Ethnicity <i>Hispanic</i>	10.8%	10.9%
<i>Non-Hispanic</i>	88.4%	87.7%
<i>Other/Unknown</i>	0.72%	1.3%
Number of Services (Mean)	2.1	2.1
Number of Caseworkers (Mean)	2.1	1.7
Prior Maltreatment Reports (Mean)	2.8	2.0
Immediate Prior <i>Any substantiated</i>	17.3%	20.4%
<i>During Case</i>	39.0%	38.5%
<i>Total Allegations</i>		
<i>None</i>	55.7%	55.6%
<i>One</i>	38.3%	37.4%
<i>Two</i>	6.0%	7.0%
Allegation Type <i>Abuse</i>	33.5%	36.1%
<i>Neglect</i>	16.6%	15.0%
Case Duration (Mean)	280 days	282 days
Region <i>Northern</i>	35.4%	35.0%
<i>Western</i>	21.9%	20.4%
<i>Salt Lake Valley</i>	16.9%	17.1%
<i>Southwestern</i>	18.3%	19.9%
<i>Eastern</i>	7.5%	7.7%
Year of Case Start (Median)	2017	2017
UFACET Module Needs <i>Caregiver</i>	85.3%	82.7%
<i>Family Together</i>	81.9%	76.4%
<i>Household</i>	51.8%	50.1%
Case Reasons <i>Court Ordered</i>	3.4%	3.7%
<i>Domestic Violence</i>	8.4%	8.8%
<i>Improve Family Functioning</i>	17.8%	16.8%
<i>Neglect</i>	14.9%	11.8%
<i>Physical Abuse</i>	16.1%	18.8%
<i>Sexual Abuse</i>	7.0%	6.6%
Referral Source <i>CPS Investigation</i>	72.0%	75.9%
<i>Foster Care Services</i>	1.9%	1.5%

DCFS=Division of Child and Family Services; TAU=Treatment As Usual; PFP=Protective Family Preservation; PSC=Protective Services Counseling; PSS=Protective Services Supervision.

Regardless of treatment services, over 80% of in-home cases reported a need on the UFACET Caregiver Module, with slightly fewer experiencing needs on the Family Together Module. However, the Household Module reported needs just over 50% of the time (Table 1). Reasons for the in-home cases were distributed similarly between the two study populations, with Families First participants experiencing issues with family functioning more often than the DCFS TAU participants, who were more likely to instead experience issues of physical abuse. However, a CPS investigation was the most common referral source regardless of whether participants received Families First services or TAU with DCFS (72% and 75.9%, respectively).

Using logistic regression, propensities for treatment services with Families First were estimated for all children in the study sample. Several functional forms were evaluated and compared with regard to covariate balance, region of common support, and model efficiency. Covariate selection followed established principles in propensity score modeling (cite?), selecting covariates associated with the outcome of interest regardless of association with the potential for treatment services. Covariates known to be associated with only the potential treatment and no association with the outcome of interest were excluded from the analysis. Directed acyclic graphs were utilized to further evaluate the relation of covariates, with an additional evaluation of potential multicollinearity between similar covariates of interest and determined to have sufficiently low to moderate correlation, warranting inclusion in the model (e.g., number of allegations and prior substantiated maltreatment; Pearson correlation coefficient = 0.36). Interactions were also evaluated but determined to be unnecessary in the propensity score model.

Overall, a total of 26 covariates were determined to be sufficient for estimation of the propensity for treatment, yielding a model with the highest efficient and lowest AIC score. While the Families First recipients were closely aligned with the DCFS TAU population, equivalence measures (Hedge's G or Cox's Index d) determined a total of 7 covariates with effect sizes in a statistical adjustment range, rendering further adjustment necessary (number of services, prior substantiated maltreatment, Family Together UFACET needs, Caregiver UFACET needs, referral from CPS, and primary reasons of neglect and abuse) (Fig. 2). The remaining child and case characteristics were either determined to be unnecessary in the model or within a sufficient range of baseline equivalency (Fig. 2).

A final logistic regression model was employed on the matched population, controlling for the additional covariates requiring further adjustment. Overall, the Utah Youth Village Families First services program was found to significantly reduce the odds of subsequent reports of maltreatment by 51% (OR: 0.49; 95% CI [0.26,0.89]) (Table 2). This protective effect was determined to be significant at the  $\alpha=0.05$  level with a moderate p-value of 0.02. Furthermore, this finding remained significant when controlling for known predictors of the outcome, such as prior substantiated maltreatment and referrals from a CPS investigation.

Table 2. Outcome Estimates for Subsequent Reports of Maltreatment

	<b>OR</b>	<b>[95% CI]</b>	<b>z-value</b>	<b>p-value</b>
<i>Intercept</i>	0.26	[0.09, 0.70]	-2.56	0.01
<i>Families First</i>	0.49	[0.26, 0.89]	-2.29	0.02
<i>Number of Services</i>	0.77	[0.60, 0.99]	-1.94	0.05
<i>Prior Substantiated Maltreatment</i>	2.74	[1.40, 5.30]	2.97	0.003
<i>Family Together UFACET needs</i>	0.65	[0.33, 1.36]	-1.16	0.25
<i>Caregiver UFACET needs</i>	0.63	[0.28, 1.49]	-1.08	0.28
<i>Primary Reason of Neglect</i>	0.99	[0.38, 2.33]	-0.01	0.99
<i>Primary Reason of Physical Abuse</i>	0.59	[0.22, 1.38]	-1.13	0.26
<i>Referral from CPS Investigation</i>	2.48	[1.16, 5.80]	2.22	0.03

CI=Confidence Interval; OR=Odds Ratio.

## Discussion

In evaluating the outcome of child maltreatment, these study findings suggest that DCFS-involved children whose families completed the Families First service during their in-home case are 51% less likely to have a subsequent report of maltreatment within one year after case end compared to similar children receiving DCFS treatment-as-usual. These findings have important practice implications targeting the overarching goal of child safety; supporting the continued use of the Families First program for treating families involved with the child welfare system. While this study was unable to analyze subsequent substantiated maltreatment, these findings on subsequent reported maltreatment are relevant for policy and practice as both unsubstantiated and substantiated populations have been shown to negatively impact child outcomes such as repeated maltreatment, delinquency, and behavioral, developmental, and health outcomes (Kugler et al, 2019; Hussey et al., 2005; Leiter, Myers, & Zingraff; 1994; Drake et al., 2003). Additionally, while this study did not analyze cost effectiveness, it may logically follow that results like these may have a positive impact on long-term cost considerations for states. Future research should aim to evaluate the economic impact of in-home parent skills-based programs on child welfare services. Overall, these findings support prior literature identifying home visiting, parent training, cognitive behavioral therapy, and social learning theory as effective program components targeting child maltreatment.

## Limitations

This quasi-experimental study was retrospective in nature which limited the design to previously collected non-randomized data elements and service records. As such, the

researchers did not have any control over treatment assignment or data collection. Furthermore, reports of maltreatment alone are not a perfect measure of actual maltreatment. Results on child maltreatment using official records should be interpreted with caution since maltreatment is greatly underreported to child welfare systems and reports may also include children who have not been maltreated (Jenkins, Tilbury, Mazerolle, & Hayes, 2017). While this study demonstrated sustained effects for at least 12 months, the findings from this study cannot be generalized for longer durations post-treatment. In addition, these study findings are only generalizable to the population of families receiving in-home services through DCFS, and cannot be generalized to populations outside this child welfare setting. While surveillance bias has potential to bias the results of any study evaluating parenting programs and reports of child maltreatment, the risk in this study is minimal as the population is focused solely on DCFS children and families who already have some degree of surveillance, and reports of maltreatment during the in-home case were considered during the analysis.

## Conclusion

The Families First program with Utah Village is significantly associated with a 51% reduction in subsequent reports of child maltreatment, with effects sustained for at least one year from in-home case end. While these findings demonstrate a reduced odds of subsequent maltreatment overall, the effects of the Families First on the substantiation of subsequent allegations is unknown. For a more holistic view of the child welfare system, future research should aim to evaluate the relationship between in-home parent skill-based programs and the levels of maltreatment, including the time at referral and substantiation of maltreatment. Program specific components, such as receipt of follow-up services, should also be considered in future research along with differing lengths of treatment duration, dosage, and period of sustained effects. Lastly, future research should aim to conduct a more rigorous research design, with randomization between Families First and treatment-as-usual and additional outcome measures.

## References

- ACF. (2019, April 26). The Prevention Services Clearinghouse Handbook of Standards and Procedures. Retrieved December 10, 2020, from <https://www.acf.hhs.gov/opre/resource/the-prevention-services-clearinghouse-handbook-of-standards-and-procedures>
- Austin P. C. (2009). Balance diagnostics for comparing the distribution of baseline covariates between treatment groups in propensity-score matched samples. *Statistics in medicine*, 28(25), 3083–3107. <https://doi.org/10.1002/sim.3697>
- Avellar, S. A., & Supplee, L. H. (2013). Effectiveness of home visiting in improving child health and reducing child maltreatment. *Pediatrics (Evanston)*, 132(Supplement), S90-S99.
- Barlow, J., Simkiss, D., & Stewart-Brown, S. (2006). Interventions to prevent or ameliorate child physical abuse and neglect: Findings from a systematic review of reviews. *Journal of Children's Services*, 1(3), 6-28.
- Brookhart, M. A., Schneeweiss, S., Rothman, K. J., Glynn, R. J., Avorn, J., & Stürmer, T. (2006). Variable selection for propensity score models. *American Journal of Epidemiology*, 163(12), 1149-1156. doi:10.1093/aje/kwj149
- Casillas, K. L., Fauchier, A., Derkash, B. T., & Garrido, E. F. (2016). Implementation of evidence-based home visiting programs aimed at reducing child maltreatment: A meta-analytic review. *Child Abuse & Neglect*, 53, 64-80.
- Chen, M., & Chan, K.L. (2016). Effects of parenting programs on child maltreatment prevention. *Trauma, Violence & Abuse*, 17(1), 88-104.
- Davis, M.D., West, K., Vanderloo, M.J., O'Conner, A., Tanana, M.J., Hopkins, R. Cheng, J., Anderson, S. (2019). Utah Title IV-E demonstration project: final evaluation report (Utah): May 2019 Available from <https://dcfs.utah.gov/wp-content/uploads/2020/02/Utah-final-report-revised-2-1-20.pdf>
- Donelan-McCall, N., Eckenrode, J., & Olds, D. L. (2009). Home visiting for the prevention of child maltreatment: Lessons learned during the past 20 years. *The Pediatric Clinics of North America*, 56(2), 389-403.
- Drake, B., Jonson-Reid, M., Way, I., & Chung, S. (2003). Substantiation and recidivism. *Child Maltreatment*, 8(4), 248-260.

- Elze, M. C., Gregson, J., Baber, U., Williamson, E., Sartori, S., Mehran, R., . . . Pocock, S. J. (2017). Comparison of Propensity Score Methods and Covariate Adjustment. *Journal of the American College of Cardiology*, 69(3), 345-357. doi:10.1016/j.jacc.2016.10.060
- Euser, S., Alink, L. R. A., Stoltenborgh, M., Bakermans-Kranenburg, M. J., & Van IJzendoorn, M. H. (2015). A gloomy picture: A meta-analysis of randomized controlled trials reveals disappointing effectiveness of programs aiming at preventing child maltreatment. *BMC Public Health*, 15(1), 1068.
- Fang, X., Brown, D. S., Florence, C. S., & Mercy, J. A. (2012). The economic burden of child maltreatment in the United States and implications for prevention. *Child Abuse & Neglect*, 36(2), 156-165.
- Filene, J. H., Kaminski, J. W., Valle, L. A., & Cachat, P. (2013). Components associated with home visiting program outcomes: A Meta-analysis. *Pediatrics (Evanston)*, 132(Supplement), S100-S109.
- Fixsen, D. L., Blase, K. A., Timbers, G. D., & Wolf, M. M. (2001). In search of program implementation: 792 replications of the Teaching Family Model. In G. A. Bernfeld, D. P. Farrington, & A. W. Leschied (Eds.), *Wiley series in forensic clinical psychology. Offender rehabilitation in practice: Implementing and evaluating effective programs* (p. 149-166). John Wiley & Sons Ltd.
- Fortson, B. L., Klevens, J., Merrick, M. T., Gilbert, L. K., & Alexander, S. P. (2016). Preventing child abuse and neglect: A technical package for policy, norm, and programmatic activities. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.
- Gilbert, R., Widom, C. S., Browne, K., Fergusson, D., Webb, E., & Janson, S. (2009). Burden and consequences of child maltreatment in high-income countries. *The Lancet*, 373(9657), 68-81. doi:10.1016/s0140-6736(08)61706-7
- Gray, D., Dawson, K. L., Grey, T. C., & McMahon, W. M. (2011). Best practices: The Utah youth suicide study: Best practices for suicide prevention through the juvenile court system. *Psychiatric Services*, 62(12), 1416-1418.
- Hess, J. Z., Arner, W., Sykes, E., Price, A. G., Village, U. Y., & Tanana, U. M. (2012). Helping juvenile offenders on their Own "Turf": Tracking the recidivism outcomes of a home-based paraprofessional intervention. *OJJDP*.
- Hindley, N., Ramchandani, P. G., & Jones, D. P. H. (2006). Risk factors for recurrence of maltreatment: A systematic review. *Archives of Disease in Childhood*, 91(9), 744-752.

- Hussey, J. M, Marshall, J.M., English, D. J., Knight, E.D., Lau, A. S., Dubowitz, H., & Kotch, J.B. (2005). Defining maltreatment according to substantiation: Distinction without a difference? *Child Abuse & Neglect*, 29(5), 479-492.
- Jenkins, B. Q., Tilbury, C., Mazerolle, P., & Hayes, H. (2017). The Complexity of child protection recurrence: The case for a systems approach. *Child Abuse & Neglect*, 63, 162-171.
- Jung, S., Chow, S., Chi, E., (2007). A note on sample size calculation based on propensity score analysis in nonrandomized trials. *Journal of Biopharmaceutical Statistics*, 17:1, 35-41. doi: 10.1080/10543400601044790
- Kaplow, J. B., & Widom, C. S. (2007). Age of onset of child maltreatment predicts long-term mental health outcomes. *Journal of Abnormal Psychology*, 116(1), 176-187. doi:10.1037/0021-843x.116.1.176
- Kugler, K. C., Guastafarro, K., Shenk, C. E., Beal, S. J, Zadzora, K. M., & Noll, J. G. (2019). The effect of substantiated and unsubstantiated investigations of child maltreatment and subsequent adolescent health. *Child Abuse & Neglect*, 87, 112-119.
- Leiter, J., Myers, K. A., & Zingraff, M. T. (1994). Substantiated and unsubstantiated cases of child maltreatment: Do their consequences differ? *Social Work Research*, 18(2), 67-82.
- Lewis, R. E. (2005). The effectiveness of Families First services: An experimental study. *Children and Youth Services Review*, 27(5), 499-509.
- McKenzie, D. (2011). Power calculations for propensity score matching. *Developmental Impact*. Available from <http://blogs.worldbank.org/impacetevaluations/power-calculations-for-propensity-score-matching>
- Mikton, C., & Butchart, A. (2009). Child maltreatment prevention: A systematic review of reviews. *Bulletin of the World Health Organization*, 87(5), 353-361.
- NCSL. (2020). Family First Prevention Services Act. *National Conference of State Legislatures*. Retrieved December 08, 2020, from <https://www.ncsl.org/research/human-services/family-first-prevention-services-act-ffpsa.aspx>
- Petersen, A., Joseph, J., Feit, M. N., & Institute of Medicine National Research Council. (2014). *New directions in child abuse and neglect research*.

- Temcheff, C. E., Letarte, M-J., Boutin, S., & Marcil, K.. (2018). Common components of evidence-based parenting programs for preventing maltreatment of school-age children. *Child Abuse & Neglect*, 80, 226-237.
- U.S. Department of Health & Human Services, Administration for Children and Families, Administration on Children Youth and Families, Children's Bureau. (2018). Child maltreatment 2018. Available from <https://www.acf.hhs.gov/cb/research-data-technology/statistics-research/child-maltreatment>
- Utah Administrative Code. (2012). *Utah Office of Administrative Rules*. Utah Department of Administrative Services. Retrieved December 10, 2020, from <https://rules.utah.gov/publicat/code/r495/r495-890.htm>
- Utah Code. (2019). *Utah Child and Family Services Code*. Utah State Legislature. Retrieved December 10, 2020, from [https://le.utah.gov/xcode/Title62A/Chapter4A/62A-4a-S101.html?v=C62A-4a-S101\\_1800010118000101](https://le.utah.gov/xcode/Title62A/Chapter4A/62A-4a-S101.html?v=C62A-4a-S101_1800010118000101)
- Van der Put, C. E., Assink, M., Gubbels, J., & van Solinge, N. F. B. (2017). Identifying effective components of child maltreatment interventions: A meta-analysis. *Clinical Child and Family Psychology Review*, 21(2), 171-202.
- White, O. G., Hindley, N., & Jones, D. P. H. (2015). Risk factors for child maltreatment recurrence: An updated systematic review. *Medicine, Science and the Law*, 55(4), 259-277.
- Zielinski, D. S. (2009). Child maltreatment and adult socioeconomic well-being. *Child Abuse & Neglect*, 33(10), 666-678.