Evaluating Outcomes for At-risk Families Participating in The Family Tree's Positive Parenting Program: A Retrospective Study

Part II: Long Term Outcomes, Summary and Conclusions

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This retrospective study was completed as part of a collaboration between the University of Maryland Ruth H. Young Center and The Family Tree (TFT). TFT staff contributors include Carolyn Finney, Director of Programs and Services, Pat Cronin, Executive Director, the Positive Parenting Program (PPP) staff and other TFT staff who contributed to the planning of the study, development of a logic model for PPP, and discussion of interim findings and future evaluations. The work of RYC staff member Terry Shaw allowed the successful completion of the matching process with CPS records.

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EXECUTIVE SUMMARY

The Family Tree's (TFT) Positive Parenting Program (PPP) is a parent training program designed to help parents and caregivers acquire life skills and parenting skills that promote positive family functioning and strengthen families in order to prevent abuse and neglect and preserve families. According to a program logic model developed with staff and administrators (Interim Report, Appendix A), the underlying assumptions of the program, briefly stated, are that child maltreatment is associated with multiple risk factors, and that by targeting risk factors and enhancing protective factors through group-based skills training, parents will be more likely to provide appropriate care for their children and less likely to maltreat their children, preserving families. Using the TFT PPP manual, family educators conduct a series of modules focusing on Self Awareness, Values and Beliefs, Communication, Stress Reduction and Anger Management (and how stress and anger effect children), Nurturing Children's Self-esteem, Child Development (developmental stages), Managing Children and Discipline, Home Safety and Child Well-being, and Goal Setting (plans to apply the knowledge and skills learned). The PPP logic model posits that by providing these modules, protective factors will be enhanced and risk factors will be reduced; in turn, these improvements will lead to increased child safety and children will be more likely to remain home or, if in out-of-home care, return home. To monitor the intermediate outcomes (protective and risk factors), for the past ten years TFT has collected data on parenting knowledge and skills and self esteem of caregivers prior to beginning the PPP class and again at the end of the 10- to 12- week class, and reviewed the data annually.

As part of TFT's commitment to evaluate PPP, TFT and the University of Maryland have collaborated to conduct a retrospective evaluation of outcomes for families participating in the Positive Parenting Program in Baltimore City from Fiscal Year 2002 to 2007. The first phase of the evaluation utilized existing administrative data and self-report parenting and self esteem measures collected by The Family Tree (TFT) during the course of business to examine intermediate program outcomes, including five protective factors (parenting knowledge and attitudes) and one risk factor (low self esteem) to determine whether change occurred after the PPP intervention, and to identify any group differences by the child's placement status. The second phase of the study combined data from TFT and Maryland's Department of Social Services to examine long term outcomes of child safety, stability, and permanency for families who participated in PPP, comparing first time completers, non-completers, and repeater completers of PPP.

Intermediate Outcomes: Parenting Knowledge and Skills and Self Esteem

The first phase of the study described the characteristics of 2,025 parents and caregivers served by PPP from FY 2002 through 2007 and examined the intermediate outcomes for 1,195 who completed the program and completed the self-report parenting and self esteem measures before and after the intervention. Analysis of Variance with Repeated Measures was conducted to examine the five protective factors (parenting knowledge and attitudes) and one risk factor (low self esteem) to determine whether change occurred after the PPP intervention, and to identify any group differences for families with children in the home compared to families with at least one child in out-of-home care. Several key findings regarding intermediate outcomes were identified, as summarized below.

Protective factors: Do parenting knowledge and attitudes improve? Parents and caregivers' scores on parenting knowledge and attitudes ***improved after the intervention***. At pre-test average scores showed some deficiencies and some strengths, but by post-test scores had moved into the normal range in all of the parenting measures: appropriate developmental expectations, discipline, family roles (less role reversal), empathy, and (less) oppression of power and independence. In addition, parents with a child placed in out-of-home care scored slightly higher on appropriate views of corporal punishment compared to families with children remaining home. Both groups on average had some strengths and some deficiencies in parenting knowledge and attitudes at baseline and moved into the normal range

after intervention on all parenting measures. ***The improvements seen in self-reported parenting knowledge and attitudes among PPP participants are promising, although they cannot be attributed to PPP without a control group***.

Risk factor: Does self esteem improve? Self esteem scores decreased between pre and post test, indicating ***higher levels of self-esteem after intervention***. There was no statistically significant difference between parents with children remaining home and those with children in out-of-home care. However, there was a trend towards lower self-esteem in the out-of-home group, and a trend toward a greater improvement in self-esteem over time in the out-of-home group. ***The improvement seen among PPP participants in self esteem is promising, although this cannot be attributed to PPP without a control group***.

The post-test data, and thus intermediate outcomes data, were only available for parents and caregivers who completed the program, so results may not be generalized to all participants. Comparison of completers and non-completers identified statistically significant differences on a number of demographic characteristics and baseline measures of parenting and self esteem. Program completers were more likely to be slightly older, male, people of color, married or divorced (not single), high school graduates, higher income (in this low-income sample), and court-ordered to participate. Completers scored higher on several parenting subscales at baseline, showing more appropriate family roles (less role reversal) and less oppression of the child's power and independence. At the same time, completers' scores showed less appropriate attitudes toward corporal punishment at baseline compared to non-completers, although both groups scored below average. Completers also reported slightly higher self esteem at baseline, although perhaps not of practical significance. Given these differences, it is particularly important the results from the completers (in this study) not be generalized to non-completers.

Results from phase one of the study suggest that some of PPP's intermediate program goals are being achieved, in that protective factors examined were enhanced and a risk factor reduced among parents and caregivers after participation in the Positive Parenting Program. However, this result only applies to program completers who completed the self-report measures, and it is unknown whether or not the same improvements would be seen among non-completers or non-participants. Also, results are based on self-report measures of the intermediate outcomes, and there is no control group to help rule out other explanations for the improvements. Self-reported changes could reflect a new awareness of socially desirable answers rather than actual shift in attitudes – although this too could be an important first step. Although the findings cannot be attributed to the Positive Parenting Program with this research design (i.e. no control group), the apparent improvement on these factors is promising. Future evaluation using direct observation and a stronger research design could help corroborate the findings.

Long Term Outcomes: Child Safety, Stability, and Permanency

The second phase of the study examined the long-term outcomes PPP seeks to affect – to increase child safety, stability, and permanency – for 1,776 PPP participants with adequate identifying information in TFT records to search child welfare records for this data. Examination of long-term outcomes was possible for participants who did not complete the program as well as those who did. The study assesses the relationship between service completion (first time completer, repeater completer, and non-completer) and the risk of having subsequent referrals to CPS for child abuse and neglect (safety), removals from home (stability), and reunification, if children were in out-of-home care (permanency). Survival analysis techniques – including Life Tables, Kaplan-Meier survival curves, and Cox Proportional Regression Models – were used to evaluate the occurrence and timing of the subsequent events (referrals, removals, and reunification) during a 24 month follow up period, and to identify predictors of the hazard of these events occurring.

Are children safer when parents complete PPP? Most caregivers who participated in PPP (84%) did not experience subsequent referrals to CPS, suggesting that in most cases children of PPP participants maintain a level of safety after participating in PPP. The current study cannot, however, compare participants to parents who have not attended any PPP classes to see if the PPP children are safer. The study does compare program completion status – first time completers, non-completers, and

repeater completers. Results of bivariate analysis suggest that first time completers had a lower risk of referral to CPS during the two years following PPP compared to non-completers. However, completion status is not a significant predictor of the risk of referral in a multivariate model. History of prior CPS referrals and race predicted hazard of subsequent CPS referrals. When the caregiver had a history of referrals, the odds were 12 times greater that a child would be referred to CPS in the two years after beginning PPP compared to those without prior referrals. Also, the hazard of referral for caregivers who are African American or black is 1.7 times greater than White and other ethnicity caregivers in the two years after PPP participation. ***Greater safety among children in the completion group is promising. However this outcome cannot be attributed to the PPP program*** *because there is no statistically significant relationship between completion status and hazard of referral once other variables are included in the equation.*

Are children more likely to experience stability, remaining home, when parents complete the PPP program? Most caregivers who participate in PPP (94%) did not experience a child removal from home during the two years after beginning a PPP class. Results suggest that there is no significant difference in the hazard of removal from home for children whose parents or caregivers complete the program compared to those who do not or repeat and later complete the program, although there is a trend toward first-time completers having fewer removals. Having a history of prior referrals was the only significant predictor of removals from home in a multivariate model. When the caregiver had a history of referrals, the odds were 13x greater that a child was removed from home in the two years after beginning PPP compared to those without prior referrals. ***The results do not support a relationship between PPP completion and child stability in the home.***

Are children more likely to experience permanency when parents complete the PPP program? Based on a limited subsample of cases with adequate data available, less than one-third of families who reported they had a child in out-of-home care experienced reunification with a child after beginning PPP. Results suggest no significant difference in the likelihood ("hazard") of reunification during the two years after beginning PPP. No significant predictors were identified. ***The results do not support a relationship between PPP completion and child permanency.*** *These results should be considered exploratory and do not represent all PPP families with children in out-of-home care.*

Are improvements in intermediate outcomes also evident in this sample? The sample for phase two of the study was different than the first, excluding some participants from phase one due to a lack of identifying information and including non-completers and some participants for whom self-report measures were not available. Because the sample is somewhat different, intermediate outcomes were re-examined for the participants who completed the program and completed self-report measures – a subsample of the sample in phase one of the study. ***Consistent with the first phase of the study, participant scores improved on the five parenting scales and the self-esteem measure.***

Consistent with phase one of the study, a comparison of program completers and non-completers found that compared to non-completers, completers were more likely to be slightly older, male, African American, high school graduates, higher income (over $10,000), court-ordered, and referred by parole and probation. Completers were also more likely to report less appropriate attitudes about corporal punishment prior to intervention (although both groups scored below average) and report slightly higher self esteem prior to intervention (perhaps not of practical significance). These group differences must be taken into consideration when examining the results. Most of these variables were included as control variables in the analysis to rule them out as possible explanations for differences in long-term outcomes.

Results from phase two of the study do not provide evidence that PPP's long-term program goals are being met. Findings regarding child safety are most promising. Rates of child safety appear to be relatively high, and completers have less risk of CPS referral than non-completers, but the safety cannot be attributed to PPP. In fact, it is having a history of prior referrals that strongly predicts the hazard of subsequent referrals. History of referrals also predicts the risk of subsequent removals from home. Results from the study do not support a relationship between PPP completion and child stability (lack of removals) or permanency to reunification, yielding no statistical relationship even in bivariate analyses.

Results must be interpreted cautiously, because this study cannot assess whether PPP families have more safety, stability, and permanency than families who do not participate in PPP at all.

Cautionary Notes

As a retrospective study, we are limited by the data available and the non-experimental study design. The non-randomized groups used in this study makes it impossible to rule out alternative explanations that have not been measured – such as the possibility of participants receiving other services that may have impacted family outcomes. With no control group available in the study, and measures only available for program completers, even the positive findings regarding intermediate outcomes cannot be attributed to the Positive Parenting Program. The second phase of the study does offer a comparison of completers and non-completers on long-term outcomes, which is an improvement in methodology. However, a group of parents who never participated in PPP is not available for comparison, so it is unclear whether PPP participants, regardless of completion, fare any better than non-participants. Also, the retrospective data did not contain adequate identifying information for all participants, making it impossible to search for all PPP participants in the DSS database. Even for those participants included in the search, the data may represent an undercount of referrals, removals, and reunification due to missing or incorrect identifying information. With these limitations in mind, results from the current study cannot be considered definitive.

Summary and Conclusions

This retrospective evaluation of the Positive Parenting Program explored the program's impact on intermediate and long-term outcomes the program seeks to achieve. Results suggest that the intermediate program goals are being achieved. Parenting knowledge and attitudes and the caregivers' self-esteem each improved after completing the PPP program. These results are promising, but the study design prohibits us from attributing the results to PPP. Results from the study do not provide evidence that long-term goals are being met. Child safety appears to be relatively high during the two years after beginning PPP, and program completers have somewhat better survival times (less risk of referral to CPS) during that time. However, the difference cannot be attributed to PPP participation because completion status is not a significant predictor when multiple factors are considered. Child stability is also high during the subsequent two years, and there is a trend toward a difference, but a statistically significant difference is not seen between completers and non-completers. Results provide no evidence that PPP participation is related to child permanence.

Given TFT's commitment to evaluating and improving the PPP program to meet their goals, this study takes an important step in assessing parenting knowledge and attitudes (protective factors), parent self esteem (risk factor), and the safety, stability, and permanency of children in families served by PPP. Based on the findings from the current study, several recommendations are made to continue to improve services to families while enhancing evaluation methods to provide a more reliable assessment of PPP's impact on children and families.

Evaluating Outcomes for At-risk Families Participating in the Positive Parenting Program: A Retrospective Study

Part II: Long Term Outcomes, Summary and Conclusions

Results from the collaborative study examining outcomes for high-risk families participating in TFT's Positive Parenting Program are presented in two parts. The first part, presented in January 2009 in the Interim Report, focuses on intermediate outcomes for families who completed PPP. In brief, families who completed PPP and responded to both pre and post tests expressed more positive parenting attitudes and better self esteem after completing PPP compared to their baseline scores. The Interim Report contains a description of PPP, the logic model for PPP, details about the methods and results for the first phase of the study examining intermediate outcomes, and references. The second phase of the study, presented in the current report, examines long term outcomes of child safety, stability and permanency for children whose parents or caregivers participated in PPP. Once results are presented and discussed, a brief summary of both intermediate and long-term outcomes is provided and conclusions presented.

Long Term Outcomes: Examining Child Safety, Stability, and Permanency Outcomes for Families Participating in the Positive Parenting Program

The second phase of this retrospective study uses administrative data from The Family Tree and from the Department of Human Resources Social Services Administration (DHR/SSA, the state child welfare agency) to examine the safety, stability, and permanence of children whose parents participated in the Positive Parenting Program (PPP) during a six year period. More specifically, the study examines the relationship between service completion and subsequent CPS referrals, removals from home, and children returning home to their parents or caregivers (reunification) in families at risk for child abuse and neglect who participated in the Positive Parenting Program (PPP). The study examines the occurrence and timing of these events during the 24-month period after parents begin the parenting program to help assess whether PPP is meeting its goals to strengthen families and prevent child abuse and neglect. As noted, this study is conducted through collaboration between The Family Tree and the Ruth H. Young Center for Families and Children at University of Maryland, with data made accessible by the DHR/SSA.

Background

The Family Tree's (TFT) Positive Parenting Program (PPP) – and other prevention programs like it – aims to enhance the knowledge and skills of parents and caregivers to strengthen families and prevent child abuse and neglect in high risk families. Child welfare agencies often help fund prevention programs and refer families who have been investigated for maltreatment to agencies like TFT for services to reduce the risk of future maltreatment. However, not all families at risk of child maltreatment receive services, not all families who begin services complete them, and evaluation of program outcomes tends to be limited. Child welfare agencies report a substantial number of repeated reports and recurrence of maltreatment (repeated substantiations) or placements, such as the 22% re-referral rate and 7% recurrence found in a study of eight states (Fluke, Shusterman, Hollinshead, & Yuan, 2008). The extent to which participation in parent training programs such as PPP can reduce the rate of subsequent referrals to CPS for child abuse and neglect – and thus promote child safety among high-risk families – is unclear. Understanding the impact of parenting services on families at risk for child maltreatment is critical to the prevention of future child abuse and neglect. The Family Tree and UMB are partnering to understand the impact of PPP on child safety, stability, and permanency outcomes in an effort to evaluate the ability of the program to meet its goals to strengthen families and prevent child abuse and neglect.

Purpose of the Study

The purpose of the second phase of the study is to utilize existing data, documents and records to evaluate the safety, stability, and permanency outcomes experienced by children in families participating in the PPP program in Baltimore City over a six year period (2002-2007) in an effort to evaluate whether the parent training program is meeting its goals to prevent future maltreatment.

Specifically, the study examines the relationship between service completion (first time completion, completion after repeating the class, and non-completion) and the "hazard" of families having three outcomes: subsequent child abuse and neglect referrals, removals from home, and reunification with the parents or caregivers from whom children were removed (for families with children in out-of-home care at intake).

The study examines the proportion of families experiencing a CPS referral, removal from home, or reunification during the 24-month period after beginning to participate in PPP, and the timing of these events. The study also tests whether or not demographics, history of prior referrals, and parenting related characteristics predict this subsequent child welfare involvement among families served. Finally, the study assesses whether the completion of services is associated with a child experiencing these subsequent events.

Literature Review

Occurrence and Timing of Maltreatment Reports

Although a key goal of parent training programs is to reduce child maltreatment, few studies have measured subsequent child maltreatment outcomes. Results from a small group of studies showed fewer maltreatment incidents after the intervention (Holzer, Higgins, Bromfield & Higgins, 2006). However, one study evaluating a state's family preservation and support services–including parent education classes–found no significant differences between program completers and non-completers in preventing future maltreatment cases (Chaffin, Bonner, & Hill, 2001). The researchers also found that programs addressing basic needs and providing a mentoring approach had lower rates of subsequent maltreatment compared to parent education and family preservation programs.

Numerous studies examine re-referral and recurrence (repeat substantiation) rates for families referred to child protective services. Rates tend to vary across jurisdictions, with higher rates in urban areas. Findings from a study of eight states and approximately 500,000 children showed that 22% of children were re-reported to child protective services within 24 months, and for 7% the re-report was substantiated (Fluke, Shusterman, Hollinshead, & Yuan, 2008). Studies of re-referrals in single states have found higher rates of re-referral within a shorter time period, with 29% in one Western state (English, Marshall, Brummel, & Orme, 1999; in Washington) and 27% in a small Eastern State (Connell, Bergeron, Katz, Saunders, & Tebes, 2007; in Rhode Island) during the 18 months following the index report. Similarly, studies of recurrent substantiated maltreatment in single jurisdictions have found much higher rates of recurrence compared to the eight-state study, including 7% within 6 months and 27% within two years in a southeastern state (Florida; Lipiena & Forthoferb, 2004) and 25% in Baltimore City during the five years following the index report (DePanfilis & Zuravin, 2002).

The highest risk of re-referral occurs within 6 months of the first investigation disposition (Connell, Bergeron, Katz, Saunders, & Tebes, 2007; English, Marshall, Brummel, & Orme, 1999; Fluke et al., 2008). Similarly, recurrence of a substantiated report is most likely to occur during the first four to six months after substantiation (Fluke et al., 2008; Lipiena & Forthoferb, 2004).

Predictors of Maltreatment Reports (Child Safety) among High-Risk Families

Studies of parent training programs such as PPP have not assessed predictors of child welfare involvement after program initiation. One study did, however, examine predictors for families served by a family preservation program in one state (Unrau & Coleman, 2006). Researchers found that family income, family size, and the child's learning disability predicted the hazard rate of subsequent child abuse and neglect after families participated in the program (Unrau & Coleman, 2006). Similarly, Fluke and colleagues (2008) found that learning disability predicted re-reported and substantiated re-reports in families involved with child welfare services. Results from other studies examining repeat reports and repeat substantiated reports among child welfare involved families are consistent with these findings and offer other potential factors to consider for families following an intervention. These factors, including

demographics, parenting characteristics, maltreatment related variables, and service related variables, are summarized below.

Demographic characteristics have been associated with future child welfare involvement in several studies. Family income predicted the hazard rate of child maltreatment following participation in a family preservation program in one study (Unrau & Coleman, 2006). Similarly, family poverty or financial difficulty was the strongest predictor of re-referral among child welfare cases in another state (Connell, Bergeron, Katz, Saunders, & Tebes, 2007). In another study, having a lower proportion of quarters with employment and the parent's perception of hardship were associated with subsequent neglect referrals, although household income was not (Slack, Holl, McDaniel, Yoo & Bolger, 2004). Race has been linked to recidivism, such that white and mixed race children are more likely to be re-reported and substantiated on re-report than children of other races and ethnicities (Fluke et al., 2008). Slack and colleagues (2004) also found that age of youngest child predicted neglect.

Parenting characteristics also predict child safety in several studies. Parenting skills – a key protective factor in the maltreatment literature – predicted re-referrals to child protective services after an initial report (English, Marshall, Brummel, & Orme, 1999). In addition, low parental warmth and physical discipline (spanking) predicted neglect reports (Slack et al., 2004). Parenting stress was correlated with subsequent child neglect, but was not significant in a multivariate model predicting neglect reports (Slack et al., 2004). Although self-esteem has not been examined in the recidivism literature, low self-esteem is a risk factor for both child abuse and neglect (Stith et al., 2009) and affirming parent self-worth was an important theme affecting parenting outcomes for child welfare involved parents (Russell, Gockel, & Harris, 2007).

Maltreatment related variables also predict further child welfare involvement. Most notably, the number of prior CPS referrals was a strong predictor of re-referral to CPS in a study examining 49 risk factors in a sample of over 12,000 families (English, Marshall, Brummel, & Orme, 1999). More generally, prior CPS involvement (Slack et al., 2004) and substantiation of the index report (Lipien et al., 2004) were also significant predictors of subsequent child welfare involvement. Re-reports to child welfare services are similar for substantiated and unsubstantiated cases, according to findings from a nationally representative study (Kohl, Jonson-Reid, & Drake, 2009). Some localized studies have, however, found differences in risk of re-referral among children with substantiated and unsubstantiated reports (Connell, Bergeron, Katz, Saunders, & Tebes, 2007; Fuller & Nieto, 2009). Families who had a child placed in out-of-home care have increased risk of re-referrals (DePanfilis & Zuravin, 2002).

Service related variables

Receipt of services has also been linked to child welfare involvement, although findings are mixed. Children involved in a child protection investigation who received post-investigation services – including family preservation, foster care placement and other services – were more likely to have re-reports and substantiated re-reports than children who did not receive services in an eight-state study (Fluke et al., 2008). However, in a study involving Baltimore City researchers found that families who attended services identified in the case plan had lower recurrence rates (DePanfilis & Zuravin, 2002).

Timing and Predictors of Reunification

For children in out-of-home care, the likelihood of reunification is highest immediately after entering care, declines, again increases between 10 and 12 months after entry, then declines considerably over time (Connell, Katz, Saunders, & Tebes, 2006). Child characteristics that predict likelihood of reunification include age, race, behavioral/emotional problems, and disability (Connell et al., 2006). Reunification rates were lowest for infants, African American children compared to white children, and children with a disability or emotional or behavioral disorder. Case-related characteristics predicting likelihood of reunification include having two or more prior removals (compared to no removals), being removed because of behavioral problems, and being placed in a non-relative foster home, while children who were sexually abused were less likely to reunify than neglected children (Connell et al., 2006). Family factors are also associated with likelihood reunification. Working at the time of placement is

associated with greater likelihood of reunification while having welfare benefits and losing them after the child is placed is related to less likelihood of reunification (Kortenkamp, Geen, & Stagner, 2004).

Knowledge Gaps

As noted earlier, only a few published studies examine the impact of parenting training programs on child safety, stability or permanency in populations at risk of maltreatment (e.g., Holzer et al., 2006; Johnson et al., 2008), and findings have been mixed. There is some evidence that attending services outlined in a case plan – which could include any of a variety of services – reduces the risk of recurrence in Baltimore City (DePanfilis & Zuravin, 2002). The Family Tree is committed to understanding the impact of its own parent training program (PPP) on the long term goals of achieving child safety, stability, and permanency in families in Baltimore City. This study examines the occurrence and timing of subsequent child welfare involvement and whether or not completion of PPP is a significant predictor of the hazard of subsequent child welfare involvement, including CPS referrals, removals from home, and reunification. The study controls for other predictors of subsequent child welfare involvement identified in the literature.

Study Questions (Phase II)

The study seeks to answer the following questions:

1. *Child safety.* What are the child safety outcomes in families completing and not completing the program during the 24 months after beginning PPP?
    a. What proportion of the families *completing, not completing, and completing after repeating* the Positive Parenting Program were the subject of referrals to CPS in the 24 months after beginning the program? What is the *median number of days* to a CPS referral?
    b. Did the child safety outcome differ for parents who completed the program compared to non-completers and repeater completers?
    c. Does PPP completion status predict hazard (risk) of subsequent CPS referrals? What factors predict hazard of subsequent CPS referrals?

2. *Child stability*. Are families maintaining the children in their homes during the 24 months after beginning PPP?
    a. What proportion of the families *completing, not completing, and completing after repeating* the Positive Parenting Program maintain their children in the home (e.g. do not have any children subsequently removed from home) in the 24 months after beginning the PPP program? What is the *median number of days* to a subsequent removal?
    b. Did the outcome differ for parents who completed the program compared to the non-completers and repeater completers?
    c. Does PPP completion status predict the hazard (risk) of subsequent child removals from home? What factors predict hazard of subsequent removals from home?

3. *Child permanency.* For families in which at least one child was in out-of-home care, are children being reunified with their parent or caregiver during the 24 months after beginning PPP?
    a. What proportion of the families *completing, not completing, and completing after repeating* the Positive Parenting Program subsequently had children returned home? What is the *median number of days* to a subsequent return?
    b. Does the outcome differ for parents who completed the program compared to those in the non-completing group?
    c. Does PPP completion status predict the “hazard” (likelihood) of subsequent reunification? What factors predict subsequent reunification?

Methods

Participants

The sample for the current study includes parents and caregivers who participated in TFT's PPP between Fiscal Year 2002 and 2007 and their children. PPP serves a population of families at high risk of future maltreatment, including families referred by child protective services, the department of justice, and some self-referrals; some families have been involved in child welfare services while others have not. Inclusion criteria for this phase of the study were as follows: caregivers participated in PPP between 2002 and 2007; the caregivers name was available in the attendance log; and some additional identifying information was available to include in the CPS match process (i.e. last four digits of social security number, race, gender). Caregivers were excluded from the sample if they did not have adequate identifying information to search the DSS database. This retrospective study was conducted with approval from the University of Maryland Institutional Review Board and included procedures to protect participants' identifying information, used only to search CPS records.

A total of 1,776 caregivers served by PPP between 2002 and 2007 (Table 1) had adequate identifying information for the CPS match process and were included in the sample. This includes 1,484 (73%) of the 2,025 caregivers from the interim study sample, or 880 (74%) of the 1,191 completers, and an additional 292 caregivers from attendance logs who had not completed any of the self-report outcome measure instruments (i.e. AAPI and Rosenberg Self Esteem) and thus were not included in the agency's outcomes file. The majority of the caregivers in the current sample (66%) completed the PPP class the first time, a small portion (4%) repeated after completing the class, and 30% did not complete the class. (Note that this proportion of completers is higher than seen in the larger sample used in the interim report, but cannot be directly compared and may not be representative of the entire PPP population).

The characteristics of the 1,776 families in the current sample are presented in Table 2. Similar to the first phase of the study, participants were almost 34 years old on average, and the majority of caregivers were biological parents (96%), women (68%), African American or black (75%), single (63%), and very low income (66% <$10,000 per year, and 14% between $10,000 and $18,999). Education level varied, with more than half reporting they had completed high school (37%) or attended college (20%),9% reporting they had completed a GED, and one-third reporting they did not complete high school. Many of the families were involved with governmental agencies. Although 15% of the caregivers self-referred to PPP, two-thirds were referred to PPP by the Department of Social Services (including CPS and foster care) and another 18% were referred by parole and probation. According to parent self-report at intake, at least one child in the family was placed in out-of-home care for close to two-thirds (62%) of the families who reported this information. Also, 62% of the caregivers were court ordered to attend the PPP class.

Procedure

This retrospective evaluation of child safety, stability, and permanency outcomes for families participating in PPP involves the use of existing administrative records from The Family Tree and from DHR/SSA. After obtaining approval, data from The Family Tree's records were used to search for the families in the DHR/SSA database to determine whether the families served by PPP were referred to CPS for child abuse and neglect, the date of each referral, and disposition of such reports; any removals from home and associated dates; and any reunifications and associated dates. The confidentiality of clients was protected following a detailed plan approved by the University of Maryland's Institutional Review Board (IRB).

TFT administrative records. As part of ongoing internal record keeping, TFT has collected identifying information and demographic information for families participating in PPP and maintained this information in intake forms, attendance logs, and individual case records, and a de-identified administrative database. In preparation to match PPP clients with any cases in the child welfare information system, names from the attendance log were matched with demographic information exported from the agency's outcomes data file, following the procedure approved by the IRB. When

complete data were not included in electronic form, hard copy case records were searched to obtain additional information or to confirm that these data were not available.

DHR/SSA administrative records. A search of the child welfare agency information system was conducted to obtain selected data elements for all PPP clients included in the sample and their children. Family is the unit of analysis, so the outcomes – CPS referrals, removals, reunifications – were identified if associated with the parent or caregiver and any child in the family. The program is intended to address parenting knowledge and skills, which theoretically should impact the parent directly and all children in his or her care indirectly. The following information was obtained for each family:

- Child abuse and neglect reports: the dates of any maltreatment referrals (before, during, or after participation in PPP) for the family (based on parent or caregiver name), investigation dates, the type of alleged maltreatment, and disposition status (i.e. indicated, unsubstantiated, unfounded).
- Placements in out-of-home care (removals): the dates of any removals from home for any child in the care of the parent or caregiver served by PPP.
- Exits: the dates and exit reasons for any children in the PPP families for whom a removal took place.

Outcome Measures

Child safety, stability, and permanency were measured as indicators of long-term outcomes of the parenting program, each measured for a two year period after beginning the PPP program. Child safety is conceptualized as having no subsequent referrals to the child welfare agency after beginning the PPP program, for those two years. Child stability is conceptualized as having no children removed from home during those two years. Child permanency is conceptualized as having one or more children returned home during the two years after beginning the program. Additional details about the data preparation and definition of these three outcome measures are described below.

Data preparation for long-term outcomes. PPP participants were matched to CPS records to determine whether any referrals for abuse or neglect, removals from home, or (if a child in out-of-home care) reunifications occurred for children of the identified caregiver. These data were de-identified and a unique record formed for each caregiver containing the history of referrals, removals, and returns home. The de-identified data were merged with selected demographic information and scores on the AAPI and Rosenberg, collected by PPP. Once merged, the PPP start date and the date of the first subsequent event (referral, removal, return home) were used to calculate the number of days to the first occurrence of the event after beginning PPP for each outcome (the time variable). A status variable was also created for each case to indicate whether the event had occurred (1) or was censored (0). Censored cases included those in which the event did not occur during the 730 days and those in which the case was withdrawn from the dataset at a specific point in time if they no longer were eligible for the event (e.g. for time to referral, a case in which a child was removed after 230 days would be "censored" at 230 days, and no longer included in the hazard calculation after that point in time).

Child safety outcome. Child safety was assessed as the number of days each participant "survived" without experiencing a referral to CPS for child abuse or neglect after beginning PPP. The number of days to the *event* – first CPS referral – was entered as the *time* variable in the survival analysis. Each family was followed forward for two years following the date they began PPP in order to follow the families for the same amount of time (including those beginning PPP in 2007, for whom data were available through June 2009). Cases were "censored" if they were not referred to CPS during the 730 days, and censored if a child was removed from home at some point during the two year period, as they were no longer at risk of re-referral.

Child stability outcome. Child stability was assessed as the number of days each participant "survived" without a child being removed from home after beginning PPP. The number of days to the event – first removal – was entered as the time variable in the survival analysis. Each family was followed forward for two years following the date they began PPP in order to follow the families for the same

amount of time (including those beginning PPP in 2007, as data were available through June 2009). Cases were "censored" if they were not referred to CPS during the 730 days.

Child permanency outcome. Child permanency was assessed as the number of days until a child was reunified with the parent or caregiver. Date of exit from care and an exit reason of reunification were used to identify the occurrence of the event (reunification) and the timing. The number of days to the event – first reunification after beginning PPP – was entered as the time variable in the survival analysis. Unlike the other two outcomes, "survival" without a return home indicates a negative outcome while the "hazard" or risk of return home is considered a positive outcome. Each family was followed forward for two years following the date they began PPP in order to follow the families for the same amount of time (including those beginning PPP in 2007, for whom data were available through June 2009). Cases were "censored" if they did not exit care during the 730 days, and censored if a child exited for a reason other than reunification (i.e. return to relative, adoption, other reasons) during the two years, as reunification was no longer an option for those cases. Although many studies combine reunification with return to family, this was not seen as an appropriate option because the intervention specifically addresses the parent or caregiver from whom the child was removed.

Predictor and Control Variable Measures

The predictors identified in the literature and PPP logic model that are also available in the data set were examined, including demographic characteristics, history of prior CPS referrals, parenting characteristics, and program completion. *Demographic characteristics* – including caregiver age, race, gender, and household income – were collected on the PPP intake form and entered into a data file for administrative purposes prior to this study. Hard copy files were searched to provide more complete data. Race was dichotomized to compare African American caregivers to all other ethnicities, most of whom were White. Caregiver age and household income were entered as continuous variables. *History of CPS referrals* was defined as having one or more prior referrals to CPS alleging child abuse or neglect (1) or not having a history (0), as determined through the matching process with DSS records.

Parenting characteristics were also entered as predictors both to assess their contribution and to act as control variables when assessing whether or not program completion predicts hazard of subsequent child welfare events. In this study parenting knowledge and attitudes are considered protective factors related to skill acquisition, and thus included as predictors of referral. Parenting attitudes were assessed using baseline scores from each of five subscales from the AAPI: empathy toward the child, appropriate developmental expectations, attitudes toward corporal punishment, appropriate family roles (role reversal), and oppression of power and independence. In addition, caregiver self-esteem, a risk factor for maltreatment included in PPP's logic model, was entered as a predictor. Specifically, baseline scores on the Rosenberg self-esteem scale were used.

Completion of the program was operationalized with three values indicating that the parent did not complete the program, completed the program the first time, or completed the program after repeating the program. Data from agency attendance logs, entered into a data file by agency staff, were reviewed and assigned a code based on the number of classes attended by each person and whether or not the first class was "completed", and if not then whether or not a subsequent class was completed.

Placement status of the children at intake to PPP was used as a selection variable for the permanency analyses. Placement status is a dichotomous variable available in the PPP outcomes data file, including "children are in the home" or "at least one child is in out-of-home care". The research team planned to also enter this variable as a control variable in the safety analysis, following the precedent of DePanfilis & Zuravin (2002); however, the data were missing for many families and did not match the DSS records closely, calling the reliability of the measure into question.

Data Analysis

Survival analysis techniques were used to examine the presence and timing of future referrals to CPS for child abuse or neglect, removals from home, and children reunified with their parent or caregiver

during the 24 month follow up period, and to identify predictors of the hazard of these events occurring. Specifically, data were examined using Life Tables, Kaplan-Meier survival curves, and Cox Proportional Regression Models. The "starting point" in each analysis was the date of the first PPP class they attended. A "status" variable indicates whether or not the "event" (i.e. the first subsequent CPS referral, removal, or exit to reunification) occurred during a two year period after beginning participation in PPP. The time to the "event" (i.e. the event date minus the starting point date) was calculated for each caregiver in days, and also converted to months.

Using survival analysis procedures, each participating family was followed forward in time to determine the proportion of families who were referred to CPS for child maltreatment after beginning the intervention, the median time to recurrence, and whether or not there is a difference between families who complete the program and those who do not. Similarly, we determine the proportion of families in which one or more children were removed from home after beginning PPP, the time to removal, and whether or not there is a difference based on program completion status. Finally, for families with at least one child in out-of-home care, we observed the proportion of families in which one or more children were reunified, the time to exit, and whether or not there is a difference between families based on program completion status. As noted earlier, cases were "censored" (withdrawn) from the analysis if the family was no longer at risk for the event; that is, they were kept in the analysis until the point at which the event was no longer applicable to them, then withdrawn (e.g. no longer at risk for CPS referral because child was removed, or no longer could be reunified because child exited for other reason).

Life tables were produced for each outcome, including a life table for all families and another life table controlling for program completion status. Life tables allow examination of the proportion and timing of the event in monthly increments, as well as patterns of risk and survival. As part of this form of survival analysis, a test assessing whether or not a statistical relationship exists between program completion and the hazard of the event was performed.

The Kaplan-Meier procedure was then used to more precisely estimate the proportion and length of time (i.e. in days rather than months) to the events after PPP participants began the program. The procedure produces a survival curve and tests for a statistical relationship between program completion and the average survival distributions for each. The estimate means, cumulative survival function and hazard function is presented for each outcome in the Appendices.

A Cox Proportional Hazards Survival model (Cox Regression) was used to analyze the time to event and proportion of families experiencing the events while accounting for co-variates. The Cox procedure tests a set of characteristics to determine whether or not they predict the hazard of the event occurring. More specifically, the analysis examines whether or not the baseline survival curve is significantly different when the predictor variables are added. Because the Cox regression procedure requires complete data for all variables in the model, the predictive model is limited to those caregivers with data for all predictors, in addition to the time and event variables. Two models are run. The initial model includes the complete set of possible predictors, selected from the literature and logic model. A final model is run including only those factors that were significant in the initial model, allowing for the inclusion of a larger portion of the actual sample.

In Cox Proportional Hazards Regression, the analysis tests the null hypothesis that all parameters=0, in other words that the predictor variables have no effect on the hazard rate for the outcome variable. As is common in social services research, in this study p-values of less than .05 were interpreted to mean that the null hypothesis can be rejected, which would suggest that the model of predictors is related to the outcome variable. For significant models, p-values for individual predictors are examined to identify which variables are significant predictors of the hazard rate for CPS referrals and the other outcome variables. The Cox Regression procedure assumes that the hazard rates are proportional for the groups; this assumption was tested with LML models and by running a Cox Regression with Time Varying Co-variates.

Results

This study follows families forward for two years after beginning the 10-week PPP program to examine the child safety, stability, and permanency outcomes for families in the sample, including caregivers who completed the program (first time completers), completed after repeating (repeater completeres), and those who did not complete PPP (non-completers). Results from the life table analysis, Kaplan-Meier survival analysis, and Cox-regression were examined to determine the proportion of children experiencing subsequent CPS related events during the 24 months after beginning the PPP class, the length of time to these critical events, and the predictors of these events. The "events" for this study, examined in separate analyses, include referrals to CPS for child abuse or neglect (child safety), removal of one or more child from home (child stability), and reunification of one or more children in the family (child permanency) for families with at least one child in out-of-home care.

Prior to conducting the survival analyses, the sample was examined to determine whether the program completion groups differed on a series of demographic characteristics and baseline scores for the parenting measures. These findings are presented below, followed by findings regarding child safety, stability and permanency.

Differences in Characteristics by Program Completion

Results suggest that parents or caregivers with the following characteristics are somewhat ***more likely to complete the program****:*

- *Older (slightly)*
- *Male*
- *African American*
- *High school graduates*
- *Higher income(not <$10,000)*
- *Court-ordered*
- *Referred by parole and probation*

- *Report less appropriate attitudes about corporal punishment prior to intervention, although both groups scored below average.*

- *Report slightly higher self esteem prior to intervention, although perhaps not of practical significance.*

Differences in Characteristics by Program Completion Status

The sample was divided into three groups based on whether or not the caregivers completed the class: first-time completers, repeater completers, and non-completers. The groups – to be compared later on outcome measures – were examined to detect any pre-intervention differences, which must be taken into consideration when interpreting the findings regarding outcomes (Table 2). Similar to the sample from the interim report, completers were, on average, several years older and more likely to be male, African American, high school graduates, and higher income, compared to non-completers. In addition, repeater completers, followed by completers, were more likely to be court-ordered to attend PPP classes, compared to non-completers. Caregivers referred by parole and probation were more likely to be repeater completers or first time completers than non-completers, while those referred by DSS and self-referred were less likely to complete the PPP class. There were no statistically significant differences among the groups regarding marital status, relationship to child, child placement status, or the proportion of children with special needs.

The three groups had similar scores on several AAPI scales prior to intervention, including developmental expectations, empathy towards the child, role reversal (appropriate parent-child roles) and oppression of the child's power and independence. (Note that the *interim* sample did show a difference in role reversal and oppression of the child's power and independence). As seen in the interim report, there was a statistically significant difference among groups on discipline (p=.002) and self esteem (p=.006) at baseline. First time completers scored significantly lower than non-completers on attitudes toward corporal punishment and discipline (p=.002), indicating less normative attitudes, although both groups were in the range of some strengths and some deficiencies. First time completers scored lower than non-completers on the self-esteem scale (p=.004), indicating higher self esteem, although the practical significance of the difference is minimal.

Descriptive Statistics: CPS Matches

Results from matching the PPP participants to the CPS records showed that 922 (52%) of the 1776 PPP caregivers in the sample were referred to CPS for child abuse or neglect at some point over the past 20 years, through June 2009. Descriptive statistics are provided in appendix B, Tables 4 to 7. There were a total of 3,446 referrals for the 922 caregivers during this time period, including referrals made prior to and after caregivers began participating in the PPP program. It is important to note that the matched cases may undercount the actual proportion of PPP families referred. Of the 854 caregivers with some identifying information who were *not* matched in the CPS records, 219 had been referred to PPP by the Department of Social Services, including CPS and foster care (26% of the 854 non-matched cases). This discrepancy may be explained by several factors, including potential errors in administrative data in the two data systems and the possibility that some cases served by DSS were receiving in-home services/family preservation without having a CPS referral. Also, using CPS referrals as an indicator of child abuse or neglect does not capture abusive and neglectful behaviors that do not come to the attention of the child protection system. For the remainder of the report the terms "referrals" and "referred" are used to signify the referrals to child protective services that were recorded in the state system and found to match the available identifying information for PPP participants during the matching process.

Data on the disposition of investigations and the type of alleged maltreatment were included in the matched file, however a large amount of the data were missing. Almost all (99.1%) of the PPP families referred to CPS had at least one referral investigated, but most of the referrals investigated (80%) did not have disposition data (e.g. indicated, not substantiated, unfounded). Nonetheless, just over one-third of caregivers referred to CPS had at least one indicated case recorded (which may have occurred before or after PPP involvement began). Type of maltreatment was available for at least one referral for 621 (67%) of the 922 PPP families referred for child abuse or neglect. Of the 621 families for whom maltreatment type was available for at least one referral, 61% had at least one allegation of neglect, 50% had at least one allegation of physical abuse, and 12% had at least one allegation of sexual abuse.

Child Safety

The first set of analyses aims to identify the proportion, timing, and predictors of subsequent referrals to child protective services with allegations of child maltreatment for 1,776 caregivers who participated in PPP between fiscal years 2002 and 2007 and who had adequate identifying information to attempt a match with CPS records. Results refer to referrals to child protective services during the two year period after caregivers began participation in the program. Results pertaining to substantiation of reports were not included, as adequate data on the disposition of investigations were not available from the data system. Caregivers were included whether or not they had at least one child in out-of-home care, as they may have had additional children remaining home.

Proportion and timing of reports. A life table (Table 8) provides the proportion and timing of reports during the 2 years following participation in the first PPP class, reported in monthly increments. During the 2 years after starting PPP, 84% of PPP caregivers survived without referral to CPS for child maltreatment. The median time to a CPS referral was 23 months. The rate of involvement with CPS was highest during the first year after beginning PPP, slowing somewhat during the second year. Specifically, 9.4% of participants were referred to CPS during the first year, and another 6.4% were referred during the second year. The greatest hazard occurred 5, 7, and 11 months after beginning PPP.

Another life table (Table 9) presents the proportion and timing of reports for three completion subgroups: PPP participants who did not complete the program (non-completers), completed the first time (first time completers), and dropped out but later repeated and completed the PPP program (repeater completers). During the two year period after beginning PPP 85.8% of completers, 81.4% of non-completers, and 79.7% of repeater completers survived without referral to CPS. There was a statistically significant difference in the risk (hazard) of CPS referral by completion status (Wilcoxon=6.492, p=.039). Post hoc analysis showed that first time completers had a lower risk for referral to CPS than non-completers (Wilcoxon=5.154, p=.023). There was not a statistically significant difference between the repeater completers and the completers (p=.127) or non-completers (p=.676).

The Kaplan-Meier procedure allows more precision in the estimate of the proportion and timing (i.e. days rather than months) of the reports, provides a survival curve and tests the significance of group differences with these more precise data. The cumulative survival function (survival curve) in Figure 1 represents the percentage of cases which survive to a given point of time during the 24 months after beginning participation in PPP, providing separate lines for completers, non-completers, and repeater completers. "Survival" refers to continued safety, or lack of a CPS referral, to that point in time. The survival curve, supported by related statistics (Table 10), illustrates that the distribution of survival times without referral to CPS is different by completion status ($\chi 2=6.569$, $p=.037$). The survival time is greater for the participants completing the PPP class. The completers survived without referral for, on average, 19 days longer compared to the non-completers ($\chi 2=5.138$, $p=.023$). The hazard function (Figure 2) highlights the difference in risk. The non-completers had a higher risk (hazard) of referral to CPS than completers about 2 months after beginning PPP, and the hazard rate increased at a slightly faster pace. The repeater completers followed a more erratic path, with the greatest hazard occurring approximately 4, 5, 16, and 20 months after beginning PPP; there was no statistically significant difference in the survival curve between the repeat completers and either the completers or non-completers. In summary, first time completion of the PPP program is related to increased survival time without referral to CPS, compared to non-completion of PPP.

Factors predicting the hazard of CPS referrals. Cox regression analysis was used to determine which factors predict a subsequent CPS report after caregivers begin the PPP program. Predictors in the initial model (Table 11) included gender, race, age, income, history of prior referrals, baseline scores for the parenting characteristics – the five AAPI scales and Rosenberg self esteem scale – and PPP completion status. Once cases with missing predictor variables were dropped, 1286 participants were included in the model (72% of 1776, or 87% of the 1484 with outcomes data). The initial Cox regression model was statistically significant ($\chi 2=168.245$, $df= 13$, $p<.0005$) indicating that one or more of the predictors was related to the hazard (risk) of CPS referral after beginning the PPP program. Race ($p=.003$) and history of referrals to CPS ($p<.0005$) were the two significant predictors of hazard of referral to CPS (Table 9). PPP completion was not a significant predictor of the risk of referral to CPS during the two years after beginning PPP. Gender, age, income, and the intermediate outcome variables were also non-significant. Statistical assumptions for the Cox regression were adequately met.

Comparing Long-Term Child Outcomes for Families with Caregivers Who Completed, Completed after Repeating, or Did Not Complete PPP

Are children safer when parents complete PPP?

- *Results suggest that caregivers who complete the program have less risk of referral to CPS during the two years following PPP.*
- *However, completion status is not a significant predictor of the risk of referral in a multivariate model.*
- *Caregivers with a history or prior referrals to CPS and caregivers who are African American or black have a higher risk of referral in the two years after PPP participation.*
- *Greater safety among children in the completion group is promising but cannot be attributed to the PPP program.*

Are children more likely to experience stability, remaining home, when parents complete the PPP program?

- *Results suggest that there is no difference in the hazard of removal from home for children whose parents or caregivers complete the program compared to those who do not or repeat and later complete the program.*
- *When the caregiver has a history of referrals, the odds are 13x greater that a child will be removed from home in the two years after beginning PPP compared to those without prior referrals.*
- *The results do not support a relationship between PPP completion and child stability in the home.*

Are children more likely to experience permanency when parents complete the PPP program?

- *Results suggest no significant difference in the likelihood (hazard) of reunification during the two years after beginning PPP.*
- *The results do not support a relationship between PPP completion and child permanency.*

Cautionary notes;

- *Findings are preliminary, as these data likely represent an undercount of referrals, removals and reunifications.*
- *A comparison group in which caregivers had no exposure to PPP is not available, so it is unknown how PPP participants compare to caregivers who have never attended any part of the PPP program. It is also unclear whether some "non-completers" subsequently attended a parenting class from another agency (e.g. DSS).*

A final Cox regression model (Table 12) was run excluding the non-significant variables and retaining only significant variables (i.e. race/ethnicity and prior referrals to CPS). The final model produced a sample size of 1483 (83.5%). Descriptive data show that 84% of the n=1483 survived without referral to CPS during the 2 years following participation in PPP, consistent with the sample of 1776. The model was statistically significant ($\chi 2=179.620$, $p<.0005$), with race ($p=.002$) and prior history of referrals to CPS ($p<.005$) predicting the hazard of referral to CPS after beginning PPP. The hazard of referral for PPP participants who are African American or black is 1.7 times greater than the hazard for those who are white, Hispanic, and other race. The hazard of referral for PPP participants with a history of prior referrals to CPS is 12.1 times greater than the hazard for participants with no prior referrals. In summary, most caregivers who participated in PPP did not have a subsequent referral to CPS, but being African American and having a history of referrals is associated with greater risk of referral – and lower survival time without referral – after beginning participation in PPP. Prior history is the strongest predictor of subsequent referrals to CPS, and this is true for people who complete and do not complete the program.

Child Stability

Proportion and timing of removals. As seen in the life table (Table 13), most of the caregivers (93%) "survive" with no children removed from home during the two years after beginning PPP. A life table is also provided by program completion (Table 14), but no significant differences were found. The more precise Kaplan-Meier procedure (Table 15, Figures 3 and 4) also resulted in no significant differences in survival time to removals by PPP completion, but there is a **trend (p=.064) toward group differences,** with first time completers having better survival times than non-completers (p=.031).

Predictors of risk of removal from home. The initial Cox Regression model (Table 16; n=1286) included the same set of predictors used to predict child safety. The model was significant ($\chi 2=73.401$, df= 13, $p<.0005$), but only one of the variables in the model – prior referrals – was a significant predictor of the hazard of removal from home. Completion status (first time completer, repeater completer, non-completer) was not a significant predictor of hazard of removal in the two years after beginning PPP. Race, gender, age, income, and the intermediate parenting outcomes (AAPI and Rosenberg self-esteem) were also non-significant. Statistical assumptions for the Cox regression were adequately met.

A final Cox Regression model (Table 17) was run excluding all non-significant variables (i.e. only prior referrals were included). The final model analyzed data from the complete set of 1,776 PPP participants, as data were not missing for the predictor variable or outcome variable. The final model was significant ($\chi 2=94.131$, df=1, $p<.0005$). **Prior referrals** (Wald=55.543, $p<.0005$) **predicted the hazard of removal from home in the two years after the caregiver began PPP.** For caregivers with prior referrals, the hazard of removal from home after beginning PPP was13x greater than the hazard for caregivers with no prior referrals.

Child Permanency

The permanency outcome, specifically a child's reunification with their parent or caregiver, was examined for children in 442 families who participated in PPP between 2002 and 2007, reported they had at least one child in out-of-home care (TFT data), and had been removed from home (DSS data). This subsample represents approximately 53% of the sample and may not be generalizable to all families who participate in PPP and have a child in OHC. The proportion, timing, and predictors of reunification for these families in the following two years is described below.

Proportion and timing of reunification. Of the 442 families in which the caregiver reported having at least one child in out-of-home care in this subsample, 71% "survived" without reunification with the parent or caregiver from whom they were removed during the two years after beginning PPP (Table 18). In other words, less than one-third of the families had a child reunified during the two years. During the two years 80 families were withdrawn from the risk set (censored) at the time they exited care for reasons other than reunification, including exits to relatives, adoption, and other reasons. When examining survival time in months by completion status (Table 19), there was <u>not</u> a statistically significant

difference in the chance (hazard) of reunification by completion status (Wilcoxon=3.875, p=.144). (Note that life tables were also produced for all exit reasons, yielding fewer than half of families with a child who exited care, and no statistically significant difference between completers and non-completers).

The Kaplan Meier procedure was used to examine survival time more precisely, in days. Figure 5 represents "survival" in care, illustrating the proportion of families in which the child(ren) in out-of-home care remain in care, where the "event" (or hazard) is the child(ren) being reunified with parents. In this case, a smaller proportion of cases "surviving" indicates a better outcome.
It appears in the survival curve (Figure 5) that the completion groups follow a similar steady decline (indicating reunifications) during the initial ten month period after beginning PPP, then first time completers continue the downward trend while non-completers have fewer reunifications thereafter. The estimated mean "survival time" without reunification for the three groups ranges from 603 days to 654 days, or approximately 20 ½ (first time completers) to almost 22 months (repeater completers) (Table 20). However, there was no statistically significant difference in the survival distributions for subsequent CPS referral by completion status ($\chi 2=4.720$, p=.094).

Predictors of risk of removal from home. The initial Cox Regression model (Table 21) included the same set of predictors used to predict child safety and stability. The model was non-significant ($\chi 2=6.247$, df= 13, p=.937). Consistent with the Kaplan Meier results, completion status (first time completer, repeater completer, non-completer) was not a significant predictor of hazard of removal in the two years after beginning PPP. Demographic characteristics, history of CPS referrals, and the intermediate parenting outcomes (AAPI and Rosenberg self-esteem) were also non-significant. Statistical assumptions for the Cox regression were adequately met.

Revisiting Intermediate Outcomes

As noted in the interim report, the intermediate outcomes were only available for participants who completed the program. Because an overlapping but somewhat different sample was used for the second phase of the study (including fewer of the completers with both pre and post test scores available for the AAPI and Rosenberg measures), the repeated measures analyses – testing for significant changes in intermediate outcomes over time – were re-run with the new sample to learn whether the same results emerge. For simplicity, only a summary of results is provided here and in Table 22. There was a statistically significant effect of time on all AAPI subscales (p<.0005). On average, scores moved from the below normal range, having some strengths and some deficiencies, into the normal range by post-test. There were no Time X Group interactions on any subscales in the analysis comparing caregivers with children in the home (IH) to those with children in out-of-home care (OHC), suggesting similar improvement over time for these two groups. There were also no group differences on most scales. There was, however, a statistically significant effect of group on the corporal punishment subscale (F=7.185, p=.008). The average score was higher for the OHC group, suggesting slightly more appropriate attitudes toward corporal punishment. These findings are consistent with the findings from the initial set of analyses reported in the interim report.

A second set of repeated measures analyses, this time comparing caregivers by referral source, showed a statistically significant effect of time (p<.0005) for all AAPI subscales and no group differences or Time X Group interactions for most scales. However, for the scale measuring appropriate developmental expectations there was a statistically significant Time X Group interaction (F=4.181, p=.016), where all three referral source groups increased but there was more improvement seen for the self-referred group, who moved to the highest average score. For each of these analyses of the AAPI scales results were consistent with findings from the initial set of analyses reported in the interim report.

Repeated measures analysis for the Rosenberg Self Esteem scale showed a statistically significant effect of time (p<.0005). Scores decreased over time, suggesting an improvement in self-esteem. There was no Time X Group interaction or group differences in self esteem for caregiver with children IH and those with children in OHC. The results regarding self-esteem are consistent with results from the interim sample.

Discussion

Most children of caregivers who participate in PPP did not have subsequent referrals (84%) or removals (94%) from home during the two years after beginning a PPP class. The rate of referrals for this high risk group appears to be lower than estimates of re-referrals in studies of children referred to child welfare services (e.g. 22%, with most occurring in the first year; Fluke et al., 2008). However the PPP sample is not directly comparable because it includes participants with no prior CPS involvement. Nonetheless, it is positive to see the majority of families who participate in PPP lasting two years with no referrals or removals.

Most referrals occurred during the first year after beginning PPP. The referral rates and timing of referrals (e.g. most in first year) are similar to re-referral rates seen in child welfare research (e.g. Fluke et al., 2008), in which most re-referrals occur in the first year following the initial investigation. The risk of referral among PPP participants in this sample is greatest 5, 7, and 11 months after beginning PPP. This finding suggests a potential need to follow up with families to reinforce lessons learned and help families apply skills as they parent their children, beginning a few months after the 10-week intervention ends.

Children in families that completed the program appear to experience more safety (less hazard of referral) than children in families who do not complete the program. The apparent increased safety among children in the completion group is promising, but cannot be attributed to the PPP program. In a multivariate model – statistically controlling for a variety of characteristics that may have impacted referrals outcomes – program completion did not predict subsequent referrals. This lack of association between completion (compelters and non-completers) and prevention of future maltreatment cases is consistent with a prior study examining outcomes of parenting support services, including parent education classes (Chaffin et al., 2001). Yet lower recurrence rates have been found in high-risk families in Baltimore City who attended services identified in the case plan (DePanfilis & Zuravin, 2002). In the future it would be useful to know whether or PPP attendance – attending versus not attending PPP, as opposed to completion status among attendees – would impact referral rates. Also, the study cannot account for the potential impact of other services on outcomes – such as cases in which the parent stopped PPP (and thus labeled “non-completers) but then fulfilled the parent training requirement in their case plan through a DSS training.

The two factors associated with a greater risk of referral after beginning PPP were having a history of prior referrals and being African American, whether or not the program was completed. Prior history is the strongest predictor of subsequent referrals to CPS. The hazard of referral for PPP participants with a history of prior referrals to CPS is 12 times greater than the hazard for participants with no prior referrals. There appears to be no statistically significant difference in the stability and permanency outcomes for completers and non-completers of PPP. A history of prior referrals also predicts removals from home, the hazard for those with a history being 13 times that of participants with no prior referrals. The relationship between prior referrals and subsequent referrals is consistent with the recidivism literature (English et al., 1999; Slack et al., 2004), and thus served as an important control variable for this analysis when examining the impact of PPP program participation. This may also signal an important time to intervene: Perhaps a concerted effort to intervene with families before they are referred to CPS or at their first referral would provide opportunity for a successful intervention.

Child permanency – specifically reunification – had no significant predictors in the models tested in this study, including completion status. A limited subsample was used and may not accurately reflect the PPP population of families with a child in out-of-home care. Also, several key predictors of reunification were not available to test in the model, such as behavioral or emotional problems and disability (Connell et al., 2006).

Strengths of the Study

The second phase of the study has several key advantages over the first phase. First, there were two comparison groups: the outcomes for those families who completed the program the first time may be compared with families who did not complete the program and those who completed only after repeating

the program. This is important because the comparison provides the opportunity to understand whether or not any improvements we see in completers also occur for non-completers. When the completion groups have the similar results, there is some evidence that the program may not be effective in achieving the desired outcomes. When the completion groups have different results, we have some evidence that the program has an impact, either positive or negative. However, we must consider how comparable these two groups are at baseline to help rule out alternative explanations for group differences in outcomes. In this study we found that completion groups varied on a variety of characteristics at baseline, and these factors – some also seen as predictors of re-referral in the literature – were used as statistical controls in the analyses, helping to rule out alternative explanations for the apparent differences in referrals outcomes. These methods proved important in understanding that, although completers had better outcomes than non-completers, referrals were actually predicted by race and prior outcomes, not program completion.

The second key advantage is that the study incorporates child safety, stability, and permanency measures from official child welfare agency records. The inclusion of these measures is beneficial because these are three important long-term outcomes which, nonetheless, often are not available in the evaluation of parent training programs. The inclusion of official child welfare agency records is also advantageous because it adds an alternate method of measurement, adding administrative data rather than relying entirely on the self-report measures of the first phase of the study. With multiple sources of data – administrative and self-report – the methodological rigor is enhanced and conclusions may be drawn with greater confidence. In addition, the use of administrative data allows for observation of outcomes well after participants have completed or otherwise left the program. There is some evidence that parenting training, intensive family preservation services, and other "reactive" trainings have larger effect sizes at post-intervention assessment than at follow up, according to a meta-analytic review, suggesting effects diminish over time (MacLeod and Geoffrey Nelson, 2000). In this study we were able to follow families forward for a full two years after beginning the program, permitting the examination of long-term outcomes that the program is intended to impact and the timing of the related events (i.e. CPS referral, removal, or reunification).

Third, the statistical technique, survival analysis, has numerous advantages. Unlike multiple regression and other statistical analyses, survival analysis not only uses data available (i.e. the cases in which an event occurred) but also adjusts for the "unknown" future history in families for whom the event has not occurred and the ultimate outcome is not known (censored data). Rather than excluding cases due to missing data, we can include the cases as long as we know they have "survived", and censor (withdraw) them from the data set once we do not know how much longer they will survive. Survival analysis provides relatively accurate median estimates of survival time (Kaplan-Meier) and parameter estimates (Cox Proportional Hazards Regression) when data are incomplete, although mean estimates are less reliable (Shlonsky, Festinger & Brookhart, 2006). In event history analysis it is important to be confident that no patterns exist in the right-censored data, and specifically that any missing data are missing at random (Unrau & Coleman, 2006). To help control for patterns in the right-censored data, and because most re-referrals occur within the first several years, participants were followed for equal amounts of time (24 months) after beginning the PPP class, rather than using data available for the entire period between beginning the class and the end period for this study (which varied from 2 to 6 years).

Another strength of this study is the large sample size. The large sample in this evaluation provides sufficient power to detect relationships for the variables, if they in fact exist. A general rule of thumb is there should be a ration of 20 cases to each variable (Tabachnich & Fidell, 2001, as cited in Unrau & Coleman, 2006), which is easily met and exceeded in this study. Although the large sample size is a great strength, the results of this analysis are only as good as the quality of the data entered into the analysis (Unrau & Coleman, 2006). Identifying data were not available for all PPP participants, and minimal for some, so the matching process may not have identified all participants who were later referred to CPS, or children were removed from home or reunified. Thus, an undercount is possible for each outcome variable. Also, the state system data may have some missing information- particularly for cases in the system prior to the initiation of the new state data information system, CHESSIE. Data from the initial conversion may not be entirely reliable, but the reliability of the data has improved over time.

Limitations of the Study

There are several limitations to the study as well. First, the study design makes it impossible to rule out all plausible alternative explanations for differences in outcomes between the completers and non-completers. The use of non-completers as a comparison group potentially introduces bias because – in addition to the characteristics we know the groups differ on – some other characteristics of non-completers could account for the difference in outcomes. It could be personal characteristics not measured in this study, or potentially involvement in other services, particularly for the majority of families referred by the child protective system or justice system. However, according to DePanfilis & Zuravin (2002), "only a small percentage of families receive any further services by CPS" (p.202). The analysis also could not control for other key variables that were mentioned in the literature as predictors of these outcomes, such as learning disability (Fluke et al., 2008; Unrau & Colemen, 2006) and family size (Unrau & Colemen, 2006), because reliable data were not available in the existing data sets to measure these concepts. Without the ability to rule out plausible alternative explanations, superior outcomes among completers could not be credited to PPP, as they could reflect other differences in characteristics of the families that, instead, influence the outcomes. Regardless, it seems our study did include a strong predictor of subsequent referrals and removals – prior history of referrals – and the presence of this predictor in our model provided an alternative explanation for the difference in survival curves for completers and non-completers.

Attrition – in this case related to CPS records – is a limitation in event history analysis and could bias results (Unrau & Coleman, 2006). In this analysis there is a minimal risk of attrition from the risk set. Because the statewide database is being used to assess the events, families moving to other Maryland counties are maintained in the risk set (e.g. continue to be monitored regardless of change in county), which could bias results. Another potential source of attrition is children aging out of the child welfare system; once the child turns 18 they are no longer monitored for maltreatment. Following Unrau & Coleman's (2006) lead, cases were compared across year of service (2002, 2003, 2004, 2005, 2006, and 2007) to determine whether significant different exist among cohorts.

The measurement of child safety using official reports raises several potential sources of error. Although official reports are commonly used as a measure of maltreatment, it likely undercounts actual child maltreatment because some incidents of abuse or neglect may never come to the attention of the agency. An undercount of reports, removals and/or children returned home is also possible due to variations in the two administrative data sets that could prevent matching the TFT families with child welfare administrative data. For instance, names may be recorded differently, and essential identifying data needed to make a definitive match may be missing for some cases (e.g. DOB). Also, due to the state child welfare agency's transition from the legacy data system to CHESSIE, a statewide automated child welfare information system, reliability of the data during the years 2005 – 2008 is not optimal. On the other hand, use of official reports could result in bias due to the possibility of a surveillance effect. That is, program participants may be at higher risk of being reported due to ongoing involvement with services, which entails contact with mandated reporters of child maltreatment. This could result in completers being more likely to have subsequent reports or removals compared to non-completers simply because they continue to be involved with mandated reporters.

Finally, the external validity of the results is very limited, due to the sampling approach and data availability. Only those PPP cases with adequate data were included in the analysis. It is possible that different results could emerge if all families served were included. Also, although TFT serves other jurisdictions, the results of this study cannot be generalized beyond Baltimore City. Regardless of the limitation, the results are valuable to begin to understand the impact of PPP on Baltimore families, the primary population served by The Family Tree.

Implications for Practice and Evaluation

Practice implications. This retrospective study takes a first look at the extent to which participation in PPP may help participants achieve the long term goals of increasing child safety, stability, and permanency in high risk families. Children of parents who complete the Positive Parenting Program,

compared to those that do not finish, are more likely to be safe during the following two years, as indicated by a longer duration without referrals to CPS. However, these differences may be explained by factors unrelated to the program. A history of prior referrals was a strong predictor or subsequent referrals to CPS while program completion did not predict safety in a multivariate model.

Although the superior safety outcomes for those with no prior referrals cannot be attributed to PPP, it is possible that PPP may have a stronger impact on families if more families are engaged early on – prior to experiencing CPS referrals or with the first referral. This may require more population-based outreach to engage families in high-risk communities in parent training prior to experiencing CPS referrals, similar to the efforts by the Harlem Children's Zone. In addition, TFT could work with DSS to arrange to provide parent training with families the first time they are referred to child welfare services, rather than waiting for a second or third incident.

The greatest periods of risk for referrals following PPP may also point to additional avenues for enhanced intervention to promote safety from child abuse and neglect. The first year, and particularly the 5th, 7th, and 11th months after beginning PPP, are the periods of greatest risk of subsequent referral. This finding suggests that several months after the 10-week intervention ends there may be a need to follow up with families to reinforce lessons learned and help families apply skills as they parent their children. In fact, when discussing the logic model in the first phase of the study several staff expressed that some parents may need additional supports beyond the length of the program, such as booster sessions of individualized assistance implementing knowledge and skills with their children. These booster sessions could be provided periodically, as needed, through the remainder of the first year after beginning PPP.

Incorporation of more evidence-based components into the program – such as role plays to build skills (Berard & Smith, 2008), observation of parent-child interaction and parent coaching (Chaffin et al., 2004), home visiting (Olds et al., 1997), and other methods of providing hands-on intervention with parents and children together – has the potential to improve the PPP program in order to achieve increased child safety, stability and permanency. Addition of some home visiting was also suggested by TFT staff as a potential way to enhance skills application for PPP families to achieve the long term outcomes. TFT staff may be able to provide the most appropriate services to families – increasing the chance of meeting family and program goals – by screening families to identify those who may need more intensive or different services.

Another consideration in reaching PPP's goals is exploring program fidelity – the extent to which parent educators actually implement the same program. Over the six year period parent educators with a range of educational backgrounds, levels of experience, skills, and approaches conducted parenting classes. While educators will always bring their own qualities to the job, it is important to consider whether the key components of the program are implemented by each educator – and first come to a consensus about what those key components truly are. TFT parent educators could develop a fidelity tool to serve multiple purposes, including a guide to their work, a tool for self-evaluation, and a tool that administrators can use to monitor fidelity across educators teaching PPP.

Finally, reviewing the PPP logic model with staff in light of this study's findings may help TFT re-visit whether the underlying assumptions and program components align well with the expected short term and long term outcomes, and how the model may need to be amended.

Implications for future evaluation. Stronger methodology is needed to improve the rigor of future studies, rule out alternative explanations for any statistical relationships found, and increase the credibility of findings about the impact of PPP on intermediate and long-term outcomes of participants and their children. As future evaluations are planned, each program and evaluation design decision will need to be weighed for its feasibility in terms of financial resources, staff time, and practicality when administering the program and conducting the evaluation. Possible improvements are to improve future evaluations are discussed below.

Research questions. Future studies could continue to evaluate the outcomes for the existing PPP program, evaluate program enhancements if program changes are made, compare PPP to the

evidence-based Triple P program, or evaluate program fidelity. Continuing to evaluate the existing PPP program would require improvements in methodology, as described below. In light of the findings from the current study, if TFT staff and administrators make program changes to enhance PPP, a study could compare the enhanced PPP to the existing PPP model. Alternatively, the existing PPP program could be compared to the Triple P program, if adequate funds become available to implement the program. With any of these decisions, fidelity of program implementation is an important area for evaluation at this juncture. Fidelity refers to the extent to which the program is being implemented as intended, the same across parent educators. Although a binder with the same materials is used for all PPP classes, no information is currently available to document how the materials are used in class and the degree to which the program is delivered as intended. Further, there is no assessment of the training provided to incoming staff, and no examination or discussion of potential differences in the way various staff deliver the program – and which methods are real strengths that may be shared with other staff. Future evaluation should explore these fidelity issues. Data collection could include qualitative and quantitative methods, and quantitative facilitator data may also be used as a control variable in future analyses.

Study design. As The Family Tree continues to evaluate and improve the Positive Parenting Program, future evaluations should entail a prospective study design, rather than relying on existing data collection strategies and measures. A prospective design will provide the flexibility to improve methodological rigor, increasing the credibility of findings related to program impact. Randomization to treatment and control groups (i.e. wait list and/or alternative treatment) will allow comparison of similar groups of parents to understand the impact of the program(s) on outcomes. For instance, caregivers could be randomly assigned to the existing PPP or enhanced PPP; or alternatively, PPP or Triple P. In the first example, participants would be randomly assigned to either receive the enhancements or receive PPP as usual, and outcomes for these two groups would be compared to determine whether the enhancements improve outcomes.

Measurement. A prospective study design for future evaluation will also allow for improvements in the measurement of key outcome variables in several areas. First, the key outcomes should be re-visited. TFT staff and administrators should review the logic model to discuss and prioritize the most important intermediate and long-term outcomes the program seeks to achieve, and ensure there is a logical link between the assumptions, key program components, and expected outcomes. Once the key outcomes are prioritized, the agency and evaluator can identify the best measures to capture whether or not these outcomes are achieved, while minimizing participant and staff burden. This process will help ensure that the measures used to assess outcomes align well with the desired program goals and objectives. The agency should plan to collect multiple forms of data (i.e. self-report measures, direct observation of skills, and/or administrative data) for individual constructs to improve rigor. For example, if the desired outcome is improvements in parenting skills, the agency could consider possible methods of observing these skills directly (e.g. through role play or observation of parent-child interaction) in addition to asking for parents to self-report skills gained. Collecting information on self-report parenting attitudes (as in the AAPI) may be informative, but relying on such information limits the usefulness of the findings. A change in knowledge and attitudes is certainly worth noting, but change in action – how parents care for their children – is more critical to ensuring child safety, permanency, and well-being

Second, a prospective design will allow for more reliable and complete data collection. A unique identifier for each TFT client is needed, along with more complete administrative records with identifying information; these improvements will make it possible to include more PPP clients in the future analyses, and make a more complete and accurate search of DSS records possible in the future. Already TFT is working on the ETO, an agency services database which automatically assigns a unique ID to individuals and makes electronic data collection during the intake process possible. Third, data on intermediate outcomes could be collected for all participants, whether or not they complete the program. This would allow comparison of intermediate outcomes for completers and non-completers. Also, scales such as the AAPI should be entered in a database in their entirety, rather than limiting entry to scores, in order to test the internal reliability of data collected.

Another consideration for future evaluations is collecting data for new variables that may impact outcomes. For instance, the parent or caregiver's readiness to change may have an impact on program

outcomes (Littell & Girvin, 2005) and should be explored in future evaluations. Also, including key variables identified in the literature as predictors of child safety, stability, and well-being will help rule out alternative explanations for group differences in outcomes. As noted earlier, learning disability (Fluke et al., 2008; Unrau & Colemen, 2006) and family size (Unrau & Colemen, 2006) should be examined. In addition child factors such as child age or vulnerability (DePanfilis & Zuravin, 1999, 2002; Fluke et al., 2008), and caregiver and family factors including caregiver abuse of alcohol (Fluke et al., 2008), family stress, social support, and partner abuse at the time of index maltreatment (DePanfilis & Zuravin, 1999, 2002) could be examined again in future studies, as they were found to predict the hazard of re-referral or recurrence of maltreatment.

Summary and Conclusions

Given TFT's commitment to evaluating and improving programs to meet their goals, this study takes an important step in assessing parenting knowledge and attitudes (protective factors), parent self esteem (risk factor), and the safety, stability, and permanency of children in families served by PPP. The improvements seen in self-reported parenting skills and self esteem are promising and suggest that the intermediate goals of PPP may be achieved. More rigorous evaluation – at the very least comparing completers to non-completers and non-participants on these scores – will increase the credibility of evidence that PPP has a positive impact on these intermediate outcomes.

The results regarding long term outcomes are less promising, although they do not negate that PPP has some positive impact. PPP participants do maintain a relatively high level of safety and stability, and completers have lower risk of CPS referral than non-completers. However, results do not support a statistical relationship between PPP completion and child safety, stability or permanency in a multivariate model. The results raise numerous questions, and provide several areas to consider making changes in future practice and evaluation. For instance, one key question is whether or not there would be a difference in these outcomes if PPP participants could be compared to caregivers who do not participate, or are served by another program.

In order to best serve families while improving evaluation methods, the following recommendations are made:

1) Review the PPP logic model with staff in light of findings from this study, and discuss the extent to which PPP's purpose, assumptions, and key components are well aligned with intermediate and long-term outcomes; make amendments as needed.

2) Consider making enhancements to PPP based on (1) evidence-based programs shown to impact child safety and prevent child abuse and neglect and (2) results from this study; possible enhancements are discussed in the Implications section above. If PPP enhancements are made, test these changes in a rigorous design comparing the enhanced PPP to the existing program in order to learn whether the enhanced program – likely to require more resources – produces better outcomes.

3) Plan and conduct a prospective study that allows for more rigorous evaluation of PPP's impact on the intermediate and long-term outcomes it seeks to address, considering methodological improvements discussed in the Implications section above. As part of this, evaluate the fidelity of implementation of the program.

Parent training programs have long been employed in child welfare services with the intent of improving parenting and, through this avenue, improving child safety. The impact of these programs on parenting is increasingly being examined. Now an emerging literature is beginning to assess the impact of parenting programs on child safety outcomes. The current study makes strides in evaluation of the intermediate and long-term outcomes PPP seeks to achieve, and forms the basis for improving the PPP program. Future evaluation will provide the opportunity to better evaluate PPP's true impact on families and the prevention of child abuse and neglect.

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Appendices

Appendix A. Descriptive Characteristics of Study Population

Table 1. First Time Completers, Repeater Completers, and Non-completers Included in Phase 2 Sample, by Year Enrolled in Core PPP in Baltimore City, 2002- 2007

	2002	2003	2004	2005	2006	2007	Total
First Time Completers	165	165	171	175	258	246	1,180
Repeater Completers	10	12	13	9	18	12	74
Non-Completers	75	72	92	60	114	109	522
Total	250	249	276	244	390	367	1,776

Notes: 1) There was no significant differences in completion status across the six years. 2)These data differ from the TFT Annual Report for FY2007 and the Interim Evaluation report. The data differ from the Annual Report in that they represent Baltimore City only and exclude participants in the anger management-focused parenting class. These differ from the interim evaluation and annual report in that the data are for unique caregivers and their families (not duplicated data), include families who had adequate identifying information to search CPS records, and include caregivers who participated in the PPP program but were not included in the outcomes file (i.e. did not had AAPI and Rosenberg data). 3) 66% of the families included completed the PPP class (first time). Although not directly comparable, this proportion is higher than the proportion of completers (59%) in the two prior reports.

Table 2. Characteristics of PPP First Time Completers, Repeater Completers, and Non-completers in Baltimore City, 2002 – 2007 (n=1776)

	Total	First Time Completers	Repeater Completers	Non-completers	χ2 / F	p-value
Age[2]	*n=1,621*	*n=1,089*	*n=73*	*n=459*	**10.249**	**<.0005**
	M=33.9 (SD=9.63)	**M=34.7** (SD=9.85)	M=32.3 (SD=8.66)	**M=32.4** (SD=9.05)		
Gender	*n=1,753*	*n=1,167*	*n=74*	*n=512*	**14.680**	**.001**
Men	32.3%	35.3%	24.3%	26.6%		
Women	67.7%	64.7%	75.7%	73.4%		
Race or ethnicity[3]	*n=1,483*	*n=1,003*	*n=68*	*n=412*	**7.647**	**.022**
African Am.	75.0%	75.1%	88.2%	72.6%		
Other Eth.	25.0%	24.9%	11.8%	27.4%		
Marital status	*n=1,440*	*n=974*	*n=65*	*n=401*	11.197	NS
Married	26.2%	28.4%	15.4%	22.4%		
Single	63.3%	61.0%	75.4%	66.8%		
Widowed	1.7%	1.7%	0.0%	1.7%		
Divorced	8.9%	8.8%	9.2%	9.0%		
Education	*n=1,419*[3]	*n=958*	*n=66*	*n=395*	**25.629**	**<.0005**
College	20.3%	21.2%	22.7%	17.7%		
High school completed	36.6%	39.8%	31.8%	29.6%		
GED	9.4%	9.4%	7.6%	9.6%		
HS not completed	33.8%	29.6%	37.9%	43.0%		
Relationship to child	*N=1,382*[3]	*n=925*	*N=66*	*n=391*	2.870	NS
Biological parent	96.2%	95.9%	95.5%	97.2%		
Step-parent	1.5%	1.5%	3.0%	1.3%		
Kinship care	1.9%	2.2%	1.5%	1.3%		
Foster or adopted parent	0.4%	0.4%	0.0%	0.3%		
Child placement (self-report)	*N=1,366*[3]	*n=920*	*N=65*	*N=381*	2.999	NS
In home	38.4%	39.5%	43.1%	34.9%		
At least one child in OHC	61.6%	60.5%	56.9%	65.1%		

[2] Age was significantly different for the completion groups; the first time completers were on average 2.3 years older than the non-completers (p<.0005). A trend (p=.094) toward a difference between first time completers and repeat completers, and no significant differences between repeat completers and non-completers.

[3] Other ethnicity refers to white, Hispanic, Asian, or other ethnicity caregivers. White caregivers make up 84% of the "Other Ethnicity" group. The groups were combined to allow for dichotomous variable, after noting similar survival curves for these non-African American groups.

[3]At least one-fifth of the cases are missing data on education, relationship to child, placement status, court ordered status, and income. Almost one=third of cases are missing data on special needs of the child, and close to half (46%) are missing data on referral source.

	Total	First Time Completers	Repeater Completers	Non-completers	χ2 / F	p-value
Child has special needs	*n=1,233*[3]	*n=350*	*n=824*	*n=59*	.149	NS
Yes	31.6%	31.4%	31.6%	33.9%		
No	68.4%	68.6%	68.4%	66.1%		
Court ordered?	*n=1,371*[3]	*n=931*	*n=65*	*n=375*	**19.392**	**<.0005**
Yes	61.9%	64.8%	72.3%	52.8%		
No	38.1%	35.2%	27.7%	47.2%		
Referral source	*n=963*[3]	*n=635*	*n=40*	*n=288*	**16.795**	**.010**
DSS (incl. CPS & Fost. Care)	66.0%	64.6%	57.5%	70.5%		
Parole and probation	18.2%	20.0%	30.0%	12.5%		
Self referred	15.0%	14.3%	10.0%	17.0%		
Custody	.8%	1.1	2.5%	0.0%		
Family income	*n=1384*[3]	*n=944*	*n=66*	*n=374*	**40.680**	**<.0005**
< $10,000	60.0%	54.3%	72.7%	71.9%		
$10,000 – 18,999	13.7%	15.5%	10.6%	9.9%		
$19,000 – 25,999	9.6%	11.2%	4.5%	6.4%		
$26,000 – 40,999	10.8%	12.6%	6.1%	7.2%		
$41,000+	5.9%	6.4%	6.1%	4.5%		

Table 3. Baseline AAPI Scores and Rosenberg Self-esteem Scores for Completers and Non-completers of the PPP program

	First Time Completers			Repeater Completers			Non-Completers			
	N	Mean	Std. Dev.	N	Mean	Std. Dev.	N	Mean	Std. Dev.	p-value
AAPI Developmental expectations (n=1467)	990	4.67	1.723	66	4.41	1.700	411	4.46	1.728	NS
Empathy (n=1465)	988	4.63	2.044	66	4.30	2.044	411	4.51	2.192	NS
Corporal punishment (n=1461)	987	**4.44***	1.883	66	4.38	1.928	408	**4.82**	1.818	.002
Role reversal (n=1,464)	987	4.56	1.913	411	4.33	1.949	411	4.33	1.949	NS
Oppression of power and independence (n=1464)	986	4.56	2.113	66	4.21	2.243	412	4.51	2.338	NS
Rosenberg **Self-esteem** (n=1,405)	945	**17.21***	5.093	63	17.24	4.737	397	**18.17**	5.115	.006

*p<.01 Post hoc analysis shows significant difference between first time completers and non-completers on corporal punishment and self esteem scales at baseline.

Appendix B. Descriptive Statistics: PPP Caregiver Referrals to CPS

Table 4. Total Referrals to CPS Any Time between 1992 and June 2009 (n=1776)

	n	%
Referred to CPS any time	**922**	**52%**
1 referral	275	15%
2 - 3 referrals	281	16%
4-5 referrals	167	9%
6 or more referrals	199	11%
No referrals in system	**854**	**48%**
Total PPP families	**1776**	**100%**

Table 5. Total Investigations by CPS Any Time between 1992 and June 2009 (n=1776 PPP families; n=922 referrals)

	n	% of total referrals (n=922)	% of total PPP families (n=1776)
Referral not investigated	**8**	**1%**	**0%**
Referrals investigated	**914**	**99%**	**51%**
1 referral	327	35%	18%
2-3 referrals	298	32%	17%
4-5 referrals	150	16%	8%
6 or more referrals	139	15%	8%
Total people with referrals	**922**	**100%**	**52%**
No referral	**854**	**--**	**48%**
Total PPP families	**1776**	**--**	**100%**

Table 6. Maltreatment type: Proportion of families with at least one referral for the following types of maltreatment (n=621 families for whom maltreatment type was available)

	n	% of 621
Neglect (1+)	377	61%
Physical abuse (1+)	312	50%
Sexual abuse (1+)	73	12%

Table 7. Number of Participants with Referrals Before and After Beginning the PPP Program (n=1776)

	n	%
Number of PPP participants with:		
No prior referrals to CPS	895	50.4%
Prior referrals to CPS	881	49.6%
	1776	100%
Number of PPP participants with:		
No referrals to CPS	854	48.1%
Referrals **before** PPP only	449	25.3%
Referrals 0 to 2 years after begin PPP	269	15.1%
Referrals > 2 years after begin PPP	204	11.5%
Total PPP participants	1776	100.0%
Number PPP referrals per family 0 to 2 years after PPP* (Mean=.24, SD=.76)		
0 referrals	1507	84.9%
1 referral	181	10.2%
2 to 3 referrals	72	4.1%
4 to 5 referrals	13	0.7%
6 or more referrals (max=20)	3	0.2%
Total PPPP participants with referrals	269	100.0%

* Referrals per family for referrals occurring more than 2 years after beginning PPP are not provided because the timeframe since participation varies. For instance, only 2 years have passed since participation for caregivers beginning PPP in 2007, whereas 7 years has passed for caregivers beginning in 2002.

Appendix C. Survival Analyses: Referrals to CPS after Beginning PPP

Table 8. Life Table: PPP Participants Time to CPS Report 0 - 24 Months after Beginning PPP (n=1776)

Interval Start Time	Number Entering Interval	Number Withdrawing during Interval	Number Exposed to Risk	Number of Terminal Events	Proportion Terminating	Proportion Surviving	Cumulative Proportion Surviving at End of Interval	Std. Error of Cumulative Proportion Surviving at End of Interval	Probability Density	Std. Error of Probability Density	Hazard Rate	Std. Error of Hazard Rate
0	1776	0	1776	16	0.009	0.991	0.991	0.247	0.009	0.002	0.009	0.002
1	1760	0	1760	8	0.005	0.995	0.986	0.426	0.005	0.002	0.005	0.002
2	1752	0	1752	16	0.009	0.991	0.977	0.487	0.009	0.004	0.009	0.002
3	1736	0	1736	12	0.007	0.993	0.971	0.559	0.007	0.004	0.007	0.002
4	1724	0	1724	15	0.009	0.991	0.962	0.606	0.008	0.005	0.009	0.002
5	1709	0	1709	**18**	0.011	0.989	0.952	0.640	0.010	0.007	**0.011**	0.002
6	1691	0	1691	14	0.008	0.992	0.944	0.683	0.008	0.006	0.008	0.002
7	1677	0	1677	**17**	0.010	0.990	0.935	0.713	0.010	0.007	**0.010**	0.002
8	1660	1	1659.5	11	0.007	0.993	0.928	0.761	0.006	0.005	0.007	0.002
9	1648	0	1648	15	0.009	0.991	0.920	0.790	0.008	0.007	0.009	0.002
10	1633	2	1632	8	0.005	0.995	0.916	0.850	0.005	0.004	0.005	0.002
11	1623	0	1623	**17**	0.010	0.990	0.906	0.869	0.010	0.009	**0.011**	0.003
12	1606	0	1606	9	0.006	0.994	0.901	0.915	0.005	0.005	0.006	0.002
13	1597	0	1597	10	0.006	0.994	0.895	0.952	0.006	0.006	0.006	0.002
14	1587	0	1587	9	0.006	0.994	0.890	0.991	0.005	0.006	0.006	0.002
15	1578	0	1578	6	0.004	0.996	0.887	1.052	0.003	0.004	0.004	0.002
16	1572	2	1571	10	0.006	0.994	0.881	1.081	0.006	0.007	0.006	0.002
17	1560	0	1560	12	0.008	0.992	0.874	1.102	0.007	0.009	0.008	0.002
18	1548	0	1548	6	0.004	0.996	0.871	1.154	0.003	0.004	0.004	0.002
19	1542	0	1542	8	0.005	0.995	0.866	1.188	0.005	0.006	0.005	0.002
20	1534	0	1534	11	0.007	0.993	0.860	1.207	0.006	0.009	0.007	0.002
21	1523	0	1523	5	0.003	0.997	0.857	1.263	0.003	0.004	0.003	0.001
22	1518	0	1518	5	0.003	0.997	0.855	1.315	0.003	0.004	0.003	0.001
23	1513	1502	762	11	0.014	0.986	0.842	1.320	0.012	0.019	0.015	0.004

Table 9. Life Table: PPP Participants Time to CPS Report 0 - 24 Months after Beginning PPP by Completion Status* (n=1776)

Interval Start Time	Number Entering Interval	Number Withdrawing during Interval	Number Exposed to Risk	Number of Terminal Events	Proportion Terminating	Proportion Surviving	Cumulative Proportion Surviving at End of Interval	Std. Error of Cum. Prop. Surviving at End of Interval	Probability Density	Std. Error of Probability Density	Hazard Rate	Std. Error of Hazard Rate
Non-completers (Did not complete PPP) (n=522)												
0	522	0	522	6	0.011	0.989	0.989	0.401	0.011	0.005	0.012	0.005
1	516	0	516	2	0.004	0.996	0.985	0.802	0.004	0.003	0.004	0.003
2	514	0	514	12	0.023	0.977	0.962	0.830	0.023	0.020	0.024	0.007
3	502	0	502	3	0.006	0.994	0.956	0.991	0.006	0.006	0.006	0.003
4	499	0	499	4	0.008	0.992	0.948	1.091	0.008	0.009	0.008	0.004
5	495	0	495	2	0.004	0.996	0.944	1.275	0.004	0.005	0.004	0.003
6	493	0	493	6	0.012	0.988	0.933	1.315	0.011	0.016	0.012	0.005
7	487	0	487	6	0.012	0.988	0.921	1.351	0.011	0.017	0.012	0.005
8	481	0	481	3	0.006	0.994	0.916	1.443	0.006	0.009	0.006	0.004
9	478	0	478	7	0.015	0.985	0.902	1.461	0.013	0.022	0.015	0.006
10	471	1	470.5	2	0.004	0.996	0.898	1.587	0.004	0.007	0.004	0.003
11	468	0	468	4	0.009	0.991	0.891	1.635	0.008	0.014	0.009	0.004
12	464	0	464	2	0.004	0.996	0.887	1.744	0.004	0.008	0.004	0.003
13	462	0	462	5	0.011	0.989	0.877	1.769	0.010	0.019	0.011	0.005
14	457	0	457	5	0.011	0.989	0.868	1.791	0.010	0.020	0.011	0.005
15	452	0	452	1	0.002	0.998	0.866	1.986	0.002	0.004	0.002	0.002
16	451	2	450	5	0.011	0.989	0.856	2.000	0.010	0.022	0.011	0.005
17	444	0	444	5	0.011	0.989	0.847	2.013	0.010	0.023	0.011	0.005
18	439	0	439	2	0.005	0.995	0.843	2.090	0.004	0.010	0.005	0.003
19	437	0	437	3	0.007	0.993	0.837	2.131	0.006	0.015	0.007	0.004
20	434	0	434	2	0.005	0.995	0.833	2.201	0.004	0.010	0.005	0.003
21	432	0	432	1	0.002	0.998	0.831	2.348	0.002	0.005	0.002	0.002
22	431	0	431	1	0.002	0.998	0.829	2.484	0.002	0.006	0.002	0.002
23	430	426	217	4	0.018	0.982	0.814	2.472	0.015	0.046	0.019	0.009
Completers (Completed PPP First Time) (N=1180)												
0	1180	0	1180	9	0.008	0.992	0.992	0.330	0.008	0.003	0.008	0.003
1	1171	0	1171	5	0.004	0.996	0.988	0.550	0.004	0.002	0.004	0.002
2	1166	0	1166	4	0.003	0.997	0.985	0.736	0.003	0.003	0.003	0.002
3	1162	0	1162	9	0.008	0.992	0.977	0.799	0.008	0.006	0.008	0.003
4	1153	0	1153	9	0.008	0.992	0.969	0.856	0.008	0.007	0.008	0.003
5	1144	0	1144	14	0.012	0.988	0.958	0.883	0.012	0.011	0.012	0.003
6	1130	0	1130	8	0.007	0.993	0.951	0.938	0.007	0.007	0.007	0.003
7	1122	0	1122	11	0.010	0.990	0.942	0.971	0.009	0.010	0.010	0.003
8	1111	1	1110.5	8	0.007	0.993	0.935	1.019	0.007	0.007	0.007	0.003

9	1102	0	1102	8	0.007	0.993	0.928	1.063	0.007	0.008	0.007	0.003
10	1094	1	1093.5	6	0.005	0.995	0.923	1.122	0.005	0.006	0.006	0.002
11	1087	0	1087	12	0.011	0.989	0.913	1.140	0.010	0.013	0.011	0.003
12	1075	0	1075	6	0.006	0.994	0.908	1.192	0.005	0.007	0.006	0.002
13	1069	0	1069	4	0.004	0.996	0.904	1.271	0.003	0.005	0.004	0.002
14	1065	0	1065	4	0.004	0.996	0.901	1.343	0.003	0.005	0.004	0.002
15	1061	0	1061	5	0.005	0.995	0.897	1.396	0.004	0.007	0.005	0.002
16	1056	0	1056	3	0.003	0.997	0.894	1.484	0.003	0.004	0.003	0.002
17	1053	0	1053	6	0.006	0.994	0.889	1.519	0.005	0.009	0.006	0.002
18	1047	0	1047	4	0.004	0.996	0.886	1.577	0.003	0.006	0.004	0.002
19	1043	0	1043	5	0.005	0.995	0.881	1.618	0.004	0.008	0.005	0.002
20	1038	0	1038	7	0.007	0.993	0.875	1.640	0.006	0.011	0.007	0.003
21	1031	0	1031	4	0.004	0.996	0.872	1.691	0.003	0.007	0.004	0.002
22	1027	0	1027	3	0.003	0.997	0.869	1.759	0.003	0.005	0.003	0.002
23	1024	1017	515.5	7	0.014	0.986	0.858	1.764	0.012	0.024	0.014	0.005
Repeater Completers (Completed After Repeating PPP) (n=74)												
0	74	0	74	1	0.014	0.986	0.986	0.980	0.014	0.013	0.014	0.014
1	73	0	73	1	0.014	0.986	0.973	1.367	0.014	0.019	0.014	0.014
2	72	0	72	0	0.000	1.000	0.973	1.674	0.000	0.000	0.000	0.000
3	72	0	72	0	0.000	1.000	0.973	1.933	0.000	0.000	0.000	0.000
4	72	0	72	2	0.028	0.972	0.946	1.991	0.027	0.057	0.028	0.020
5	70	0	70	2	0.029	0.971	0.919	2.038	0.027	0.060	0.029	0.020
6	68	0	68	0	0.000	1.000	0.919	2.136	0.000	0.000	0.000	0.000
7	68	0	68	0	0.000	1.000	0.919	2.230	0.000	0.000	0.000	0.000
8	68	0	68	0	0.000	1.000	0.919	2.320	0.000	0.000	0.000	0.000
9	68	0	68	0	0.000	1.000	0.919	2.407	0.000	0.000	0.000	0.000
10	68	0	68	0	0.000	1.000	0.919	2.491	0.000	0.000	0.000	0.000
11	68	0	68	1	0.015	0.985	0.905	2.613	0.014	0.039	0.015	0.015
12	67	0	67	1	0.015	0.985	0.892	2.722	0.014	0.041	0.015	0.015
13	66	0	66	1	0.015	0.985	0.878	2.819	0.014	0.043	0.015	0.015
14	65	0	65	0	0.000	1.000	0.878	2.951	0.000	0.000	0.000	0.000
15	65	0	65	0	0.000	1.000	0.878	3.077	0.000	0.000	0.000	0.000
16	65	0	65	2	0.031	0.969	0.851	3.041	0.027	0.097	0.031	0.022
17	63	0	63	1	0.016	0.984	0.838	3.106	0.014	0.050	0.016	0.016
18	62	0	62	0	0.000	1.000	0.838	3.215	0.000	0.000	0.000	0.000
19	62	0	62	0	0.000	1.000	0.838	3.321	0.000	0.000	0.000	0.000
20	62	0	62	2	0.032	0.968	0.811	3.263	0.027	0.109	0.033	0.023
21	60	0	60	0	0.000	1.000	0.811	3.311	0.000	0.000	0.000	0.000
22	60	0	60	1	0.017	0.983	0.797	3.350	0.014	0.057	0.017	0.017
23	59	59	29.5	0	0.000	1.000	0.797	3.442	0.000	0.000	0.000	0.000

* There was a statistically significant difference in the risk (hazard) of referral by completion status (Wilcoxon=6.492, p=.039). Post hoc analysis showed completers had a lower mean risk than non-completers (Wilcoxon=5.154, p=.023), while there were no statistically significant differences in mean risk rates between repeater completers and the other two groups (p=.127, p=.676).

Table 10. Kaplan Meier Results: Mean Number of Days Surviving Without CPS Referral by PPP Completion Status (n=1776)

PPP Completion Status	Estimated Mean^	Std. Error	Confidence Interval Lower Bound	Confidence Interval Upper Bound
No, never completed*	695.14	5.680	684.01	706.27
Yes, completed first class*	703.67	3.365	697.07	710.27
Yes, Completed after repeating	688.58	16.252	656.73	720.43
Overall	700.53	2.873	694.90	706.17

^The mean in survival analysis is an estimate based on the area under the survival curve. Estimate is limited to 760 days.

*The mean "survival time" without referral to CPS for all three groups is approximately 21 ½ to 22 months. There is a statistically significant difference in the survival distributions for subsequent CPS referral by completion status (Wilcoxon=6.492, p=.039). Survival time is significantly longer for first time completers compared to non-completers (Wilcoxon=5.154, p=.023). However, there is no significant differences between repeater completers and first time completers or non-completers.

Figure 1. Kaplan Meier Procedure: Survival Curve Comparing Time without Referral by Completion Status (n=1776)

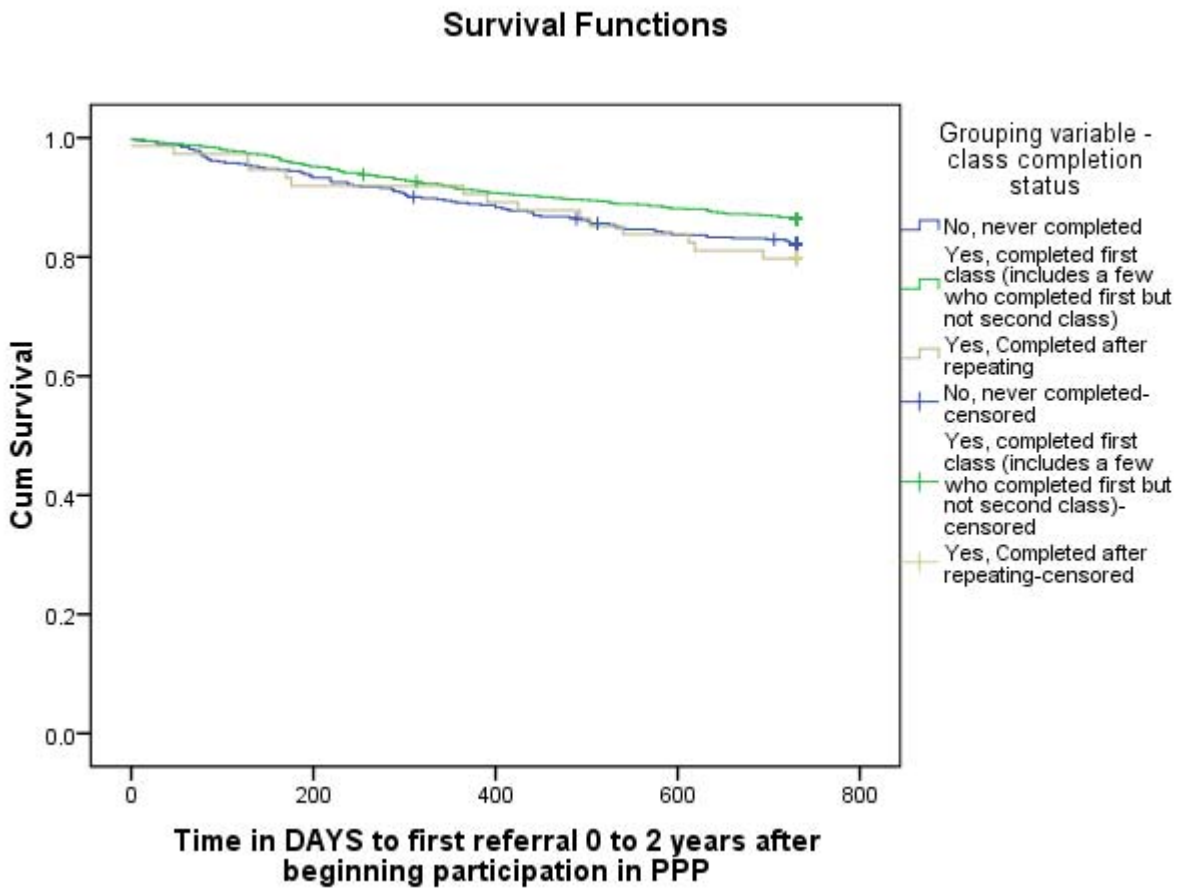

Figure 2. Kaplan Meier Procedure: Comparing Cumulative Hazard Rate for CPS Referrals by Completion Status (n=1776)

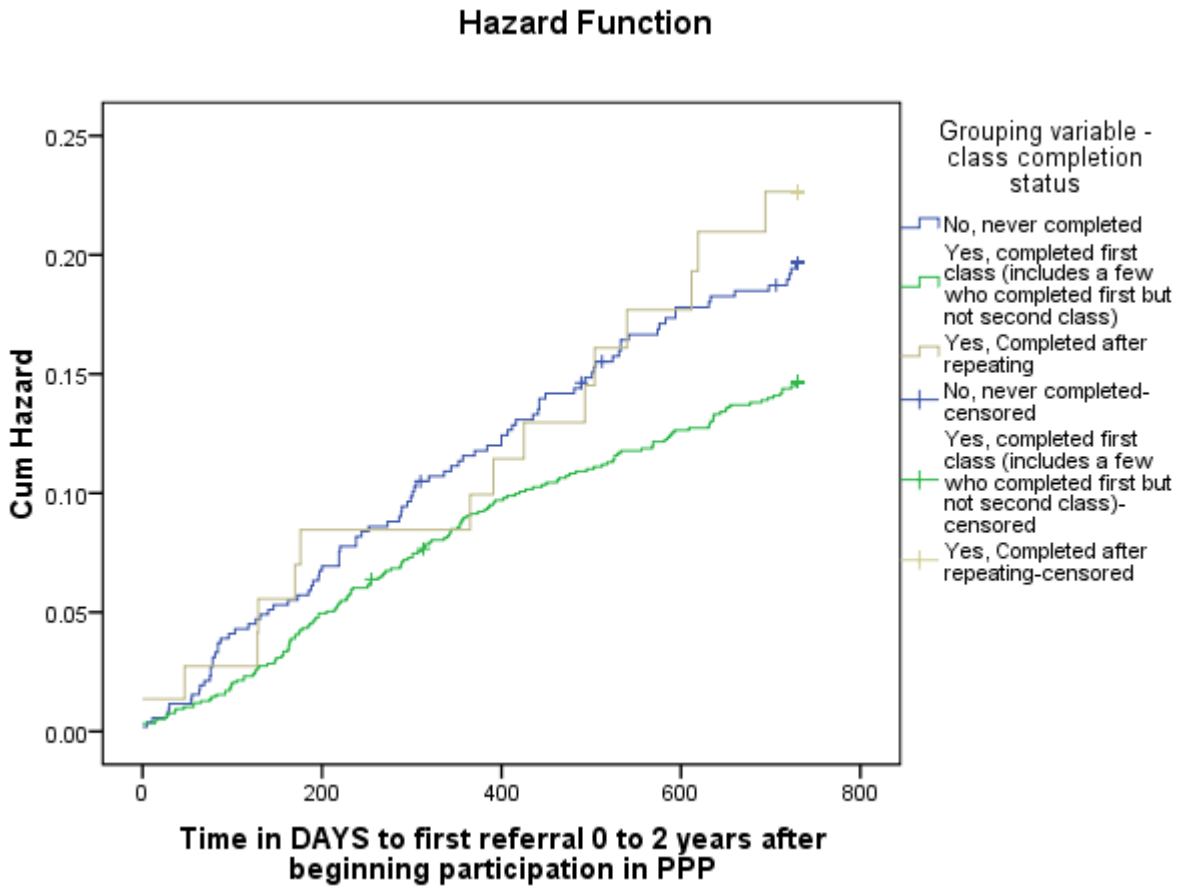

Table 11. Cox Regression, Initial Model: Predictors of Hazard of Referral to CPS after Beginning PPP (n=1286)

Model: $\chi 2=168.245$, df= 13, p<.0005

							95.0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
Gender	-.053	.183	.083	1	.773	.949	.663	1.357
Race	-.606	.203	8.894	1	**.003**	.545	.366	.812
Age	-.003	.008	.113	1	.736	.997	.982	1.013
Income	-.135	.073	3.434	1	.064	.873	.757	1.008
Prior Referrals	2.536	.280	81.934	1	**.000**	12.633	7.295	21.879
AAPI Parenting Baseline Scores								
Developmental expectations	-.071	.048	2.129	1	.145	.932	.847	1.025
Empathy toward the child	.026	.043	.355	1	.551	1.026	.943	1.117
Discipline	.034	.041	.709	1	.400	1.035	.956	1.120
Role reversal	.036	.048	.571	1	.450	1.037	.944	1.139
Power and independence	.018	.035	.261	1	.609	1.018	.951	1.090
Self-esteem (Rosenberg)	-.004	.014	.099	1	.754	.996	.968	1.024
PPP Completion (ref=non-completer)			.484	2	.785			
First time	-.106	.153	.484	1	.487	.899	.666	1.213
Repeater	-.070	.315	.050	1	.823	.932	.502	1.730

Table 12. Cox Regression, Final Model: Predictors of Hazard of Referral to CPS After Beginning PPP (n=1483)

Model: $\chi 2=179.620$, df=2, p<.0005

							95.0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
Race	.540	.176	9.454	1	**.002**	1.716	1.216	2.421
Prior referrals	2.493	.245	103.243	1	**.000**	12.096	7.479	19.566

Appendix D. Survival Analyses: Removals from Home after Beginning PPP

Table 13. Life Table: PPP Participants Time to Removal From Home 0 - 24 Months After Beginning PPP (n=1776)

Interval Start Time	Number Entering Interval	Number Withdrawing during Interval	Number Exposed to Risk	Number of Terminal Events	Proportion Terminating	Proportion Surviving	Cumulative Proportion Surviving at End of Interval	Std. Error of Cumulative Proportion Surviving at End of Interval	Probability Density	Std. Error of Probability Density	Hazard Rate	Std. Error of Hazard Rate
0	1776	0	1776	8	0.005	0.995	0.995	0.351	0.005	0.002	0.005	0.002
1	1768	0	1768	7	0.004	0.996	0.992	0.512	0.004	0.002	0.004	0.001
2	1761	0	1761	7	0.004	0.996	0.988	0.632	0.004	0.003	0.004	0.002
3	1754	0	1754	7	0.004	0.996	0.984	0.730	0.004	0.003	0.004	0.002
4	1747	0	1747	9	0.005	0.995	0.979	0.796	0.005	0.004	0.005	0.002
5	1738	0	1738	4	0.002	0.998	0.976	0.932	0.002	0.002	0.002	0.001
6	1734	0	1734	7	0.004	0.996	0.972	0.998	0.004	0.004	0.004	0.002
7	1727	0	1727	6	0.003	0.997	0.969	1.070	0.003	0.004	0.003	0.001
8	1721	0	1721	4	0.002	0.998	0.967	1.172	0.002	0.003	0.002	0.001
9	1717	0	1717	8	0.005	0.995	0.962	1.215	0.005	0.006	0.005	0.002
10	1709	0	1709	9	0.005	0.995	0.957	1.250	0.005	0.007	0.005	0.002
11	1700	0	1700	6	0.004	0.996	0.954	1.304	0.003	0.005	0.004	0.001
12	1694	0	1694	1	0.001	0.999	0.953	1.615	0.001	0.001	0.001	0.001
13	1693	0	1693	3	0.002	0.998	0.952	1.703	0.002	0.003	0.002	0.001
14	1690	0	1690	6	0.004	0.996	0.948	1.740	0.003	0.006	0.004	0.001
15	1684	0	1684	3	0.002	0.998	0.947	1.821	0.002	0.003	0.002	0.001
16	1681	0	1681	3	0.002	0.998	0.945	1.898	0.002	0.003	0.002	0.001
17	1678	0	1678	4	0.002	0.998	0.943	1.951	0.002	0.005	0.002	0.001
18	1674	0	1674	5	0.003	0.997	0.940	1.990	0.003	0.006	0.003	0.001
19	1669	0	1669	5	0.003	0.997	0.937	2.027	0.003	0.006	0.003	0.001
20	1664	0	1664	1	0.001	0.999	0.936	2.232	0.001	0.001	0.001	0.001
21	1663	0	1663	1	0.001	0.999	0.936	2.419	0.001	0.001	0.001	0.001
22	1662	0	1662	1	0.001	0.999	0.935	2.592	0.001	0.002	0.001	0.001
23	1661	1656	833	5	0.006	0.994	0.930	2.609	0.006	0.016	0.006	0.003

Table 14. Life Table: PPP Participants Time to Removal from Home 0 - 24 Months after Beginning PPP by Completion Status* (n=1776)

Interval Start Time	Number Entering Interval	Number Withdrawing during Interval	Number Exposed to Risk	Number of Terminal Events	Proportion Terminating	Proportion Surviving	Cumulative Proportion Surviving at End of Interval	Std. Error of Cum. Prop. Surviving at End of Interval	Probability Density	Std. Error of Probability Density	Hazard Rate	Std. Error of Hazard Rate
Non-completers (Did not complete PPP) (n=522)												
0	522	0	522	4	0.008	0.992	0.992	0.494	0.008	0.004	0.008	0.004
1	518	0	518	2	0.004	0.996	0.989	0.854	0.004	0.003	0.004	0.003
2	516	0	516	2	0.004	0.996	0.985	1.098	0.004	0.004	0.004	0.003
3	514	0	514	3	0.006	0.994	0.979	1.229	0.006	0.007	0.006	0.003
4	511	0	511	2	0.004	0.996	0.975	1.404	0.004	0.006	0.004	0.003
5	509	0	509	0	0.000	1.000	0.975	1.564	0.000	0.000	0.000	0.000
6	509	0	509	3	0.006	0.994	0.969	1.652	0.006	0.010	0.006	0.003
7	506	0	506	3	0.006	0.994	0.964	1.733	0.006	0.010	0.006	0.003
8	503	0	503	1	0.002	0.998	0.962	1.978	0.002	0.004	0.002	0.002
9	502	0	502	3	0.006	0.994	0.956	2.042	0.006	0.012	0.006	0.003
10	499	0	499	3	0.006	0.994	0.950	2.102	0.006	0.013	0.006	0.003
11	496	0	496	0	0.000	1.000	0.950	2.172	0.000	0.000	0.000	0.000
12	496	0	496	0	0.000	1.000	0.950	2.240	0.000	0.000	0.000	0.000
13	496	0	496	1	0.002	0.998	0.948	2.428	0.002	0.005	0.002	0.002
14	495	0	495	3	0.006	0.994	0.943	2.473	0.006	0.015	0.006	0.004
15	492	0	492	0	0.000	1.000	0.943	2.532	0.000	0.000	0.000	0.000
16	492	0	492	3	0.006	0.994	0.937	2.574	0.006	0.016	0.006	0.004
17	489	0	489	2	0.004	0.996	0.933	2.647	0.004	0.011	0.004	0.003
18	487	0	487	4	0.008	0.992	0.925	2.665	0.008	0.022	0.008	0.004
19	483	0	483	3	0.006	0.994	0.920	2.701	0.006	0.017	0.006	0.004
20	480	0	480	0	0.000	1.000	0.920	2.752	0.000	0.000	0.000	0.000
21	480	0	480	1	0.002	0.998	0.918	2.895	0.002	0.006	0.002	0.002
22	479	0	479	0	0.000	1.000	0.918	3.037	0.000	0.000	0.000	0.000
23	479	477	240.5	2	0.008	0.992	0.910	3.079	0.008	0.026	0.008	0.006
Completers (Completed PPP First Time) (N=1180)												
0	1180	0	1180	4	0.003	0.997	0.997	0.497	0.003	0.002	0.003	0.002
1	1176	0	1176	4	0.003	0.997	0.993	0.701	0.003	0.002	0.003	0.002
2	1172	0	1172	5	0.004	0.996	0.989	0.826	0.004	0.004	0.004	0.002
3	1167	0	1167	4	0.003	0.997	0.986	0.959	0.003	0.003	0.003	0.002
4	1163	0	1163	6	0.005	0.995	0.981	1.034	0.005	0.005	0.005	0.002
5	1157	0	1157	3	0.003	0.997	0.978	1.176	0.003	0.003	0.003	0.001
6	1154	0	1154	4	0.003	0.997	0.975	1.268	0.003	0.004	0.003	0.002
7	1150	0	1150	3	0.003	0.997	0.972	1.384	0.003	0.004	0.003	0.002
8	1147	0	1147	3	0.003	0.997	0.969	1.489	0.003	0.004	0.003	0.002

9	1144	0	1144	4	0.003	0.997	0.966	1.560	0.003	0.005	0.004	0.002
10	1140	0	1140	6	0.005	0.995	0.961	1.601	0.005	0.008	0.005	0.002
11	1134	0	1134	5	0.004	0.996	0.957	1.650	0.004	0.007	0.004	0.002
12	1129	0	1129	1	0.001	0.999	0.956	1.905	0.001	0.002	0.001	0.001
13	1128	0	1128	1	0.001	0.999	0.955	2.129	0.001	0.002	0.001	0.001
14	1127	0	1127	3	0.003	0.997	0.953	2.194	0.003	0.006	0.003	0.002
15	1124	0	1124	3	0.003	0.997	0.950	2.255	0.003	0.006	0.003	0.002
16	1121	0	1121	0	0.000	1.000	0.950	2.321	0.000	0.000	0.000	0.000
17	1121	0	1121	2	0.002	0.998	0.948	2.412	0.002	0.004	0.002	0.001
18	1119	0	1119	1	0.001	0.999	0.947	2.589	0.001	0.002	0.001	0.001
19	1118	0	1118	2	0.002	0.998	0.946	2.669	0.002	0.005	0.002	0.001
20	1116	0	1116	0	0.000	1.000	0.946	2.752	0.000	0.000	0.000	0.000
21	1116	0	1116	0	0.000	1.000	0.946	2.832	0.000	0.000	0.000	0.000
22	1116	0	1116	1	0.001	0.999	0.945	2.983	0.001	0.003	0.001	0.001
23	1115	1112	559	3	0.005	0.995	0.940	3.016	0.005	0.016	0.005	0.003
Repeater Completers (Completed After Repeating PPP) (n=74)												
0	74	0	74	0	0.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
1	74	0	74	1	0.014	0.986	0.986	1.390	0.014	0.019	0.014	0.014
2	73	0	73	0	0.000	1.000	0.986	1.701	0.000	0.000	0.000	0.000
3	73	0	73	0	0.000	1.000	0.986	1.963	0.000	0.000	0.000	0.000
4	73	0	73	1	0.014	0.986	0.973	2.164	0.014	0.030	0.014	0.014
5	72	0	72	1	0.014	0.986	0.959	2.337	0.014	0.033	0.014	0.014
6	71	0	71	0	0.000	1.000	0.959	2.524	0.000	0.000	0.000	0.000
7	71	0	71	0	0.000	1.000	0.959	2.697	0.000	0.000	0.000	0.000
8	71	0	71	0	0.000	1.000	0.959	2.861	0.000	0.000	0.000	0.000
9	71	0	71	1	0.014	0.986	0.946	2.973	0.014	0.042	0.014	0.014
10	70	0	70	0	0.000	1.000	0.946	3.118	0.000	0.000	0.000	0.000
11	70	0	70	1	0.014	0.986	0.932	3.209	0.014	0.047	0.014	0.014
12	69	0	69	0	0.000	1.000	0.932	3.340	0.000	0.000	0.000	0.000
13	69	0	69	1	0.014	0.986	0.919	3.416	0.014	0.050	0.015	0.015
14	68	0	68	0	0.000	1.000	0.919	3.536	0.000	0.000	0.000	0.000
15	68	0	68	0	0.000	1.000	0.919	3.651	0.000	0.000	0.000	0.000
16	68	0	68	0	0.000	1.000	0.919	3.764	0.000	0.000	0.000	0.000
17	68	0	68	0	0.000	1.000	0.919	3.873	0.000	0.000	0.000	0.000
18	68	0	68	0	0.000	1.000	0.919	3.979	0.000	0.000	0.000	0.000
19	68	0	68	0	0.000	1.000	0.919	4.082	0.000	0.000	0.000	0.000
20	68	0	68	1	0.015	0.985	0.905	4.121	0.014	0.062	0.015	0.015
21	67	0	67	0	0.000	1.000	0.905	4.218	0.000	0.000	0.000	0.000
22	67	0	67	0	0.000	1.000	0.905	4.313	0.000	0.000	0.000	0.000
23	67	67	33.5	0	0.000	1.000	0.905	4.405	0.000	0.000	0.000	0.000

* There was <u>not</u> a statistically significant difference in the risk (hazard) of removal by completion status, but there was a trend toward significance (Wilcoxon=5.354, p=.069).

Table 15. Kaplan Meier Results: Mean Number of Days Surviving Without Removal from Home by PPP Completion Status (n=1776)

PPP Completion Status	Estimated Mean	Std. Error	Confidence Interval Lower Bound	Confidence Interval Upper Bound
No, never completed	695.14	5.680	684.01	706.27
Yes, completed first class	703.67	3.365	697.07	710.27
Yes, Completed after repeating	688.58	16.252	656.73	720.43
Overall	700.53	2.873	694.90	706.17

*The mean "survival time" without referral to CPS for all three groups is approximately 23 months. There is no statistically significant difference in the survival distributions for subsequent removal by completion status.

Figure 3. Kaplan Meier Procedure: Survival Curve Comparing Time without Removal from Home by Completion Status (n=1776)

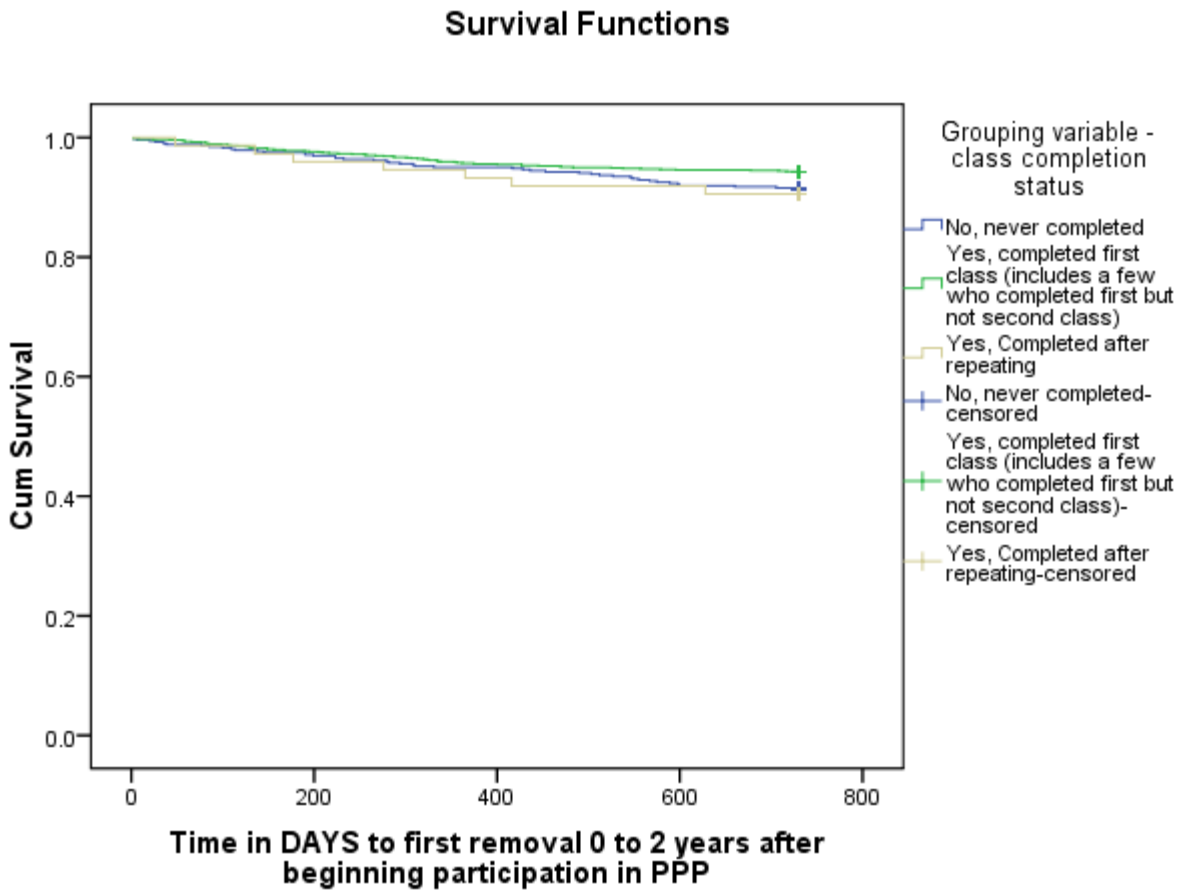

Figure 4. Kaplan Meier Procedure: Comparing Cumulative Hazard Rate for Removals from Home by Completion Status (n=1776)

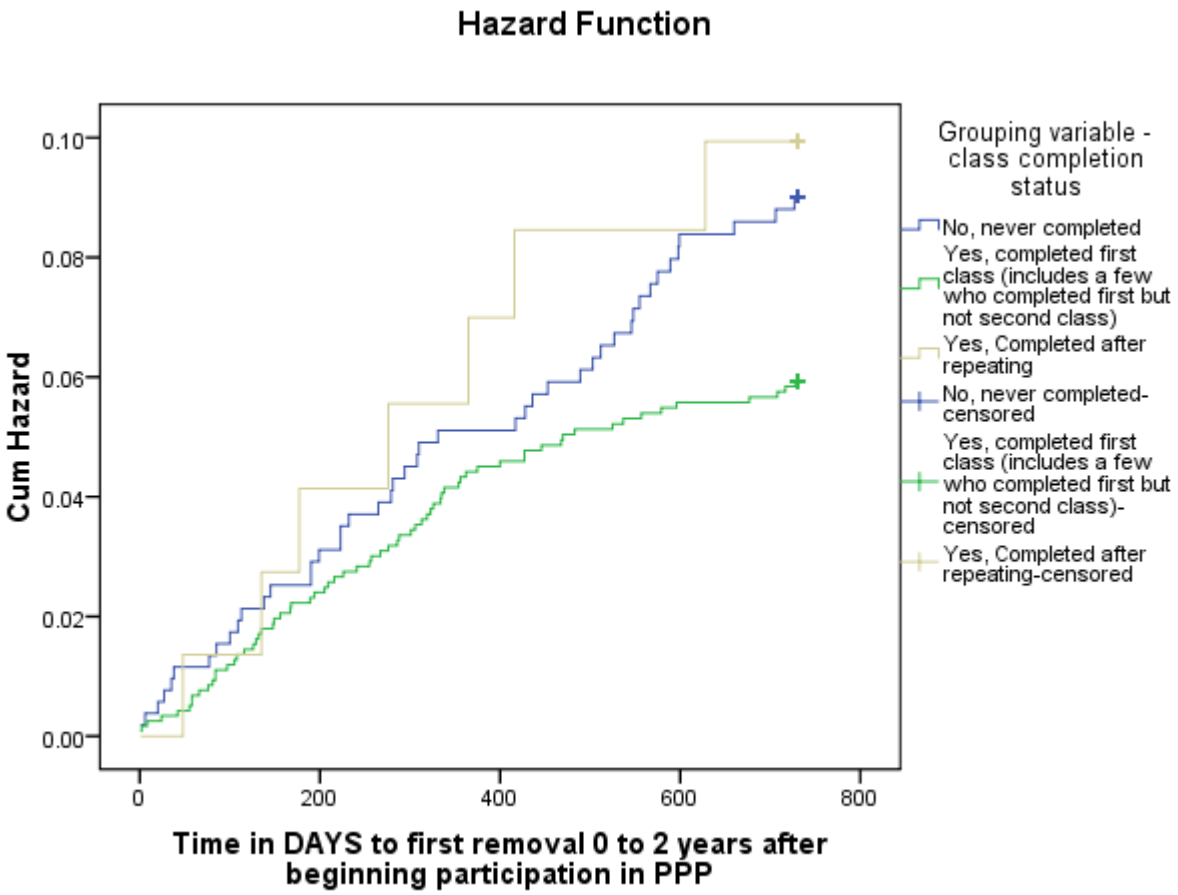

Table 16. Cox Regression, Initial Model: Predictors of Hazard of Removal from Home after Beginning PPP (n=1286)

Model: $\chi 2=73.401$, df= 13, p<.0005

							95.0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
Gender	-0.092	0.272	0.114	1	0.736	0.912	0.535	1.556
Race	-0.167	0.265	0.399	1	0.528	0.846	0.504	1.421
Age	-0.018	0.012	2.119	1	0.145	0.982	0.958	1.006
Income	0.086	0.104	0.683	1	0.409	1.090	0.889	1.336
Prior Referrals	2.723	0.465	34.244	1	**0.000**	**15.223**	6.116	37.892
AAPI Parenting Baseline Scores								
Developmental expectations	-0.042	0.076	0.305	1	0.581	0.959	0.826	1.113
Empathy toward the child	-0.081	0.069	1.382	1	0.240	0.923	0.807	1.055
Discipline	-0.016	0.063	0.060	1	0.806	0.985	0.869	1.115
Role reversal	0.022	0.073	0.089	1	0.766	1.022	0.886	1.179
Power and independence	-0.028	0.055	0.260	1	0.610	0.973	0.874	1.082
Self-esteem (Rosenberg)	0.005	0.022	0.064	1	0.801	1.005	0.964	1.049
PPP Completion (ref=non-completer)			2.845	2	0.241			
First time	-0.302	0.230	1.732	1	0.188	0.739	0.471	1.159
Repeater	0.239	0.422	0.321	1	0.571	1.270	0.556	2.904

Table 17. Cox Regression, Final Model: Predictors of Hazard of REMOVAL FROM HOME After Beginning PPP (n=1776)

Model: $\chi 2=94.131$, df=1, p<.0005

							95.0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
Prior referrals	2.583	.347	55.543	1	**.000**	**13.240**	6.712	26.118

Appendix E. Survival Analyses: Returns Home after Beginning PPP

Table 18. Life Table: PPP Participants Time to Reunification 0 - 24 Months After Beginning PPP, for Those Reporting at Least One Child in OHC (n=442)

Interval Start Time	Number Entering Interval	Number Withdrawing during Interval	Number Exposed to Risk	Number of Terminal Events	Proportion Terminating	Proportion Surviving	Cumulative Proportion Surviving at End of Interval	Std. Error of Cumulative Proportion Surviving at End of Interval	Probability Density	Std. Error of Probability Density	Hazard Rate	Std. Error of Hazard Rate
0	442	6	439	7	0.016	0.984	0.984	0.369	0.016	0.006	0.016	0.006
1	429	7	425.5	4	0.009	0.991	0.975	0.607	0.009	0.006	0.009	0.005
2	418	4	416	9	0.022	0.978	0.954	0.672	0.021	0.015	0.022	0.007
3	405	4	403	7	0.017	0.983	0.937	0.748	0.017	0.013	0.018	0.007
4	394	5	391.5	4	0.010	0.990	0.928	0.872	0.010	0.009	0.010	0.005
5	385	3	383.5	4	0.010	0.990	0.918	0.977	0.010	0.010	0.010	0.005
6	378	4	376	7	0.019	0.981	0.901	1.016	0.017	0.019	0.019	0.007
7	367	4	365	8	0.022	0.978	0.881	1.040	0.020	0.023	0.022	0.008
8	355	3	353.5	1	0.003	0.997	0.879	1.359	0.002	0.004	0.003	0.003
9	351	2	350	3	0.009	0.991	0.871	1.437	0.008	0.012	0.009	0.005
10	346	3	344.5	4	0.012	0.988	0.861	1.484	0.010	0.017	0.012	0.006
11	339	2	338	9	0.027	0.973	0.838	1.470	0.023	0.040	0.027	0.009
12	328	2	327	6	0.018	0.982	0.823	1.481	0.015	0.028	0.019	0.008
13	320	3	318.5	1	0.003	0.997	0.820	1.688	0.003	0.005	0.003	0.003
14	316	6	313	5	0.016	0.984	0.807	1.699	0.013	0.028	0.016	0.007
15	305	2	304	8	0.026	0.974	0.786	1.677	0.021	0.045	0.027	0.009
16	295	3	293.5	4	0.014	0.986	0.775	1.698	0.011	0.023	0.014	0.007
17	288	3	286.5	4	0.014	0.986	0.764	1.717	0.011	0.024	0.014	0.007
18	281	0	281	4	0.014	0.986	0.753	1.734	0.011	0.025	0.014	0.007
19	277	5	274.5	2	0.007	0.993	0.748	1.800	0.005	0.013	0.007	0.005
20	270	3	268.5	4	0.015	0.985	0.737	1.810	0.011	0.027	0.015	0.008
21	263	6	260	3	0.012	0.988	0.728	1.838	0.009	0.021	0.012	0.007
22	254	0	254	2	0.008	0.992	0.722	1.893	0.006	0.015	0.008	0.006
23	252	250	127	2	0.016	0.984	0.711	1.929	0.011	0.031	0.016	0.011

Table 19. Life Table: PPP Participants Time to Reunification 0 - 24 Months after Beginning PPP For Those Who Report At Least One Child in OHC by Completion Status* (n=442)

Interval Start Time	Number Entering Interval	Number Withdrawing during Interval	Number Exposed to Risk	Number of Terminal Events	Proportion Terminating	Proportion Surviving	Cumulative Proportion Surviving at End of Interval	Std. Error of Cum. Prop. Surviving at End of Interval	Probability Density	Std. Error of Probability Density	Hazard Rate	Std. Error of Hazard Rate
Non-completers (Did not complete PPP) (n= 143)												
0	143	2	142	1	0.007	0.993	0.993	0.989	0.007	0.007	0.007	0.007
1	140	3	138.5	3	0.022	0.978	0.971	1.116	0.022	0.025	0.022	0.013
2	134	0	134	3	0.022	0.978	0.950	1.218	0.022	0.028	0.023	0.013
3	131	2	130	2	0.015	0.985	0.935	1.367	0.015	0.021	0.016	0.011
4	127	2	126	0	0.000	1.000	0.935	1.516	0.000	0.000	0.000	0.000
5	125	1	124.5	2	0.016	0.984	0.920	1.626	0.015	0.027	0.016	0.011
6	122	1	121.5	1	0.008	0.992	0.912	1.851	0.008	0.015	0.008	0.008
7	120	0	120	4	0.033	0.967	0.882	1.841	0.030	0.063	0.034	0.017
8	116	1	115.5	1	0.009	0.991	0.874	2.022	0.008	0.018	0.009	0.009
9	114	2	113	0	0.000	1.000	0.874	2.201	0.000	0.000	0.000	0.000
10	112	2	111	2	0.018	0.982	0.859	2.244	0.016	0.041	0.018	0.013
11	108	0	108	0	0.000	1.000	0.859	2.323	0.000	0.000	0.000	0.000
12	108	0	108	0	0.000	1.000	0.859	2.400	0.000	0.000	0.000	0.000
13	108	2	107	0	0.000	1.000	0.859	2.474	0.000	0.000	0.000	0.000
14	106	2	105	3	0.029	0.971	0.834	2.450	0.025	0.072	0.029	0.017
15	101	0	101	2	0.020	0.980	0.818	2.469	0.017	0.050	0.020	0.014
16	99	3	97.5	0	0.000	1.000	0.818	2.534	0.000	0.000	0.000	0.000
17	96	1	95.5	1	0.010	0.990	0.809	2.634	0.009	0.028	0.011	0.011
18	94	0	94	0	0.000	1.000	0.809	2.754	0.000	0.000	0.000	0.000
19	94	2	93	0	0.000	1.000	0.809	2.869	0.000	0.000	0.000	0.000
20	92	2	91	0	0.000	1.000	0.809	2.980	0.000	0.000	0.000	0.000
21	90	3	88.5	1	0.011	0.989	0.800	3.052	0.009	0.035	0.011	0.011
22	86	0	86	2	0.023	0.977	0.781	3.030	0.019	0.072	0.024	0.017
23	84	84	42	0	0.000	1.000	0.781	3.079	0.000	0.000	0.000	0.000
Completers (Completed PPP First Time) (N= 275)												
0	275	4	273	5	0.018	0.982	0.982	0.435	0.018	0.008	0.018	0.008
1	266	4	264	1	0.004	0.996	0.978	1.068	0.004	0.004	0.004	0.004
2	261	3	259.5	6	0.023	0.977	0.955	1.112	0.023	0.026	0.023	0.010
3	252	2	251	5	0.020	0.980	0.936	1.166	0.019	0.024	0.020	0.009
4	245	3	243.5	4	0.016	0.984	0.921	1.235	0.015	0.021	0.017	0.008
5	238	2	237	2	0.008	0.992	0.913	1.383	0.008	0.012	0.008	0.006
6	234	2	233	5	0.021	0.979	0.894	1.410	0.020	0.031	0.022	0.010
7	227	3	225.5	4	0.018	0.982	0.878	1.451	0.016	0.026	0.018	0.009
8	220	2	219	0	0.000	1.000	0.878	1.515	0.000	0.000	0.000	0.000

9	218	0	218	3	0.014	0.986	0.866	1.575	0.012	0.022	0.014	0.008
10	215	1	214.5	2	0.009	0.991	0.858	1.673	0.008	0.016	0.009	0.007
11	212	2	211	9	0.043	0.957	0.821	1.623	0.037	0.072	0.044	0.015
12	201	1	200.5	5	0.025	0.975	0.801	1.622	0.020	0.041	0.025	0.011
13	195	1	194.5	1	0.005	0.995	0.796	1.799	0.004	0.009	0.005	0.005
14	193	4	191	2	0.010	0.990	0.788	1.864	0.008	0.020	0.011	0.007
15	187	2	186	6	0.032	0.968	0.763	1.830	0.025	0.061	0.033	0.013
16	179	0	179	4	0.022	0.978	0.746	1.826	0.017	0.042	0.023	0.011
17	175	2	174	3	0.017	0.983	0.733	1.843	0.013	0.032	0.017	0.010
18	170	0	170	4	0.024	0.976	0.716	1.834	0.017	0.044	0.024	0.012
19	166	3	164.5	2	0.012	0.988	0.707	1.879	0.009	0.023	0.012	0.009
20	161	1	160.5	3	0.019	0.981	0.694	1.886	0.013	0.036	0.019	0.011
21	157	2	156	2	0.013	0.987	0.685	1.923	0.009	0.025	0.013	0.009
22	153	0	153	0	0.000	1.000	0.685	1.982	0.000	0.000	0.000	0.000
23	153	151	77.5	2	0.026	0.974	0.667	1.986	0.018	0.053	0.026	0.018
Repeater Completers (Completed After Repeating PPP) (n=24)												
0	24	0	24	1	0.042	0.958	0.958	0.938	0.042	0.041	0.043	0.043
1	23	0	23	0	0.000	1.000	0.958	1.327	0.000	0.000	0.000	0.000
2	23	1	22.5	0	0.000	1.000	0.958	1.625	0.000	0.000	0.000	0.000
3	22	0	22	0	0.000	1.000	0.958	1.876	0.000	0.000	0.000	0.000
4	22	0	22	0	0.000	1.000	0.958	2.098	0.000	0.000	0.000	0.000
5	22	0	22	0	0.000	1.000	0.958	2.298	0.000	0.000	0.000	0.000
6	22	1	21.5	1	0.047	0.953	0.914	2.366	0.045	0.115	0.048	0.048
7	20	1	19.5	0	0.000	1.000	0.914	2.528	0.000	0.000	0.000	0.000
8	19	0	19	0	0.000	1.000	0.914	2.681	0.000	0.000	0.000	0.000
9	19	0	19	0	0.000	1.000	0.914	2.826	0.000	0.000	0.000	0.000
10	19	0	19	0	0.000	1.000	0.914	2.963	0.000	0.000	0.000	0.000
11	19	0	19	0	0.000	1.000	0.914	3.095	0.000	0.000	0.000	0.000
12	19	1	18.5	1	0.054	0.946	0.864	3.046	0.049	0.174	0.056	0.056
13	17	0	17	0	0.000	1.000	0.864	3.160	0.000	0.000	0.000	0.000
14	17	0	17	0	0.000	1.000	0.864	3.270	0.000	0.000	0.000	0.000
15	17	0	17	0	0.000	1.000	0.864	3.376	0.000	0.000	0.000	0.000
16	17	0	17	0	0.000	1.000	0.864	3.479	0.000	0.000	0.000	0.000
17	17	0	17	0	0.000	1.000	0.864	3.579	0.000	0.000	0.000	0.000
18	17	0	17	0	0.000	1.000	0.864	3.677	0.000	0.000	0.000	0.000
19	17	0	17	0	0.000	1.000	0.864	3.772	0.000	0.000	0.000	0.000
20	17	0	17	1	0.059	0.941	0.814	3.636	0.051	0.227	0.061	0.061
21	16	1	15.5	0	0.000	1.000	0.814	3.721	0.000	0.000	0.000	0.000
22	15	0	15	0	0.000	1.000	0.814	3.804	0.000	0.000	0.000	0.000
23	15	15	7.5	0	0.000	1.000	0.814	3.885	0.000	0.000	0.000	0.000

* When examining survival time in months, there was not a statistically significant difference in the chance (hazard) of reunification by completion status (Wilcoxon=3.875, p=.144).

Table 20. Kaplan Meier Results: Mean Number of Days "Surviving" Without A Child Being Reunified by PPP Completion Status (n=442)

PPP Completion Status	Estimated Mean^	Std. Error	Confidence Interval Lower Bound	Confidence Interval Upper Bound
No, never completed	633.83	17.785	598.972	668.689
Yes, completed first class	603.14	13.382	576.908	629.364
Yes, Completed after repeating	654.68	38.653	578.919	730.440
Overall	615.71	10.376	595.373	636.046

^The mean in survival analysis is an estimate based on the area under the survival curve. Estimate is limited to 730 days, the end of the two year period for which data are available for all caregivers.

*The estimated mean "survival time" without reunification for all three groups ranges from 603 days to 654 days, or approximately 20 ½ to almost 22 months. There is no statistically significant difference in the survival distributions for reunification after PPP by completion status ($\chi 2=4.720$, p=.094).

Figure 5. Kaplan Meier Procedure: Survival Curve Comparing Time without Reunification by Completion Status (n=442)

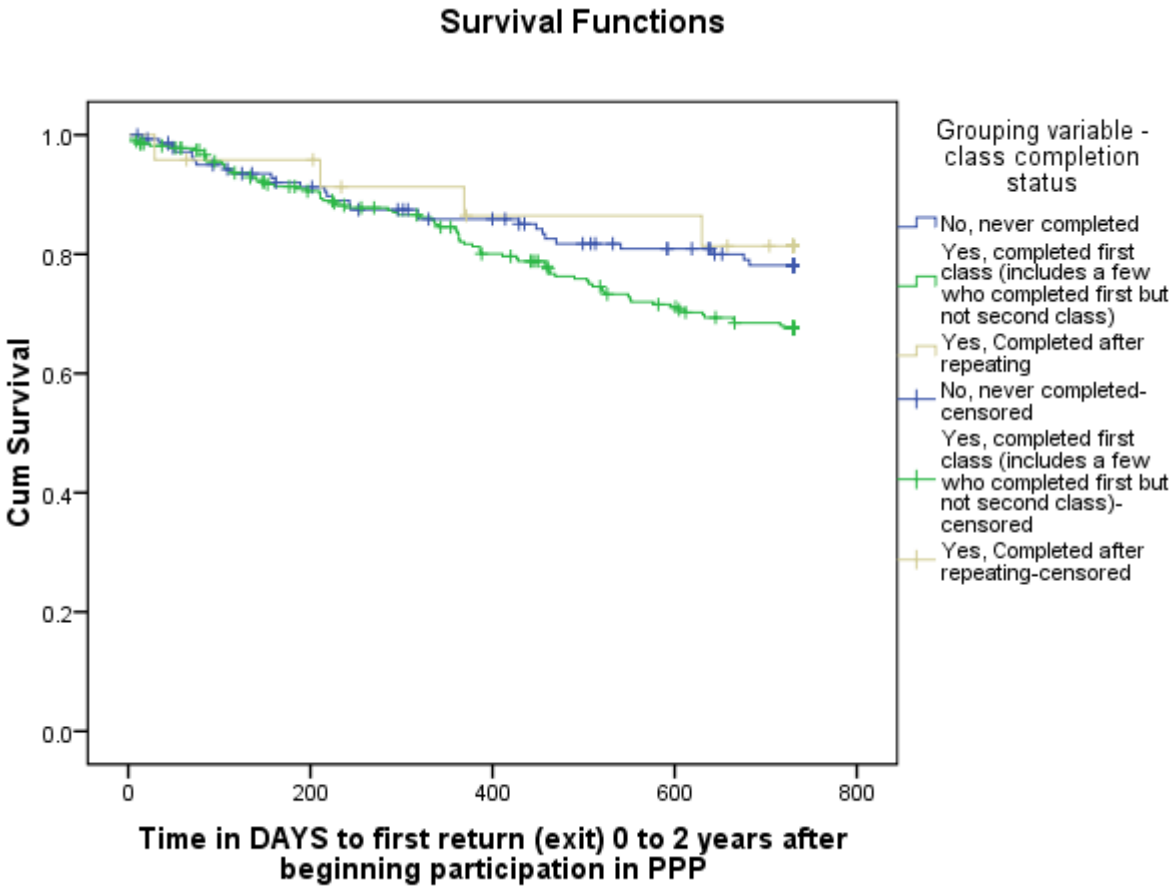

Figure 6. Kaplan Meier Procedure: Comparing Cumulative "Hazard" Rate for Reunification by Completion Status (n=442)

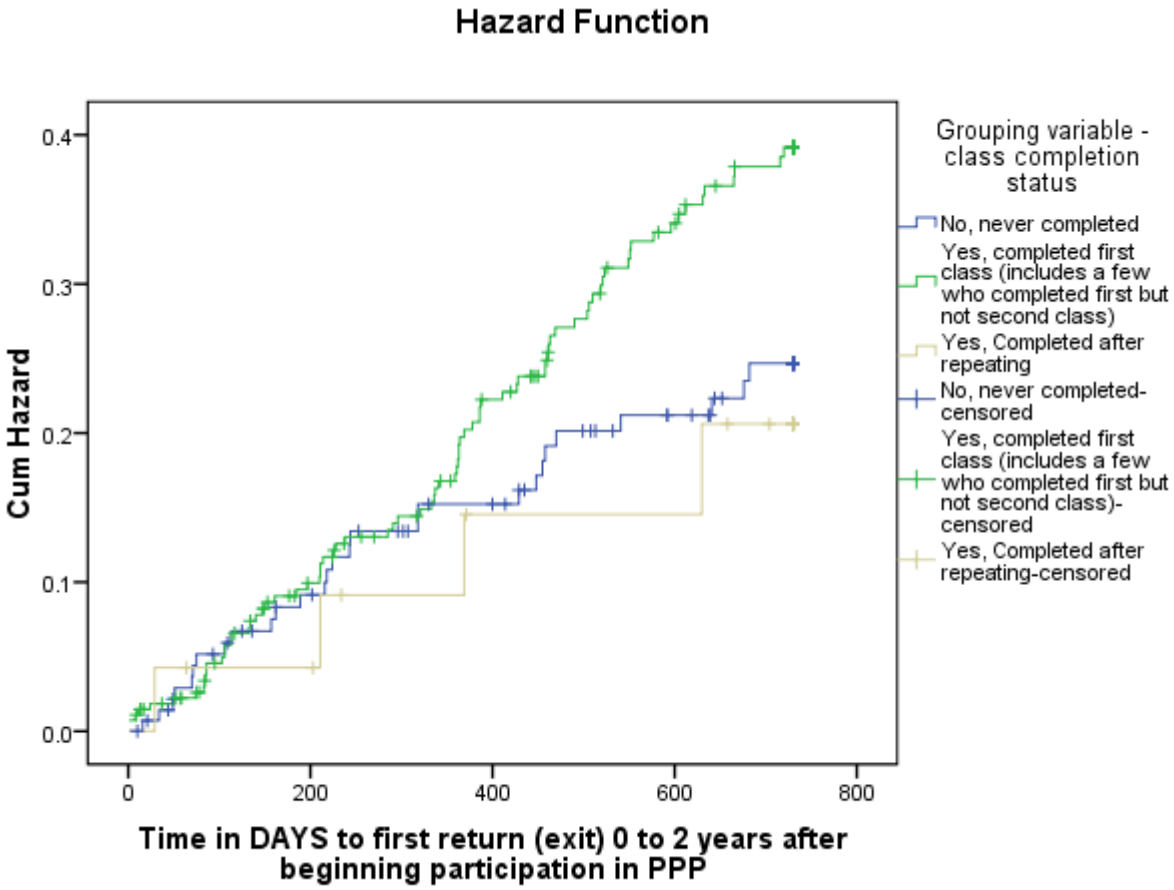

Table 21. Cox Regression, Initial Model*: Predictors of "Hazard" of Reunification after Beginning PPP, for Caregivers Reporting They Have a Child in OHC (n=399)

Model: $\chi 2=6.247$, df= 13, p=.937

							95.0% CI for Exp(B)	
	B	SE	Wald	df	Sig.	Exp(B)	Lower	Upper
Gender	-.122	.273	.199	1	.655	.885	.518	1.512
Race	.039	.257	.023	1	.880	1.040	.628	1.721
Age	-.003	.012	.053	1	.817	.997	.974	1.021
Income	-.118	.124	.900	1	.343	.889	.697	1.134
Prior Referrals	.251	.516	.237	1	.626	1.286	.468	3.531
AAPI Parenting Baseline Scores								
Developmental expectations	.020	.068	.086	1	.769	1.020	.893	1.165
Empathy toward the child	.026	.064	.162	1	.687	1.026	.906	1.162
Discipline	-.048	.058	.676	1	.411	.953	.851	1.068
Role reversal	.012	.070	.030	1	.863	1.012	.883	1.160
Power and independence	.005	.050	.008	1	.927	1.005	.911	1.108
Self-esteem (Rosenberg)	.009	.021	.195	1	.659	1.009	.969	1.051
PPP Completion (ref=non-completer)			3.618	2	.164			
First time	.396	.239	2.762	1	.097	1.487	.931	2.373
Repeater	-.189	.543	.121	1	.728	.828	.286	2.401

* Additional models were tested using fewer predictors, and these models were also non-significant. With no significant predictors, a "final model" was not run.

Appendix F. Repeated Measures Analyses for Final Sample (n=1776)

Table 22. Summary of Repeated Measures Analyses for Subsample with Identifying Information and Intermediate Outcomes Data for Both Pre and Post Test

		Comparing Placement Status (In-home vs. Out-of-home care)		Comparing Referral Source	
		n	p-value	n	p-value
Corporal punishment (discipline)	Time	808	<.0005	558	<.0005
	Group		.008		NS
	Time X Group		NS		NS
Empathy toward the child	Time	809	<.0005	561	<.0005
	Group		NS		NS
	Time X Group		NS		NS
Developmental expectations	Time	808	<.0005	560	<.0005
	Group		NS		NS
	Time X Group		NS		.016
Role reversal	Time	805	<.0005	556	<.0005
	Group		NS		NS
	Time X Group		NS		NS
Power and independence	Time	807	<.0005	558	<.0005
	Group		NS		NS (.074)
	Time X Group		NS		NS
Self-esteem (Rosenberg)	Time	755	<.0005	522	<.0005
	Group		NS		NS
	Time X Group		NS		NS