



# IMPACT OF CHILD MALTREATMENT PREVENTION PROGRAMS IN TEXAS

A RETROSPECTIVE ANALYSIS

Prepared for the Prevention and Early Intervention Division of the Texas  
Department of Family and Protective Services

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## EXECUTIVE SUMMARY

Prevention programs are difficult to evaluate because their effectiveness can only be measured by events that do not occur. Child maltreatment is a rare occurrence and thus, measuring the prevention of child maltreatment is particularly difficult. Support for child maltreatment prevention programs in Texas has strengthened over the past several years creating an increased need for evidence of their effectiveness.

This report details findings from an analysis of caregivers who received prevention services. In order to assess prevention services, the Department of Family and Protective Services merged data from Prevention and Early Intervention (PEI) database with data from the Child Protective Services' IMPACT data system. Caregivers who had an initial intake between September 14<sup>th</sup>, 2008 and May 17<sup>th</sup>, 2015 are included in the sample. Data from 137,068 caregivers were analyzed.

Findings suggest only 3% of the families who received prevention services had a substantiated case of child maltreatment. Younger caregivers, families with a non-traditional family structure and families with lower levels of income had larger percentages of substantiated maltreatment cases.

Findings also indicate that the Protective Factors Survey was not a meaningful predictor of incidences of child maltreatment. Rather, risk factors identified by the workers were better predictors of substantiated child maltreatment cases.

Based on the findings, the first recommendation is to embed evaluations into service delivery in such a way that a comparison group, at a minimum, can be used to better understand the relationship between prevention programs and substantiated cases. The second recommendation is to replace or supplement the Protective Factors Survey with a risk assessment completed by caseworkers.



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## CHILD MALTREATMENT PREVENTION PROGRAMS IN TEXAS

Measuring the impact of child abuse and neglect prevention programs is challenging, particularly in selecting outcome measures that will truly measure the impact of the prevention program. Acts of child maltreatment are relatively rare events, and thus, substantiated CPS reports often have a low occurrence rate over short evaluation time periods and small sample sizes.

Maltreatment prevention programs in Texas have traditionally tracked family involvement with child protective services as long as there was an open prevention case. Thus, the long-term effectiveness of prevention services was largely unknown. This report utilizes seven years of data examining Texas' child maltreatment prevention program, including both the STAR program and other PEI programs. Families who were enrolled in child maltreatment prevention programs under STAR or PEI within that time frame were matched to records of child protective services to examine rates of substantiated child maltreatment cases. A total of 137,068 primary caregivers are included in the sample, approximately 82% of which were enrolled in the STAR program. Detailed methods can be found in Appendix A.

### This Report Addresses Three Primary Questions:

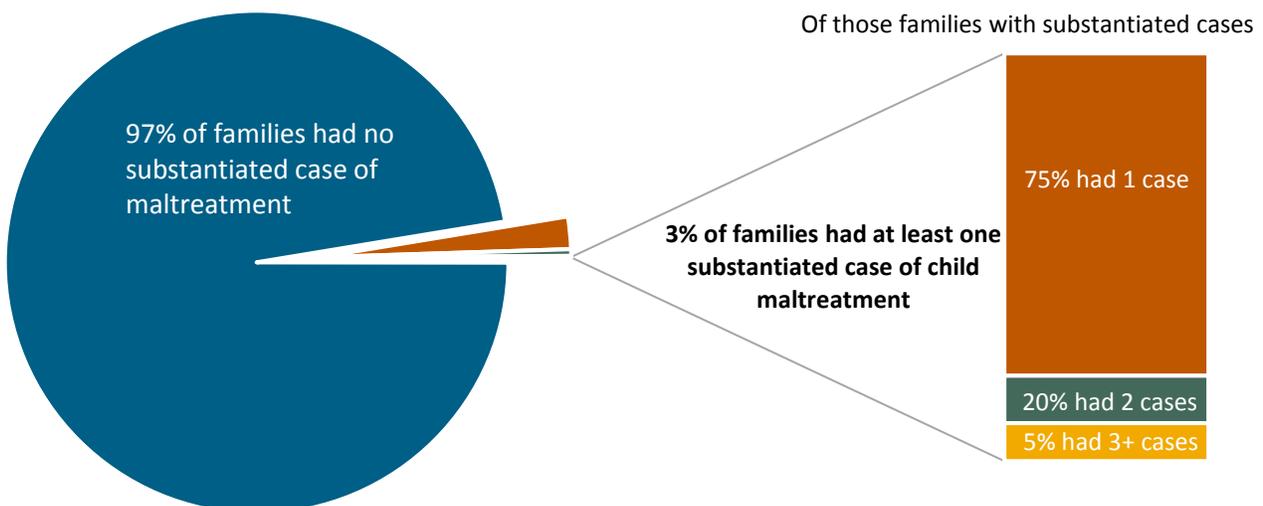
- 1) What portion of families who receive prevention services later have a substantiated child maltreatment case?;**
- 2) Which programs appear to reduce child maltreatment?; and**
- 3) Which family characteristics and program screening tools predict child maltreatment?**

It is also important to note that, while the STAR and PEI samples overlap substantially in their missions, there are differences between them in the reason a family would be referred to that program (i.e., PEI referrals are “parent-driven” while STAR referrals are “child-driven”). Thus there are meaningful differences between the populations they serve that must be accounted for when considering their impact. Additionally, several variables that were available in the PEI sample were not present in the STAR sample. For these reasons, all analyses for this report were conducted individually for each sample and also with the data from the two samples combined. Where there are important or interesting differences between the two programs, results will be presented for each sample; otherwise results presented here in represent analyses in which the samples were combined.

## IMPACT OF PREVENTION PROGRAMS ON CHILD MALTREATMENT

Of the 137,068 caregivers, 3,581 or 2.6% had substantiated cases of child maltreatment. There is no direct comparison group of high risk families who did not receive services during this timeframe and thus, there is no ability to ascertain the statistical significance of receiving services versus not receiving services as a means to prevent child maltreatment. Similar state-level programs targeting at-risk families report rates of confirmed maltreatment between 1% and 12%, with the majority of results clustering near the 2.6% found in this analysis. Of the 3,581 families in this sample who had substantiated cases of child maltreatment, 75% had one substantiated case, 20% had two substantiated cases, and 5% had three or more substantiated cases. Figure 1 details the numbers of substantiated cases for families receiving prevention services.

FIGURE 1. SUBSTANTIATED CHILD MALTREATMENT CASES IN FAMILIES RECEIVING PREVENTION SERVICES 2008-2015



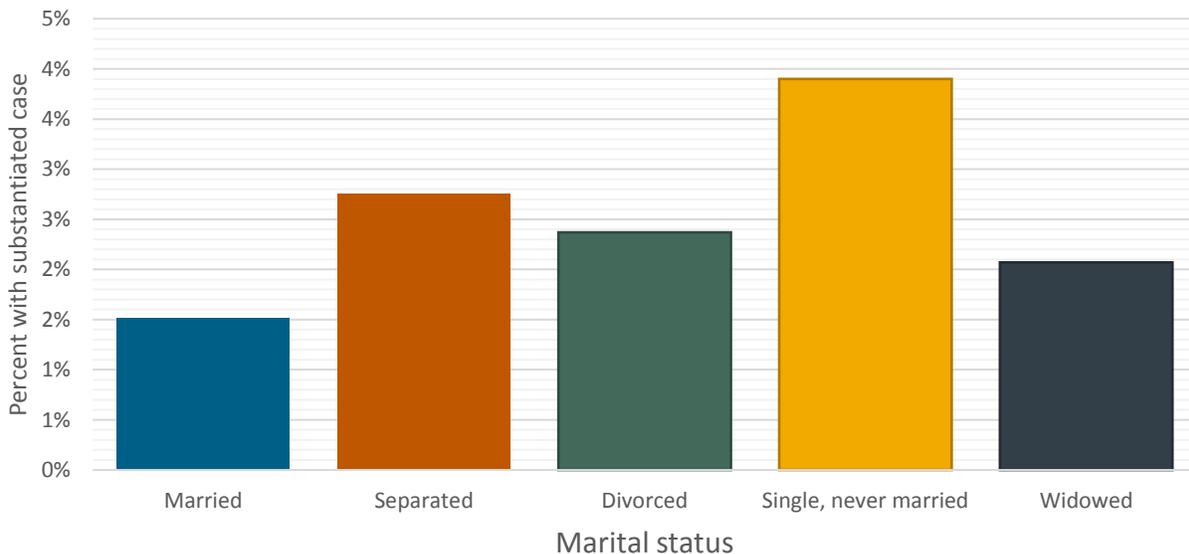
It is also important to note differences in rates of confirmed cases between the STAR and PEI programs. In the STAR program, 2.3% of primary caregivers had a confirmed case of maltreatment, while in the PEI program 4.6% of primary caregivers had a confirmed case of maltreatment. There are several possible explanations for this difference, including the disparity in the ages of primary caregivers in the two data sets, as well as procedural differences in the programs. Though these potential explanations could not be directly tested with the available data, it seems likely that some combination of these important variables (as seen below) may have caused the discrepancy. The total number of confirmed cases per primary caregiver that had at least one confirmed case were similar between STAR and PEI.

## FAMILY CHARACTERISTICS AND CHILD MALTREATMENT RATES

There are also several meaningful similarities in families who had a substantiated child maltreatment case that may be used to identify families in need of additional services in the future. These characteristics include marital status, primary caregiver age at the time services were received, and (only available in the PEI data) income level.

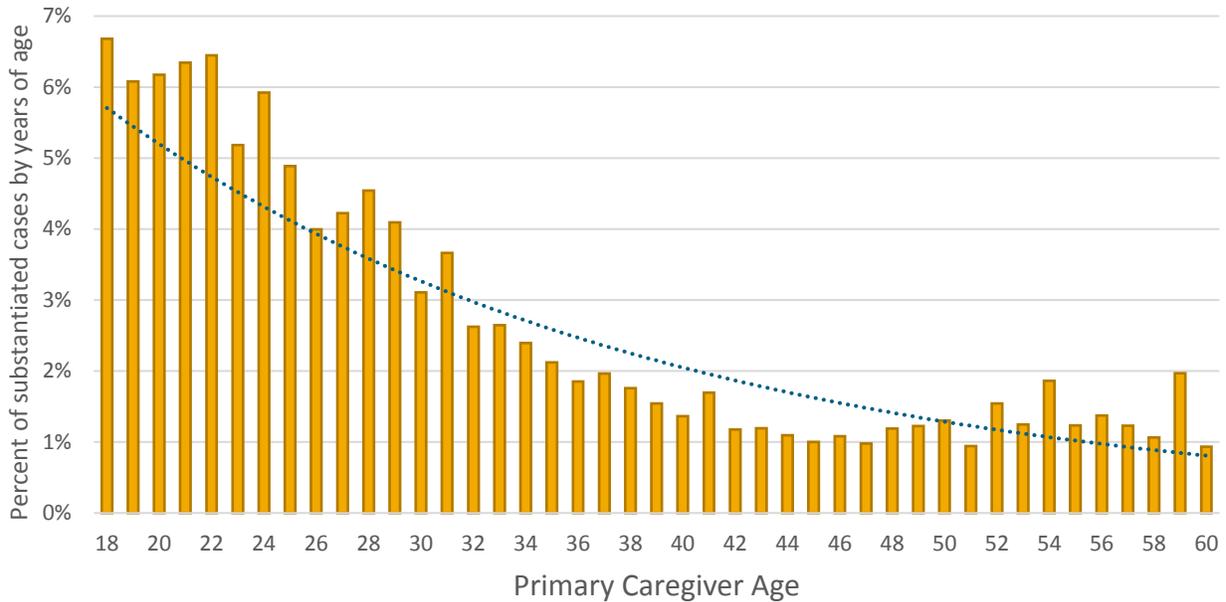
In the combined data set, approximately 4% of parents who were single and never married had a substantiated case of child maltreatment. In comparison, of those parents who were married, roughly 1.5% had a substantiated child maltreatment case. A similar pattern was observed in the separated STAR and PEI analyses. Figure 2 displays the percentages of substantiated cases based on reported marital status from the combined data.

FIGURE 2. PERCENTAGE OF PARENTS WHO HAD A SUBSTANTIATED CASE BY MARITAL STATUS



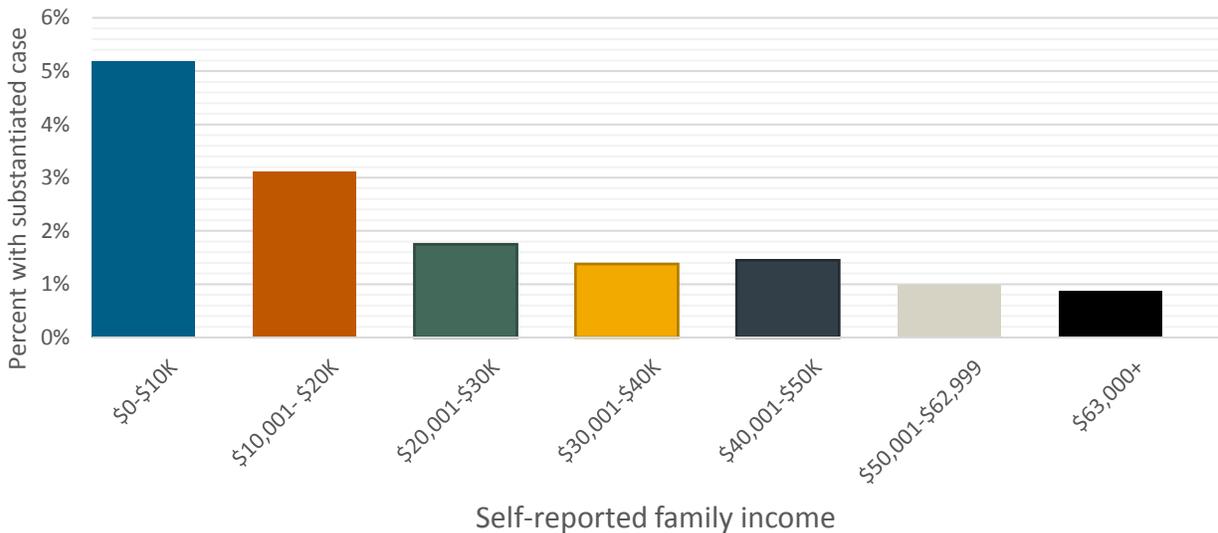
Primary caregiver age was also seen to be a meaningful indicator of risk for maltreatment - in general, larger percentages of younger caregivers had substantiated maltreatment cases. The primary caregiver's date of birth was used to calculate the primary caregiver's age at the time services were received. Though primary caregivers in the STAR data were significantly older (42.7 years old on average, compared to an average of 31.1 years old in the PEI data), rates of confirmed maltreatment by age followed a similar pattern and so results presented here are from the combined data set. Of those caregivers between the ages of 18 and 32 years old, 4% had a substantiated case of maltreatment. Roughly 2% of caregivers between the ages of 33 to 37 years old had a substantiated report of maltreatment. Less than 2% of caregivers age 38 and older had a substantiated maltreatment case. Figure 4 depicts this general trend.

**FIGURE 4. PERCENTAGE OF PARENTS WHO HAD A SUBSTANTIATED CASE BY AGE**



Finally, income level was found to be related to rates of maltreatment. Family income, which was not available for families in the STAR data and so represents only families in the PEI data, was calculated based on the family’s self-reported income at the time services began. Of those families earning \$10,000 or less, roughly 5% of families had a substantiated child maltreatment case. There is a significant decrease in the rate of confirmed cases of child maltreatment with each increase of \$10,000 of annual income up to \$30,000. Figure 3 displays the percent of substantiated cases in each income level.

**FIGURE 3. PERCENTAGE OF PARENTS WHO HAD A SUBSTANTIATED CASE BY INCOME BRACKET**



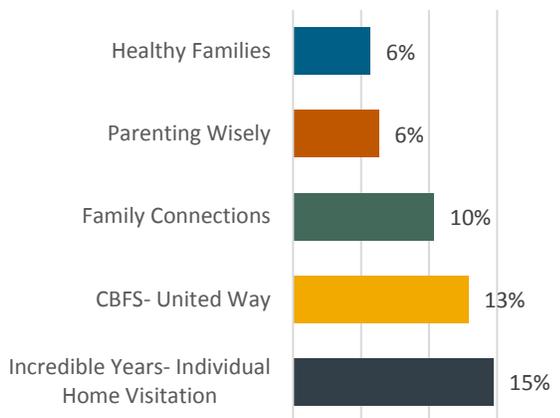
## PROGRAM CHARACTERISTICS RELATED TO SUBSTANTIATED MALTREATMENT

Families receiving child maltreatment services from 2008 to 2015 were spread across 253 of 254 Texas counties. Two hundred and thirty-six of those counties had more than 10 families listed as having received services. Those 236 counties were used for an analysis of prevention programs by county. In general, counties had a similar number of primary caregivers enrolled each year. The numbers of families with a confirmed case of child maltreatment in each county largely remains stable over time, as well.

Each of those 236 counties had at least one family receive services from STAR during those years, while only 153 of those counties had at least one family receiving services from PEI. Data on services provided by STAR and PEI were reported somewhat differently, with both providing at least one Service Code per primary caregiver, but only the PEI data included information on the evidence-based program that was used. In the STAR data, Family Counseling and Family Skills Training were by far the most common Services Codes, together making up nearly 99% of Service Codes. In the PEI data, Home Visitation and Parent Education & Training were by far the most common, together making up nearly 80% of Service Codes. Given these unevenly distributed rates and the substantial overlap between codes, rates of confirmed maltreatment by Services Code are not reported.

Although providers were not required to use evidence-based programs, many PEI providers did, with 32 evidence-based programs used between 2008 and 2015. Five evidence-based programs had more than 5% of their enrollees with a substantiated case. These include: Incredible Years, CBFS-United Way, Family Connections, Parenting Wisely and Healthy Families. In some cases, only a component of the program was offered. Figure 5 details these programs and Figure 6 lists programs with the lowest rates of substantiated cases.

**FIGURE 5. PERCENTAGE OF PARENTS WHO HAD A SUBSTANTIATED CASE BY PROGRAM**



**FIGURE 6. PROGRAMS WITH  $\leq 0.01\%$  OF PRIMARY CAREGIVERS WHO RECEIVED SERVICES AND HAD A SUBSTANTIATED CASE OF MALTREATMENT**

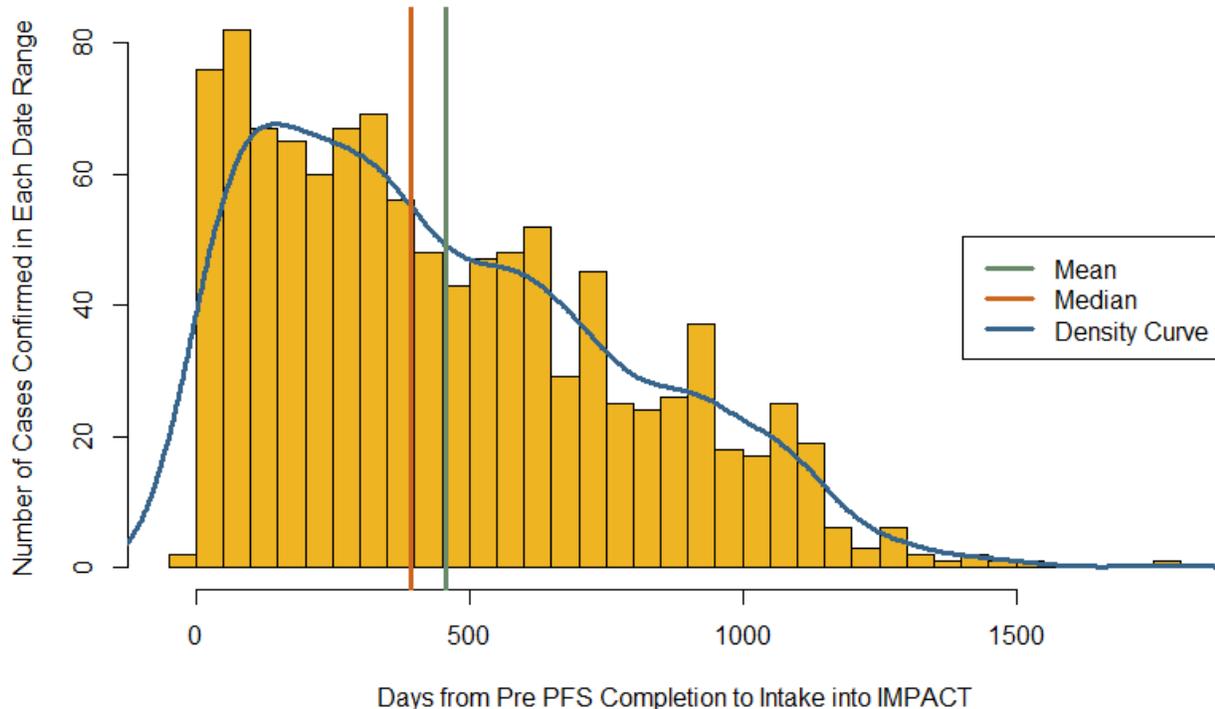
24/7 Dad
CBFS—Austin Families
Incredible Year – Toddler
Incredible Years Group
Nurturing Parenting Program
Parent Child Education Program – Home Visit
Parenting Wisely – Group
Project Safe Care
Systematic Training for Effective Parenting
Triple P – Individual
Triple P- Level 1 & 2

## TIME BETWEEN DATE OF INITIAL SERVICE AND INTAKE INTO IMPACT SYSTEM

It is important to note that the exact dates of service provision are not available in the data. The closest available approximation is the reported dates of the Protective Factors Survey (PFS) Pretest and Posttest. This is less than an ideal substitute, as not every primary caregiver in the data completed the PFS (hence a subset of the data does not include these dates). Furthermore, these dates may not precisely align with the dates of service provision, but the date of the PFS Pretest should be a fairly close approximation of the initial date of service as that aligns with the recommended PFS collection procedures. For that reason, the calculations below represent the number of days between the date of completion of the PFS Pretest and the date of intake into the IMPACT system with a confirmed case of child maltreatment. There were only minimal differences between STAR on PEI in the time between date of initial service provision and intake into the IMPACT system, and so all results reported below are drawn from the combined dataset.

Of all confirmed cases of child maltreatment in families that completed the PFS Pretest, 24% occurred within 180 days of the PFS Pretest, 47% occurred within 365 days of the PFS Pretest, and 59% occurred within 500 days of the PFS Pretest. Note that two cases (less than 1% of the total) had a confirmed case of child maltreatment prior to completing the PFS Pretest. Figure 7 details this temporal pattern.

FIGURE 7. NUMBER OF DAYS BETWEEN INITIAL COMPLETION OF PROTECTIVE FACTORS SURVEY AND INTAKE INTO THE IMPACT SYSTEM AS A CONFIRMED CASE



## SUBTYPES OF CHILD MALTREATMENT

Of the 10 types of child maltreatment listed in Figure 9, eight types of maltreatment were reported at least once in the data. It should be noted that each confirmed case of child maltreatment may involve more than one type of maltreatment. Eighty percent of confirmed maltreatment cases contained only one type of maltreatment, 16% contained two types, and 4% contained three or more types. Neglectful supervision was by far the most commonly reported type of maltreatment.

FIGURE 9. TYPE OF MALTREATMENT FOR CONFIRMED CASES

Neglectful Supervision	76.9%
Physical Abuse	18.8%
Physical Neglect	9.6%
Medical Neglect	7.4%
Refusal to Accept Parental Responsibility	5.8%
Emotional Abuse	2.5%
Sexual Abuse	2.4%
Abandonment	0.5%
Labor Trafficking	0.0%
Sexual Trafficking	0.0%

Though the rates of the different subtypes of maltreatment generally followed a similar pattern in the STAR and PEI data, there are several statistically significant (though small in magnitude) differences to report. Primary caregivers in the PEI data were more likely to have a confirmed case of Medical Neglect, Neglectful Supervision, or Physical Abuse, while primary caregivers in the STAR data were more likely to have a confirmed case of Sexual Abuse or Refusal to Accept Parental Responsibility.

## PREDICTING CHILD MALTREATMENT BASED ON SCREENING TOOLS

Two screening tools were used by prevention programs: The Protective Factors Survey (which is a self-report measure completed by the child's primary caregiver; PFS) and a risk assessment completed by a staff case worker (reported only in the PEI data). Both tools were analyzed in terms of their utility in predicting substantiated child maltreatment cases. The risk assessment conducted by workers appears to be a better tool for predicting future child maltreatment.

## PREDICTING CHILD MALTREATMENT BASED ON THE PROTECTIVE FACTORS SURVEY

The Protective Factors Survey is a validated measure that was designed by researchers at the University of Kansas under support from the FRIENDS National Resource Center to assess changes in the level of protective factors present in families undergoing services related to child abuse prevention. The survey was validated against other related measures and found to be reliable by its designers.

PFS scores were reported in the raw data as scaled scores for each of the 20 items (reverse-scored where appropriate) and were reported in 56,094 family-year observations (Note: PFS scores were not reported in 2009 or 2010). Four subscale scores (Family Functioning, Social Support, Concrete Support, and Nurturing and Attachment) were calculated as recommended by the scale designers and used to assess pre-test, post-test, and change scores for each PEI site, evidence based program,

and county. Additionally, subscale scores were examined against rates of confirmed cases of child maltreatment.

There is no evidence that the pre-test or post-test scores of the four PFS subscales are meaningfully related to the rates of confirmed cases of child maltreatment, nor is there any evidence that an improvement in any of the subscale scores is indicative of decreased rates of confirmed cases of child maltreatment. Furthermore, there is no evidence of an association between PFS scores and rates of child maltreatment at the county, EBP, or contractor level (i.e., counties with “better” aggregate PFS scores do not also have lower rates of child maltreatment).



There is no evidence that scores on the Protective Factor Survey predict substantiated child maltreatment cases for those parents who have received prevention services.

Additional analyses of the PFS conducted separately on the STAR and PEI data did not yield meaningfully different conclusions. The effect sizes of PFS pre-scores, post-scores, and change-scores on confirmed case of maltreatment in each data set were all less than .05, which is to say they were found to not be a meaningful predictor of maltreatment.

## PREDICTING CHILD MALTREATMENT BASED ON RISK FACTORS

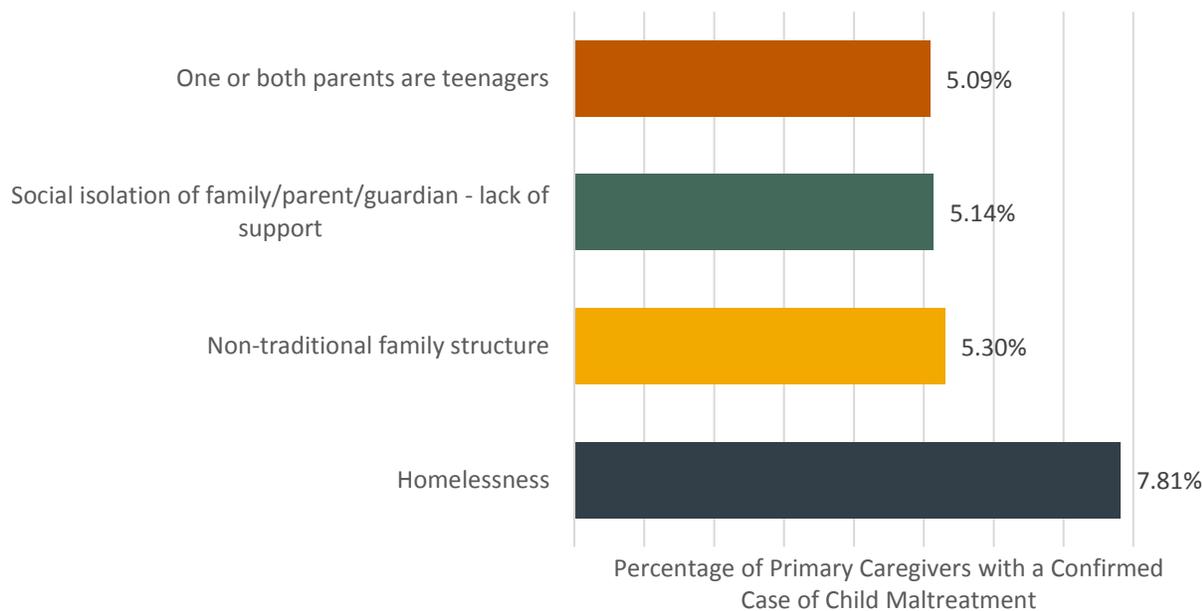
Risk factors were reported for primary caregivers receiving services from PEI only, so results reported in this section do not include primary caregivers from the STAR data set. A total of 10 risk factors were identified and recorded by workers. Thus, these risk factors represent the workers' perceptions of risks for child maltreatment present in the home. Risk factors range from “High general stress level” to “Parent and/child suffers from anxiety and/or depression”. A list of all risk factors can be found in Appendix B.

The three most commonly indicated risk factors were “High general stress level” (indicated in 62% of cases with a risk factor), “Parent/Guardian has inaccurate knowledge and expectations about child development” (31% of cases), and “Non-traditional family structure” (28% of cases). By far the

least commonly indicated risk factor was “Homelessness” (4% of cases). The remaining risk factors were indicated in between 10% and 20% of cases with a risk factor.

The single risk factors most associated with a confirmed case of child maltreatment were “Homelessness”, “Non-traditional family structure”, “Social isolation of the caregiver”, and “Teenage parents”. Figure 10 details the percentages of parents with these risk factors who had a substantiated case of child maltreatment.

**FIGURE 10. RISK FACTORS MOST ASSOCIATED WITH A CONFIRMED CASE OF CHILD MALTREATMENT**



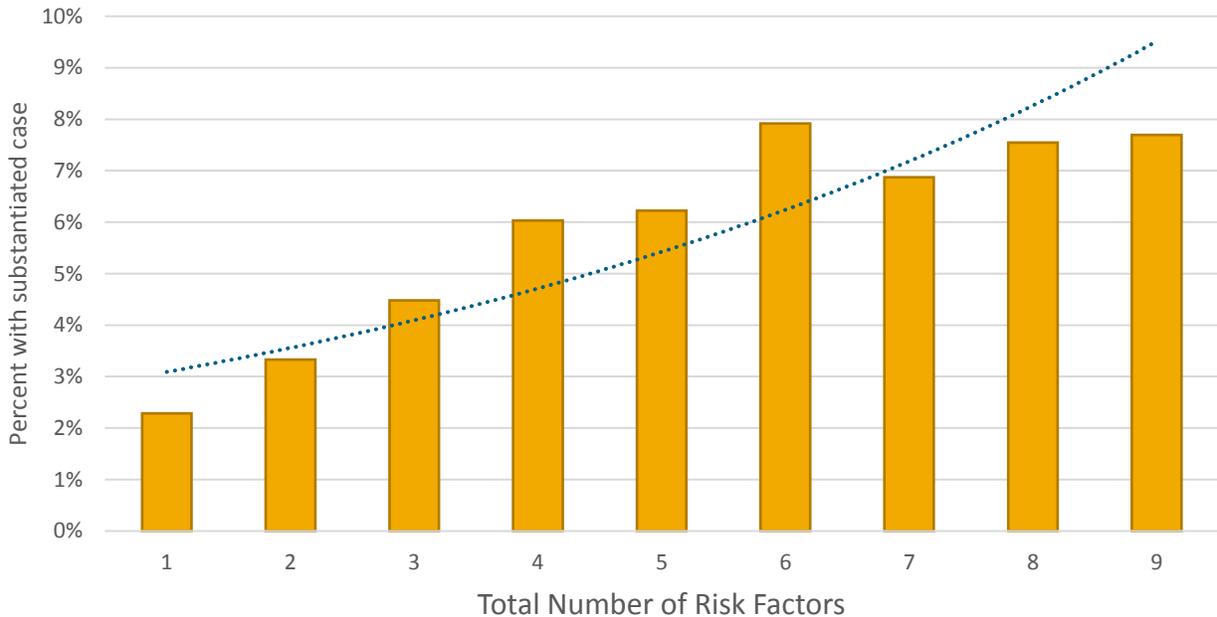
In addition to examining the relationship of single risk factors and their relationship to child maltreatment, combinations of risk factors were examined. There were 200 combinations of risk factors (including a ‘combination’ of only one risk factor) that occurred at least 10 times. Of the top 25 risk factor combinations, 24 combinations had at least three risk factors indicated. Each of the top 25 combinations of risk factors had at least 10% of cases substantiated for child maltreatment, far surpassing the rate for any single risk factor indicated alone.

The most common combinations of at least 3 risk factors:

1. High parental conflict/separation/divorce, Non-traditional family structure - especially Single parent with lack of social support and or a high number of children in the household, and High general stress level
2. Parent/Guardian has inaccurate knowledge and expectations about child development, Non-traditional family structure - especially Single parent with lack of social support and or a high number of children in the household, and High general stress level
3. Teen parent, Parent/Guardian has inaccurate knowledge and expectations about child development, and High general stress level

In fact, there was also a meaningful trend in the association between the total number of risk factors present and the rate of confirmed case of maltreatment, regardless of which risk factors were identified.

**FIGURE 12. PERCENTAGE OF PRIMARY CAREGIVERS WITH SUBSTANTIATED MALTREATMENT CASES BY NUMBERS OF IDENTIFIED RISK FACTORS**



Odds ratio calculations confirm this pattern. Compared to a primary caregiver with one identified risk factor, a primary caregiver with two identified risk factors has a 51% increased likelihood of having a confirmed case of maltreatment, a primary caregiver with three identified risk factors has a 112% increased likelihood of having a confirmed case of maltreatment, a primary caregiver with four identified risk factors has a 181% increased likelihood of having a confirmed case of maltreatment, and a primary caregiver with five or more identified risk factors has a 213% increased likelihood of having a confirmed case of maltreatment. Given this increase in likelihood with each additional identified risk factor, attention to case-worker-identified variables appear to merit attention as an important piece of the prevention efforts.

**Compared to a Primary Caregiver with One Identified Risk Factor, A Primary Caregiver with:**

- Two identified risk factors has a **51%** increased likelihood
- Three identified risk factors has a **112%** increased likelihood
- Four identified risk factors has a **181%** increased likelihood
- Five or more identified risk factors has a **213%** increased likelihood

... of having a confirmed case of child maltreatment.

## CONCLUSIONS

There are limitations to these analyses that must be taken into consideration when interpreting this data. First, there is no comparable group which did not receive prevention services. Thus, there is no means to conclude that the prevention services impacted the rate of maltreatment even though the rate of substantiated cases is extremely low. Another limitation is that there may still be substantiated cases of maltreatment up until a child's 18<sup>th</sup> birthday. Thus, lack of a substantiated case now does not necessarily mean that there will not be a substantiated case as more time passes.

Only 3% of families receiving prevention services also had substantiated cases of maltreatment. This is in line with rates reported by similar state-level programs across the nation. Considering the limitations noted above, one possible conclusion is that the prevention services are working. Another conclusion may be that prevention programs are not serving families at a high risk of maltreatment and thus, substantiated cases are lower.

Analyses also suggest that families with certain risk factors have higher rates of maltreatment. These characteristics include a low annual income, younger parents, parents who are not married, families that are homeless and parents who are isolated. While these factors are commonly associated with child maltreatment, our findings suggest that it is a combination of these factors that increases the likelihood that there will be a substantiated maltreatment case amongst families receiving prevention services. Thus, prevention services should target family units with a combinations of risk factors rather than focus on single risk factors.

Finally, our findings suggest that the Protective Factors Survey does not predict substantiated child maltreatment. The Protective Factors Survey has been used by Texas' prevention programs to measure changes from pre-services to post-services with the assumption that changes in scores would correlate with a reduction child maltreatment rates. However, the Protective Factors Survey does not appear to be able to serve that purpose. Rather, risk factors identified by workers better predicted maltreatment. Thus, it may be beneficial to consider moving to an assessment completed by a worker, rather than client.

## RECOMMENDATIONS

1. Design evaluations of existing programs that allow for a minimum of a comparison group in order to make better supported claims about causality of outcomes.
2. Either supplement or substitute the Protective Factors Survey with a measure that better predicts maltreatment.
3. Utilize a worker-based assessment to triangulate any measures completed by caregivers.

## APPENDIX A: METHODS

### SAMPLE

DFPS merged data from the PEI database and matched it to child maltreatment data in IMPACT. Data included in the sample came was reported in years 2009 to 2015. The first date of intake in the system was September 14<sup>th</sup>, 2008 and the last was May 17<sup>th</sup>, 2015.

The sample included 134,477 primary caregivers from the STAR program and 28,492 primary caregivers from the PEI program. Many caregivers appeared more than once in the initial data pull: 19,461 appeared twice, 2,396 appeared three times and 431 appeared four times in the sample. After eliminating duplicates, 137,068 unique caregivers were in the sample.

### MEASURES/VARIABLES

Data available through the IMPACT and PEI systems were used for the analyses. Table 1 describes each measure and variable in the analysis. Sample characteristics are detailed in this table and presented in a simplified format in Appendix C.

TABLE 1. MEASURES AND VARIABLES USED IN THE ANALYSIS

Measure/Variable	Description
Age	Primary caregiver age was reported in the raw data in years. Age analyses included 156,622 PCG observation years in which the PCG was between the ages of 18 and 100. An additional 2,646 PCG observation years in which the PCG was between 13 and 17 were included in supplemental analyses. 927 PCG observation years in which the PCG's reported age was outside the bounds of 13 to 100 were dropped from analyses. Mean PCG Age was 38.04 years (Range 18 – 92).
Income	Income was reported in the raw data as a factor variable with seven levels (\$0 - \$10,000, \$10,001 - \$20,000, \$20,001 - \$30,000, \$30,001 - \$40,000, \$40,001 - \$50,000, \$50,001 - \$62,999, \$63,000+). Income was reported for PCGs in PEI data only (i.e., STAR demographic did not include income level) resulting in 26,094 PCG observation years of income data. The lowest income level (i.e., \$0 - \$10,000) was by far the most common with 12,769 PCG observation years (48% of all PCG observation years).
Gender	Gender was reported for 134,847 PCGs. Of those, 115,166 (or 85%) were female.
Race/Ethnicity	There were 8 different races (Am Ind/AK Nat, Asian/Oriental, Black-White, Black, Multiple, Nat Hawaii/Pac Is, Unable to Determine, and White) and 3 different ethnicities (Hispanic, Non-Hispanic, and Unable to Determine) reported in the data, resulting in 23 race/ethnicity combinations with at least one PCG representing that group. By far the two most common

	combinations were Multiple/Hispanic and Multiple/Non-Hispanic, each with approximately 40% of all classified PCGs.
Language	There were 4 different PCG languages (English, Spanish, Vietnamese, and Other) reported in the data set. English (approximately 80%) and Spanish (approximately 19%) were the two most common.
Relationship to Target Child	There were 16 (Aunt, Brother, Father, Female Cousin, Foster Father, Foster Mother, Grandfather, Grandmother, Male Cousin, Mother, Other (Non-Related,) Other (Related) Sister, Step Father, Step Mother, Uncle) different relationships to the target child reported in the data set. Mother (approximately 78%) and father (approximately 12%) were the two most common.
Marital Status	Marital status was reported in the raw data as a factor variable with seven levels (Married, Single – Never Married, Divorced, Separated, Widowed, Unknown, and Child – N/A). Analyses of outcomes by marital status did not include the ‘Child, N/A’ (312 family-year observations) and ‘Unknown’ (8,452 PCG observation years) levels, resulting in 150,325 PCG observation years of marital statuses. ‘Married’ was by far the most commonly reported status (43% of family-year observations).
Education	Education level was reported in the raw data as the highest grade level completed. This variable was aggregated into six factor levels (Did Not Graduate Middle School, Did Not Graduate High School, Graduated High School/GED, Some College, College Graduate, and Post Graduate). ‘Did Not Graduate High School’ and ‘Graduated High School/GED’ were the two most common levels, each represented in approximately one quarter of PCG observation years.
Risk Factors	Risk factors were reported in the raw data (only in PEI demographics, not in STAR) as a list of present risk factors. This list was disaggregated for each PCG observation year such that each risk factor was binary coded as present or absent for that year. Total number of risk factors was then calculated as the sum of present risk factors for that year. Participants in the PEI portion of the data set had an average total of 2.12 risk factors (SD = 1.33).
Protective Factor Survey	The Protective Factors Survey (PFS) was designed by researchers at the University of Kansas under support from the FRIENDS National Resource Center to assess changes in the level of protective factors present in families undergoing services related to child abuse prevention. The survey was validated against other related measures and found to be reliable by its designers. PFS scores were reported in the raw data as scaled scores for each of the 20 items (reverse-scored where appropriate) and were reported in 56,094 PCG years (Note: PEI scores were not reported in 2009 or 2010). Four subscale scores (Family Functioning, Social Support, Concrete Support, and Nurturing and Attachment) were calculated as recommended by the scale designers and used to assess pre-test, post-test, and change scores for

	each PEI site, evidence based program, and county. Additionally, subscale scores were examined against rates of confirmed cases of child maltreatment.
Confirmed Cases of Child Maltreatment	The raw data contained Client IDs matched with all Impact IDs for each of 7 years of reported data. Using these matched IDs, variables indicating the presence of any confirmed case of child maltreatment in a given PCG observation year, the total number of confirmed cases of child maltreatment in a given PCG observation year, and the total number of confirmed cases of child maltreatment for each PCG across all years in which that PCG is present in the data were calculated.

## ANALYSIS

After the data was cleaned. Descriptive analyses were conducted to begin to address each of the research questions. Additional analyses, up to and including multilevel logistic regression adjusting for the repeated measures collected on some parents was used to examine the degree to which the Protective Factor Survey and risk factors can predict substantiated child maltreatment cases.

## APPENDIX B: RISK FACTORS IN PEI DATA

Code	Factor	Description
102	High parental conflict/separation/divorce	Current conflict in the family between the parents
103	Teen parent	One or both of the parents are teens
104	Poor parent/child interaction	Parent and child face conflict, yell, do not know how to communicate with each other.
105	Parent/Guardian has negative attitudes/attributions about the child's behavior	Behavior is "bad", does not understand the cause of the child's behavior
106	Parent/Guardian has inaccurate knowledge and expectations about child development	Parent/Guardian does not know how a child may react at a given level of development; will have unreasonable expectations.
108	Non-traditional family structure - especially Single parent with lack of social support and or a high number of children in the household	Family will consist of a single parent, or someone other than the parent as caregiver; may have no social/emotional support; may have a large number of children in the household.
109	Social isolation of family/parent/guardian - lack of support	Family, parent, or guardian may have a lack of social/economic/emotional support.
110	High general stress level	The stress level of the family is high, with conflict or anxiety or uncertainty causing high stress.
111	Homelessness	The family has lost their home; they are living on the street, or in a shelter.
10013	Parent/Guardian and/or child suffers from depression/anxiety	Parent/Guardian and/or child suffers from depression/anxiety