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# **Disproportionality in Child Protective Services**

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*Updated Results of Statewide Reform Efforts*

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*Texas Department of Family and Protective Services*  
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***Disproportionality in Child Protective Services:  
Updated Results of Statewide Reform Efforts***

**Executive Summary**

In July 2004, Texas Governor Rick Perry signed an executive order for the Health and Human Services Commission (HHSC) to conduct a systemic review of DFPS programs. Senate Bill (S.B.) 6, 79<sup>th</sup> Legislature, Regular Session, 2005 directed DFPS to implement a comprehensive set of reforms based on these recommendations. Among the reforms was a requirement for HHSC and DFPS to address the issue of **disproportionality** within the CPS system. Section 1.54, S.B. 6, specifically required a report that would assess the presence of disproportionality in the Texas CPS system and, if disproportionality was found, an additional report to propose a remediation plan. The initial analysis and remediation plan were completed in 2006. The remediation plan included a recommendation to conduct on-going research to gain a greater understanding of the issues contributing to and ameliorating disproportionality. After reform efforts had been implemented statewide, DPFS published **Disproportionality in Child Protective Services: The Preliminary Results of Statewide Reform Efforts in Texas** in March 2010. The purpose of this report is to provide results of a second analysis of disproportionality and to assess changes that have occurred since the preliminary report. The March 2010 report analyzed data for fiscal years 2006, 2007 and half of fiscal year 2008. This report covers the second half of fiscal year 2008 and fiscal years 2009 and 2010. The report begins with a brief overview of disproportionality followed by analyses of the outcome of investigations and how other case and family factors influence these outcomes.

**Continued Program and System Reform Efforts**

Pursuant to the remediation plan developed in 2006, program and system reform efforts were initiated and have continued in the past few years. Recent changes and progress in disproportionality and related programs since the March 2010 report include:

- The Family Group Decision-Making (FGDM) program was officially expanded into Family Based Safety Services.
- CPS continued to improve FGDM service delivery, facilitated by the Casey Family Programs and the American Humane Association partnership.
- The Strengthening Families Initiative, an enhanced Family-Based Safety Services program created in 2008 that combined intensive in-home services with limited financial assistance to help stabilize families, was discontinued in 2010 due to a lack of funding.
- The Enhanced Family Centered Safety Decision-Making (EFCSDM) initiative, a multi-year continuous quality improvement initiative that seeks to strengthen safety decision-making protocols using a family centered approach, was launched in 2009.
- The Advisory Committee on Promoting Adoption of Minority Children (ACPAMC) will partner with CPS, disproportionality advisory committees, and faith-based communities in three targeted locations to organize disproportionality-focused community adoption forums in 2011 to increase adoptions for children of color.
- In September 2010 DFPS started the Permanency Care Assistance (PCA) program which provides monthly financial assistance for qualified kinship caregivers who take

legal custody (managing conservatorship in Texas) of their related children after meeting the six month kinship foster home requirement and subsequently signing a PCA agreement with DFPS.

- CPS continues to provide trainings to enhance the [cultural competency](#) and diversity of agency staff, and staff proportions by race continue to approach the proportions of the population of families and children with whom the staff work.
- CPS is working with the Texas Supreme Court Permanent Judicial Commission for Children, Youth, and Families, and the Court Improvement Project to increase awareness and educate judges about the effect of implicit biases on decision-making and how these biases contribute to disparate outcomes for African American, American Indian, and Hispanic youth and families involved in the child welfare system.
- Disproportionality specialists now report to the regional directors instead of the disproportionality manager at state office, a structural change that is expected to improve the integration of cultural awareness principles at the local, regional, and state levels.
- Three new community advisory committees have been established since the March 2010 report, bringing the total to 13.

In addition, the Health and Human Services Commission (HHSC), the parent agency to DFPS, now houses the newly created Center for Elimination of Disproportionality and Disparities (the Center) to examine disproportionality and disparities in various state systems. The State Disproportionality Task Force has moved to the Center to assist in addressing disproportionality in all HHSC programs.

### **Disproportionality - Comparing the Numbers**

There has been a decrease in the [relative rate indices](#) for all race/ethnicities.

- African Americans - While in fiscal year 2010 African American alleged victims were still more likely to be removed from their homes, overall removals are trending toward the rate for Anglos.
- Hispanics - The rate of removals for Hispanics has been very close to or lower than the rate for Anglos since fiscal year 2006 and continues to decrease. In fiscal year 2010, Hispanic alleged victims were less likely than Anglo victims to be removed from their homes.
- Other - The rate of removals for the Other group has remained consistently a quarter to a third lower than the rate for Anglos.
- American Indians - The rate of removals for American Indians has decreased by almost 23 percent since fiscal year 2006, but American Indian alleged victims were still more likely than Anglo alleged victims to be removed from their homes in fiscal year 2010.

### **Disproportionality - Controlling for Other Factors**

The data were analyzed using [multinomial logistic regression](#) analysis to control for [family race/ethnicity](#), as well as other factors (variables) which likely affect the outcome of the investigation. Multinomial logistic regression analysis produces [odds ratios](#) for each independent variable and each possible investigation outcome, illustrating how

much each independent variable contributes to the odds of certain outcomes. The four possible investigation outcomes were Removal, Family Preservation (FPR) Positive, FPR Negative, and Closed.

### **Removals**

Other independent variables or factors that were controlled for and had significant contributions to the investigation outcome of removal from the home were [allegation type](#), [risk score](#), [region](#), [family income](#), [report source](#), [age of the youngest child](#), and disposition of Reason to Believe (RTB) in prior year.

When controlling for other factors:

- [African Americans](#) - African American families were 18 percent more likely than Anglo families to have their investigation result in a removal instead of a case closure in the investigation stage of service.
- [Hispanic](#) - Hispanic families were not more or less likely than Anglo families to have an investigation result in a removal instead of a case closure in the investigation stage of service.
- [Other](#) - Families in the Other category were slightly less likely than Anglo families to have their investigations result in a removal instead of a case closure in the investigation stage of service.

### **FPR Positive**

Other independent variables or factors that were controlled for and had significant contributions to the investigation outcome of FPR positive were allegation type, risk score, region, family income, report source, age of the youngest child, [marital status](#), [teen parent](#), and RTB in prior year.

When controlling for other factors:

- [African Americans](#) - African American families were not more or less likely than Anglo families to have an investigation result in FPR services with a positive outcome instead of a case closure in the investigation stage of service.
- [Hispanic](#) - Hispanic families were 15 percent more likely than Anglo families to have an investigation result in FPR services with a positive outcome instead of a case closure in the investigation stage of service.
- [Other](#) - Families in the Other category were not more or less likely than Anglo families to have an investigation result in FPR services with a positive outcome instead of a case closure in the investigation stage of service.

### **FPR Negative**

Other independent variables or factors that were controlled for and had significant contributions to the investigation outcome of FPR negative were allegation type, risk score, region, family income, report source, age of the youngest child, marital status, teen parent, and RTB in prior year.

When controlling for other factors:

- [African Americans](#) - African American families were not more or less likely than Anglo families to have an investigation result in FPR services with a negative outcome instead of a case closure in the investigation stage of service.

- Hispanic - Hispanic families were less likely than Anglo families to have an investigation result in FPR services with a negative outcome instead of a case closure in the investigation stage of service.
- Other - Families in the Other category were less likely than Anglo families to have an investigation result in FPR services with a negative outcome instead of a case closure in the investigation stage of service.

Overall, both the relative rate indices and the multinomial regression analysis considering other factors indicate that compared to Anglo families, African American families in investigations (or alleged victims for the relative rate indices) disproportionately experience the removal of children from their homes instead of the case closing in the investigation stage of service, but African American families do not differ from Anglos in the receipt of FPR services with either a positive or negative outcome as compared to the case closing in the investigation stage of service. By all measures, Hispanic families continue to fare well compared to Anglo families, with both the relative rate index and the odds ratios from the multinomial regression analysis indicating they are less likely to have children removed from their homes and more likely to receive FPR services with a positive outcome compared to the case closing in the investigation stage of service. The statistics for the Other category indicate disproportionality is not a concern for families in this category as a whole, but subpopulations could experience disproportionality. While these conclusions cannot be directly compared to the results of previous analyses due to methodological differences, the results are similar.

## *Disproportionality in Child Protective Services: Updated Results of Statewide Reform Efforts*

### **Background**

In July 2004, Texas Governor Rick Perry signed an executive order for the Health and Human Services Commission (HHSC) to conduct a systemic review of DFPS programs. Senate Bill (S.B.) 6, 79<sup>th</sup> Legislature, Regular Session, 2005 directed DFPS to implement a comprehensive set of reforms based on these recommendations. S.B. 6 ushered in numerous changes that continue to impact CPS service delivery throughout the state. Among the reforms was a requirement for HHSC and DFPS to address the issue of [disproportionality](#) within the CPS system. Section 1.54, S.B. 6, specifically required a report that would assess the presence of disproportionality in the Texas CPS system and, if disproportionality was found, an additional report to propose a remediation plan. The first of those reports, "[Disproportionality in Child Protective Services: Statewide Reform Begins with Examination of the Problem](#)," was issued in January 2006 and was followed by "[Disproportionality in Child Protective Services: Policy Evaluation and Remediation](#)" in July 2006.

One aspect of the remediation plan was to conduct on-going research to gain a greater understanding of the issues contributing to and ameliorating disproportionality.<sup>1</sup> After reform efforts had been implemented, DFPS published [Disproportionality in Child Protective Services: The Preliminary Results of Statewide Reform Efforts in Texas](#) in March 2010. The report provided an overview of changes in standard measures of disproportionality since the reform efforts had been implemented, as well as an analysis of how case and family factors, other than race and ethnicity, influence case decisions that lead to the disproportionate representation of certain groups within the system. The report also included an analysis of how caseworker, case, and organizational factors influence case decisions using the Decision-Making Ecology framework (Baumann, Kern and Fluke, 1997).

The current report assesses the changes that have occurred since publication of the March 2010 report (DFPS, 2010). The March 2010 report analyzed data for fiscal years 2006, 2007 and half of fiscal year 2008. This report covers the second half of fiscal year 2008 and fiscal years 2009 and 2010. The report begins with a brief overview of disproportionality followed by analyses of the outcome of investigations and how other case and family factors influence these outcomes. (Appendix A contains a glossary of technical terms contained within this report.)

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<sup>1</sup> Additional information and reports about the renewal effort and new programs can be found on DFPS' website at <http://www.dfps.state.tx.us/About/Renewal/CPS/default.asp#>. Additional links can be found by clicking on "CPS" on the left menu. Annual data on CPS operations can be found at [http://www.dfps.state.tx.us/About/Data\\_Books\\_and\\_Annual\\_Reports/default.asp](http://www.dfps.state.tx.us/About/Data_Books_and_Annual_Reports/default.asp).

## **Continued Program and System Reform Efforts**

The March 2010 report provided an in-depth discussion of the program and system improvements that occurred as a result of the initial policy and procedure review. There are also many CPS programs that have been implemented or enhanced (since the disproportionality work began) which improve the way CPS works with families and, as a result, work to reduce disproportionality and disparities through improved practices in the system. These programs and enhancements were also described in the March 2010 report. What follows is an update on the agency's new initiatives, practice changes, and continued progress on the remediation plan objectives over the past few years.

### **Family Focus**

#### ***Family Group Decision-Making***

Family Group Decision-Making (FGDM) describes a variety of practices to work with and engage youth and families involved in CPS in safety and service planning and decision-making. Family Team Meetings, a type of FGDM conference, are voluntary meetings bringing together extended family, non-related friends, and supportive acquaintances identified by the child and/or the parents to review the family strengths and protective capacities, explain the safety concerns for the children, and develop protective measures as an alternative to removal.

While Family Team Meetings have been in use in all stages of service since October 2007, the 81<sup>st</sup> Legislature authorized funding to officially expand FGDM into Family Based Safety Services, where families receive in-home services aimed at preventing a removal or speeding reunification. The Family Team Meeting process shares the same commitment to shared decision-making and family empowerment but can be organized more rapidly than a Family Group Conference. That flexibility also makes it a good tool for responding to situations of immediate safety that arise once a child is returned to the family.

In addition to decreasing the number of children entering substitute care by empowering family members to develop a plan that ensures child safety, the FGDM program has the following goals:

- Increase the number of placements with relatives after removal
- Decrease the length of time to achieve permanency
- Ensure realistic and individualized service and safety plans are created with families
- Provide Family Team Meetings in at least 11 percent of substantiated investigations
- Utilize FGDM in at least 10 percent of Family Based Safety Services cases statewide

Through a unique partnership with Casey Family Programs and the American Humane Association (AHA), the department has continued to improve the FGDM process. Since 2008, this partnership has provided specialized trainings for FGDM staff and other relevant CPS staff surrounding issues of substance abuse, family violence, and child and youth involvement in FGDM meetings. Regional site visits also occurred to assist regions with unique FGDM issues.

In addition, the partnership recently reviewed the Circle of Support process. Circles of Support are another type of FGDM meeting held for youth in care age 16 or older to develop a transition plan and connect with supportive adults to help in the transition from foster care to adulthood. AHA held focus groups in two CPS regions, conducted interviews with youth and other parties involved in the Circle of Support process, and observed conferences in several regions. AHA analyzed the results and provided recommendations for continued improvement, such as increasing the priority of thorough preparation for Circles of Support, increasing a youth specific resource base outside of CPS, and providing follow up Circles of Support for youth to ensure all parties are following through with the tasks on the plan.

### ***Family Based Safety Services***

Another expanding program within the Family Focus Division is Family-Based Safety Services. These in-home services are provided when a child in the family is at risk of abuse or neglect as determined in an investigation; the family cannot reduce the risk of abuse or neglect without CPS assistance; and CPS can provide or arrange for services to enable the family to function effectively without CPS assistance in the future. Family Preservation (FPR) services are provided to prevent a removal, and Family Reunification (FRE) services are provided when a child is returned home.

S.B. 758, 80th Legislature, Regular Session, 2007, required DFPS to develop and implement an enhanced in-home support program to divert children from foster care or shorten a child's stay in substitute care. The resulting program, Strengthening Families through Enhanced In-home Support, commonly called the Strengthening Families Initiative (SFI), was available in 22 counties throughout the state. SFI was an enhanced Family-Based Safety Services program that combined intensive in-home services with limited financial assistance to mobilize support systems, goods, and services. Assistance and benefits provided under this program were used to accomplish one or more of the objectives identified in the Family Plan that promote family stability. During the first six months of the program, a total of 417 families with 1,429 children were served.

The funding had two components: Family Enhancement (\$250) and Family Empowerment and/or Purchased Goods and Services (\$3,000). This pilot program utilized Temporary Assistance for Needy Families (TANF) funds and was designed to help CPS families with incomes below 200 percent of the federal poverty level and whose allegations were substantiated for neglect as a primary problem for the family. SFI began in January 2008 with the support of a small amount of TANF funding that was expected to go unused over the 2009-10 biennium. Due to the current economic climate, it was anticipated that there would be no unused TANF funding for the 2011-12 biennium. As a result, SFI was discontinued in 2010.<sup>2</sup>

### **Enhanced Family Centered Safety Decision-Making**

The Enhanced Family Centered Safety Decision-Making (EFCSDM) initiative is intended to further the mission, vision, and values of CPS by supporting staff in making

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<sup>2</sup> A 2009 report on the SFI program can be found at [http://www.dfps.state.tx.us/documents/about/pdf/2009-12-15\\_SFI\\_Report.pdf](http://www.dfps.state.tx.us/documents/about/pdf/2009-12-15_SFI_Report.pdf).

sound safety decisions for children in all stages of services. This multi-year continuous quality improvement initiative embarked upon in fiscal year 2009 seeks to strengthen safety decision-making protocols using a family centered approach. By focusing staff on the importance of engaging families, gathering sufficient information, and strengthening the decision-making process through a better awareness of safety issues, the resulting decisions are less likely to be influenced by personal or societal biases. Ensuring that the family's voice is heard is a further step toward advancing the CPS value of a commitment to reducing disproportionality.

### **Adoption**

The Advisory Committee on Promoting Adoption of Minority Children (ACPAMC) is legislatively charged with studying, developing, and evaluating programs and projects related to community awareness and education, family support, counseling, parenting skills and education, and reform of the child welfare system. In an effort to address disparities of outcomes for children of color, this committee will partner with CPS, disproportionality advisory committees, and faith-based communities in three targeted locations to organize disproportionality-focused community adoption forums in fiscal year 2011. The goal of this partnership and of these forums is to increase adoptions for children of color.

The development of special DFPS IMPACT Data Warehouse reports that track children's progress through substitute care has aided permanency directors, program directors, and adoption specialists within the regions in monitoring children's progress, thus supporting more timely movement toward achieving permanency goals. The special monitoring by these staff includes coordination with Family Group Decision-Making specialists, attorneys, and other subject matter experts to identify pathways to permanence. The number of children adopted increased from 3,376 (28 percent of all exits) in fiscal year 2006 to 4,803 (34 percent of all exits) in fiscal year 2010, while exits overall were increasing as a percent of all children in care (DFPS, 2007; DFPS, 2011).

### **Permanency Care Assistance**

With state legislative authorization, in September 2010 DFPS started the Permanency Care Assistance (PCA) program. The program provides financial assistance for kinship caregivers who have served as verified foster parents for their related children for six months and subsequently signed a PCA agreement and then went to court and took legal custody (managing conservatorship in Texas) of their related children. The qualified kinship family can receive monthly financial assistance for each child until the child turns 18, or in some cases, turns 21. The monthly financial assistance is the same as what is paid for adoption assistance.

### **Cultural Competency and Diversity**

CPS reform included a goal of enhancing the cultural competency and diversity of agency staff. As addressed in prior reports, the introduction of "Undoing Racism" workshops and "Knowing Who You Are" trainings have expanded cultural competency skills at all levels of the agency. Undoing Racism is a two-and-a-half-day training that builds a foundation for understanding culture, ethnicity, and race, and how to build

effective coalitions that can change institutions. More than 2,500 staff and community members have attended "Undoing Racism" since fiscal year 2005, including all levels of CPS staff and representatives of many agencies and organizations that work with CPS. Although DFPS no longer offers "Undoing Racism" in the same volume as previous years, DFPS continues to seek alternative funding options and explore other opportunities for incorporating cultural awareness principles in daily practice.

Since the publication of the 2006 remediation plan, "Knowing Who You Are" training has been incorporated into basic skills training for all new caseworkers. "Knowing Who You Are" is a workshop created by Casey Family Programs to develop the knowledge and skills that support youth and families with racial and ethnic identity development, regardless of the role one might have within child welfare or foster care. "Knowing Who You Are" has also been revised for delivery to CPS supervisors and other staff within DFPS, including Child Care Licensing, Residential Child Care Licensing, and Adult Protective Services staff. Between September 2005 and March 2011, over 4,000 CPS staff attended the "Knowing Who You Are" training. In addition, there is ongoing collaboration with the DFPS Center for Learning and Organizational Excellence to develop and seek out new trainings incorporating current research related to disproportionality, culturally competent practice, and working with families living in poverty.

Between fiscal years 2006 and 2008, CPS saw increases in the proportion of African American and Hispanic staff relative to Anglo staff within the workforce. The proportions of staff now more closely reflect the population of families and children with whom the staff work. Between fiscal years 2008 and 2010, there have been minor changes in the proportions. In fiscal year 2010, African Americans accounted for 29.6 percent of direct delivery staff (a 0.7 percent decrease since fiscal year 2008), Hispanics accounted for 26.3 percent (a 1.5 percent increase since fiscal year 2008), and Anglos accounted for 42.4 percent (a 0.7 percent decrease since fiscal year 2008) (DFPS, 2011). Despite minor fluctuations, there is a consistent shift towards proportions of workers that more closely match the proportions of families CPS works with, which is important because of the cultural perspective this brings to DFPS clients. While at the state level the number of workers is more representative of the population served, these numbers fluctuate by area and additional work needs to be done within specific regions to increase staff diversity. "While it is neither possible nor necessarily desirable to match workers and clients by ethnicity, CPS staff who share the culture or language of a particular family may have a better understanding of the family's background and needs" (Child Welfare Information Gateway, 2011).

### **Disproportionality Specialists and Community Advisory Committees**

Disproportionality specialists, staff dedicated solely to addressing disproportionality in designated sites, continue to spread awareness of the need for systemic, cross-systems approaches to eliminating disproportionality in every region of the state. Since November 2010, the disproportionality specialists report to the regional directors instead of the disproportionality manager at state office. The disproportionality manager also supervises a statewide disproportionality specialist and reports directly to the Assistant

Commissioner for CPS. This organizational structure is expected to improve the integration of cultural awareness principles at the local, regional, and state levels.

Since the March 2010 report, community advisory committees, whose purpose is to work with CPS in site selection and monitoring as well as community engagement, have been established in Corpus Christi, Plano, and Waco. As with the committees already established in Abilene, Austin, Dallas, Denton, El Paso, Fort Worth, Houston, Lubbock, Port Arthur, and San Antonio, there is representation from the criminal and juvenile justice systems, the education and health care systems, law enforcement, the judiciary, faith-based communities, and families and youth, among others. Many of these members have attended the “Undoing Racism” workshop and recognize the impact their systems have on children and families involved with CPS. Casey Family Programs continues to offer technical assistance to community advisory committees as requested to aid in committee development. Data continues to be provided to the disproportionality specialists and community advisory committees to aid in their analysis of the designated areas.

### **Community Engagement Model and the State Disproportionality Task Force**

The disproportionality initiative in the Texas child welfare system originally grew out of Project H.O.P.E. (Helping Our People Excel), a community engagement model used in Port Arthur, Texas. The community engagement model continues to guide the work of CPS and its disproportionality specialists as they engage local communities. The State Disproportionality Task Force continues to bring together representatives from a variety of systems and institutions that impact children and families, including representatives from the criminal and juvenile justice systems and the education and health care systems. Members also include alumni of substitute care, parents involved with the Texas child welfare system, and a range of community partners. The task force addresses the root causes of disproportionality and works to find sustainable solutions to the problem.

In September 2010, Health and Human Services Commission (HHSC) Executive Commissioner Tom Suehs created the Center for Elimination of Disproportionality and Disparities (the Center). The State Disproportionality Task Force has now moved to the Center to assist in addressing disproportionality in all HHSC programs. In addition to the State Disproportionality Task Force, S.B. 501, 82<sup>nd</sup> Legislature, Regular Session, 2011, mandates the Center oversee an interagency disproportionality advisory council. This council will utilize a cross-systems approach to examining disproportionality in various state systems, including child welfare. This cross-systems approach will continue to expand through the Center.

CPS and the Center are working with the Texas Supreme Court Permanent Judicial Commission for Children, Youth, and Families, and the Court Improvement Project to increase awareness and educate judges about the effect of implicit biases on decision-making and how these biases contribute to disparate outcomes for African American, American Indian, and Hispanic youth and families involved in the child welfare system.

This work represents an ongoing effort by the agency to work with all external stakeholders directly impacting the lives of children and families of color.

## **Disproportionality in Child Protective Services**

### **Overview**

Disproportionality is a well-documented, nationwide phenomenon primarily for African American and American Indian children but also for Hispanic children in some areas (Hill, 2006; Hill, 2007; DHHS, 2005; Stoltzfus, 2005). The cause of disproportionality in child protective services systems is a question currently generating considerable research. There are several explanations, all of which likely play some role in disproportionality in the system. The explanation that is of most concern to child protection agencies is disparate treatment by the system itself. This explanation primarily focuses on what happens to families and children after they have come into contact with the child protection agency.

Other explanations look at why children of certain races/ethnicities are reported more than others. There is substantial discussion around whether the rates of abuse and neglect actually vary in different racial/ethnic populations due to differing socioeconomic and risk factors in the populations and systemic factors that perpetuate these differences (Barth, 2011; Bartholet, 2009; Drake, 2011; Fluke, 2011; Hill, 2006). Other possibilities are that abuse and neglect is reported more frequently for certain races/ethnicities or reported more often by professional reporters (e.g., law enforcement; medical personnel) due to either bias by the professional reporters or increased visibility (professional reporters typically receive training on how to identify and what constitutes abuse and neglect and, therefore, these reports are generally very reliable indicators that a problem exists) (Barth, 2011; Bartholet, 2009; Drake, 2011; Fluke, 2011; Hill, 2006). All of these explanations would potentially cause more African American and American Indian children to be reported and to enter the system, but they would not explain disparate treatment by the child protection system when other factors are held constant. Disparate treatment by the CPS system itself is thought to be caused by racial bias or a lack of cultural competency by caseworkers, systemic processes that have disparate impacts on minorities, and inadequate services for families of color either because the services are culturally inappropriate or unavailable in some geographic areas (Bartholet, 2009; Fluke, 2011; Hill, 2006).

### **Previous Analyses**

Two previous studies on disproportionality in the Texas child protective services system have been conducted by HHSC and DFPS. These analyses did not find significant disproportionality in the assignment of intakes to investigations, but disproportionality in the decision to provide services or remove one or more children from the home at the conclusion of an investigation was apparent (HHSC/DFPS, 2006; DFPS, 2010). The results of the previous two analyses are discussed below and summarized in Table 1.

The initial analysis conducted by HHSC and DFPS in 2006 found that, for fiscal year 2004 and half of fiscal year 2005, African American children were more likely than Anglo or Hispanic children to be removed from their homes when compared to their percentages in the general child population. When other factors were considered, the analysis found that African American children and Hispanics were less likely than Anglo children to be provided family preservation services instead of the investigation being closed. In regard to removals when other factors were considered, American Indian children were more likely than Anglo children to be removed from their homes instead of the investigation being closed, Hispanic children were less likely than Anglo children to be removed from their homes instead of the investigation being closed, and African American children had an equal likelihood compared to Anglo children of being removed instead of the investigation being closed (HHSC/DFPS, 2006).

The second analysis included a review of the time period after implementation of a statewide effort to reduce disproportionality and analyzed data from fiscal years 2006, 2007, and half of 2008. This analysis found that relative to the number of children of each race/ethnicity that was investigated, African American and American Indian children were more likely than Anglo children to be removed from their homes, while Hispanic children were removed from their homes at the same rate as Anglo children. When other factors were considered, African American and Hispanic children were slightly more likely than Anglo children to have an action taken at the conclusion of an investigation than for the case to be closed. In an analysis of the actions taken, with other factors considered, African American and American Indian children were more likely than Anglo children to be removed from their homes instead of receiving FPR services, while Hispanic children were less likely than Anglo children to be removed from their homes instead of receiving FPR services (DFPS, 2010).<sup>3</sup>

**Table 1: Previous Analysis Results  
HHSC/DFPS 2006 Report**

	Statistics-removals*	FPR vs. Close	Removal vs. Close
African Americans	More likely	Less likely	Equal
Hispanics	Equal	Less likely	Less likely
American Indian	Not analyzed	Equal	More likely

\*Removal statistics are compared to the population.

<sup>3</sup> For this analysis, children that were sent to family preservation services and removed out of that stage were not counted as removals.

**DFPS 2010 Report**

	Statistics-removals**	Action vs. Close	Removal vs. FPR
African Americans	More likely	More likely	More likely
Hispanics	Equal	More likely	Less likely
American Indian	More likely	Equal	More likely

\*\*Removal statistics are compared to alleged victims.

When other factors were considered, both reports found that family characteristics (e.g., age of the children; family's income), as well as factors related to the abuse or neglect (e.g., being reported by law enforcement, a medical professional, or a CPS employee) and the type of allegation(s) all had a substantial impact on the decision at the conclusion of an investigation or on what type of intervention occurred.

**Current Analysis**

***Disproportionality - Comparing the Numbers***

To compare the rates of removals without considering other factors, a relative rate index is created for each race/ethnicity in each year, except for Anglos who serve as the comparison group. The relative rate index standardizes the outcome across race/ethnicity by accounting for the number of alleged victims for each group. **Disparity** leading to disproportionality can occur at a number of different places in the system. This relative rate index specifically addresses the disparity at the decision to remove one or more children from the home the investigation or FPR stage of service. The relative rate index compares the removal rates for each race/ethnic group to the removal rates for Anglo families. The resulting number means that alleged victims for the racial/ethnic group are removed from their homes at however many times the Anglo rate of removal. A number greater than one means that victims for the racial/ethnic group experience more removals and a number less than one means they experience fewer removals as compared to Anglo victims in investigations that close.<sup>4</sup>

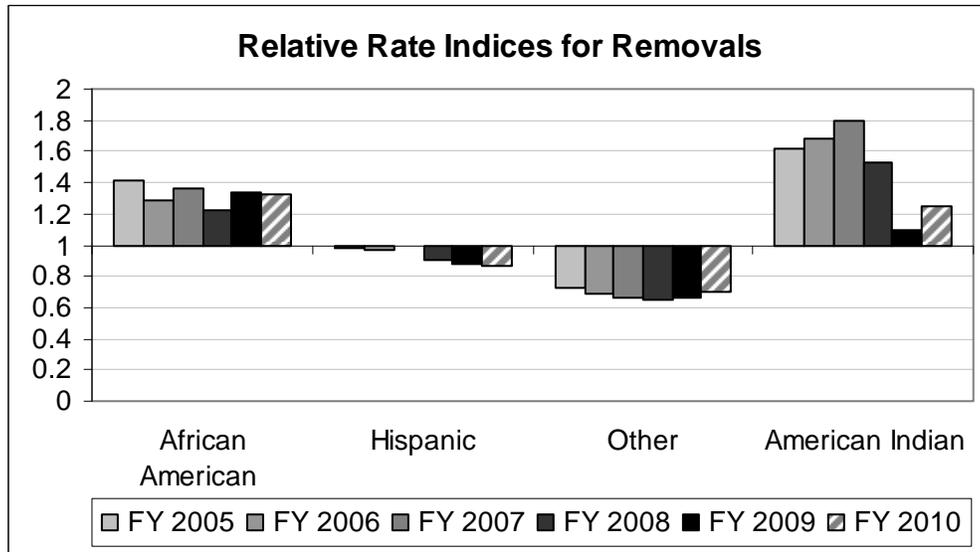
Figure 1 shows the relative rate indices by year and by race/ethnic group using one as the axis which is the relative rate index for Anglos, the comparison group. Figure 2 shows the trend lines for these relative rate indices.<sup>5</sup> The graphs show there has been a decrease in the relative rate indices for all races/ethnicities, even those whose rates were lower than Anglos to begin with. There has been a slight decrease in the relative rate indices for African Americans over the years. While the rate increased in fiscal year 2009 after a large decrease in fiscal year 2008, the rate decreased again slightly in fiscal year 2010 and the trend line shows that overall the rate has been decreasing. The relative rate indices for Hispanics continue to remain below the rates for Anglos and to decrease since the last reporting period. The relative rate indices for Other continue to remain below the rate for Anglos but have begun to increase slightly in recent years. The relative rate

<sup>4</sup> A detailed explanation of relative rate indices is included in the glossary.

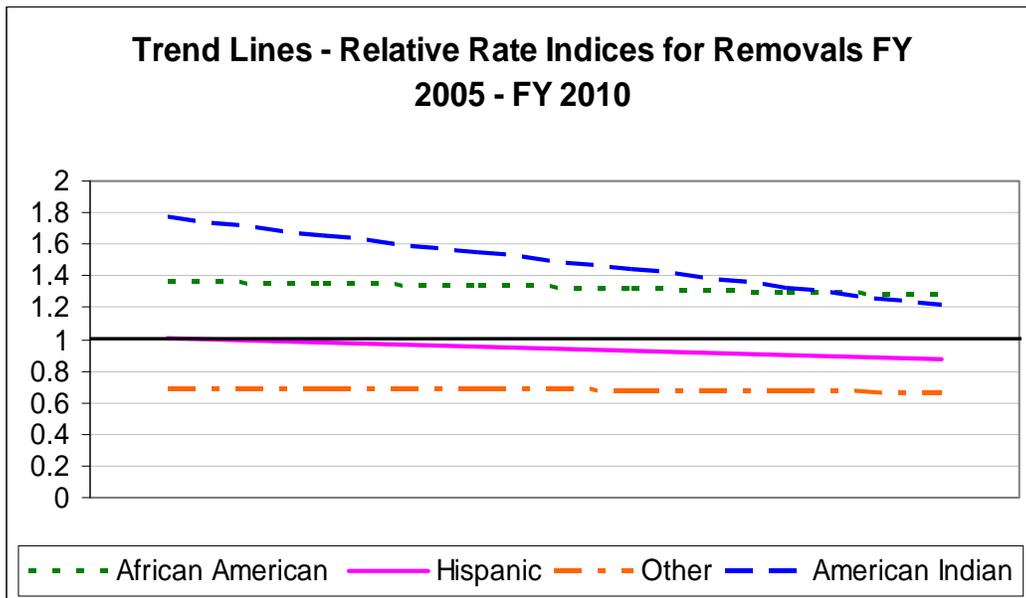
<sup>5</sup> The trend lines were calculated using the least squares method to fit the data to a straight line.

index for American Indians has decreased significantly in recent years after an initial increase; however, the American Indian population is relatively small, so minor changes in numbers can cause major differences in the index. For this reason, results for American Indian children should be interpreted with caution. Overall, the relative rate indices indicate the rate of removal for different races/ethnicities continue to approach the rate for Anglos.

**Figure 1**



**Figure 2**



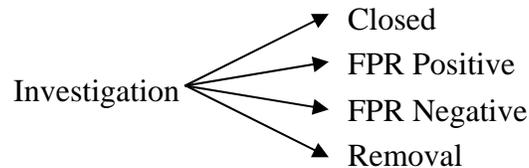
***Disproportionality - Controlling for Other Factors***

While a comparison of the numbers indicates there is disproportionality present in the Texas CPS system, some of this disproportionality may be due to the influence of other

family and case factors that are not the same for the different race/ethnic populations. That is why S.B. 6, 79<sup>th</sup> Legislature, Regular Session, 2005, specifically tasked DFPS with analyzing disproportionality "taking into account other relevant factors, including poverty, single parent families, young parent families and any other additional factor determined by other research to be statistically correlated with child abuse or child neglect" (S.B. 6, 2005). Relative rate indices can compare only the raw numbers but do not consider the impact of family and case characteristics. To examine the effect of race/ethnicity controlling for other factors, regression analysis is used.

### Methodology

The data were analyzed using multinomial logistic regression analysis. Multinomial logistic regression analysis produces odds ratios for each of the relevant factors discussed above (e.g., race, income) and each outcome. There were four possible outcomes from an investigation: Closed, FPR Positive, FPR Negative, and Removal.



The FPR stages were sorted into positive and negative outcomes to better accommodate the diverse reasons these services can be closed. FPR positive includes closures for the following reasons:

- Court ordered services closed
- Risk is reduced in the family
- Services inappropriate (e.g., the case could have been closed instead of sent to FPR)
- Administrative closures

FPR negative includes closures for the following reasons:

- Child outside of the home but no conservatorship transfer to DFPS
- Child is removed from the home
- Only child in the family died
- Family moved or is unable to be located
- Family refused services
- There is no legal justification for CPS involvement

Overall, 83 percent of the investigations in the dataset were closed, 4 percent resulted in one or more child being removed from the home, 10 percent received FPR services and had a positive outcome, and 3 percent received FPR services and had a negative outcome.

The final variables included in the multinomial logistic regression model were based primarily on the variables included in the previous two HHSC and DFPS reports and guided by other current research and theory. Most variables were included with the same categories and using the same data sources as in the previous two analyses, although several of the categorical variables were further condensed based on similar effects in the

analysis and to allow the multinomial model to run. Family gender and number of children in the family, which had both been included in previous HHSC/DFPS analyses, were excluded from this analysis. While these variables were sometimes significant in previous reports, they usually had low effect sizes. An indicator of prior history was added, indicating whether one or more children in the current investigation was involved in at least one other investigation that was substantiated (i.e., the allegations of abuse or neglect were confirmed) in the year prior to the current investigation. The final variables were:

- Family race/ethnicity
- Age of the youngest child
- Family income
- Parent's marital status
- Teen parent
- Allegation type
- Report source
- Risk score
- Region
- RTB in prior year<sup>6</sup>

The final dataset consisted of 384,481 investigations that closed between March 1, 2008 and August 31, 2010. Seven percent of investigations were removed from the dataset for reasons including missing information or uncommon closure reasons.<sup>7</sup> Many families had more than one investigation during the time period. Each investigation was treated as a separate case but investigations that overlapped and closed on the same day were removed. A table with the demographics of the dataset is in Appendix B.

## Results

The multinomial model is able to determine the effect of each of the independent variables on the odds of each possible outcome. The results of the regression analysis are included in Appendix D: Multinomial Logistic Regression Analysis Results. The odds ratios are given for the univariate analysis of each independent variable (the effect when only that particular independent variable is included in the model) as well as the multivariate analysis (when all of the independent variables are included in the model which allows for the effect of each variable to be considered while controlling for or holding the other factors constant). Most of the variables had similar effects and the same direction of influence (the odds ratios stayed either less than or greater than one) in the multivariate as they did in the univariate analyses. The results of the multivariate model, which controls for other factors, are discussed for each type of outcome below.

The effect size is given in the univariate and multivariate odds ratios. With the exception of risk score, all of the variables in the analysis are categorical variables, meaning they sort the possible values of the variable into categories, such as race/ethnicity or report source. For categorical variables, an odds ratio greater than one indicates that value for

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<sup>6</sup> Full descriptions of these variables are in the glossary in Appendix A.

<sup>7</sup> Details about the dataset and methodology are included in Appendix C: Methodology Details.

the variable increases the odds of an investigation resulting in that specific outcome, and an odds ratio less than one indicates that value of the variable decreases the odds of an investigation resulting in that specific outcome, both in comparison to the reference population and the reference outcome. For example, for the family race/ethnicity, Anglo serves as the reference group and the odds ratios for the other races/ethnicities are the odds compared to Anglos of going to that outcome instead of the case closing in the investigation stage of service. For risk score, the only non-categorical variable, the odds ratio means for each one unit increase in the risk score, the odds of that outcome increase by a factor of the odds ratio. For example, if the odds ratio for risk score for removals is two, then for each increase in risk score, the odds of the investigation resulting in a removal increase by a factor of two, and for a one unit increase it is twice as likely.

### Removal

The odds ratios for African American and Other were significant for the removal outcome, but the odds ratio for Hispanic was not significant. African American families were 18 percent more likely than Anglo families to have their investigation result in a child being removed from the home instead of the case closing in the investigation stage of service when controlling for other factors in the investigation. Families in the Other category were slightly less likely than Anglo families to have their investigations result in a child being removed from the home instead of the case closing in the investigation stage of service. The odds ratio for Hispanic families was not significant, meaning when controlling for other factors, they were not more or less likely than Anglo families to have an investigation result in a child being removed from the home instead of the case closing in the investigation stage of service. Other independent variables with significant impacts on the odds of an investigation resulting in a child being removed from the home instead of closing in the multivariate model were allegation type, risk score, region, income, report source, age of the youngest child, and RTB in prior year. Only marital status, teen parent, and two region categories (Regions 2/9 and 4/5) were not significant for this outcome, meaning they did not impact the odds of an investigation resulting in a child being removed from the home instead of the case closing in the investigation stage of service.<sup>8</sup>

### FPR Positive

Only the odds ratio for Hispanic was significant for the FPR positive outcome. Hispanic families were 15 percent more likely than Anglo families to have their investigation result in FPR services with a positive outcome instead of the case closing in the investigation stage of service, controlling for other factors in the investigation. The odds ratios for African American families and families in the Other category were both not significant, meaning when controlling for other factors, they were not more or less likely than Anglo families to receive FPR services resulting in a positive outcome instead of the case closing in the investigation stage of service. All of the other independent variables had significant impacts on the odds of an investigation resulting in an FPR positive

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<sup>8</sup> In regards to the regional variables, the rest of the regions had odds ratios indicating that investigations in those regions, as compared to investigations in Region 3, were either more or less likely to result in a removal. The analysis did not investigate the reasons for these regional differences.

outcome instead of the case closing in the investigation stage of service in the multivariate model.

### FPR Negative

The odds ratios for Hispanic and Other were significant for the FPR negative outcome, but the odds ratio for African American was not significant. Hispanic families and families in the Other category were less likely than Anglo families to have their investigation result in FPR services with a negative outcome instead of the case closing in the investigation stage of service, controlling for other factors in the investigation. The odds ratio for African American families was not significant, meaning when controlling for other factors, they were not more or less likely than Anglo families to receive FPR services resulting in a negative outcome instead of the case closing in the investigation stage of service. All of the other independent variables had significant impacts on the odds of an investigation resulting in an FPR positive outcome instead of the case closing in the investigation stage of service in the multivariate model except for the inconclusive marital status category.

### Regional Results

In addition to the statewide multinomial logistic regression analysis, based on large odds ratios for the regions and differing effects by region found in the 2006 report (HHSC/DFPS, 2006), the model was also run for each separate region or combination of regions. The effect of the race/ethnicity variable differed by region or, in other words, family race/ethnicity impacts the outcome of the investigation in different ways and to different degrees depending on the region. The odds ratios for family race/ethnicity, risk score, and income are included in Appendix E.

### Race, Risk, and Income Puzzle

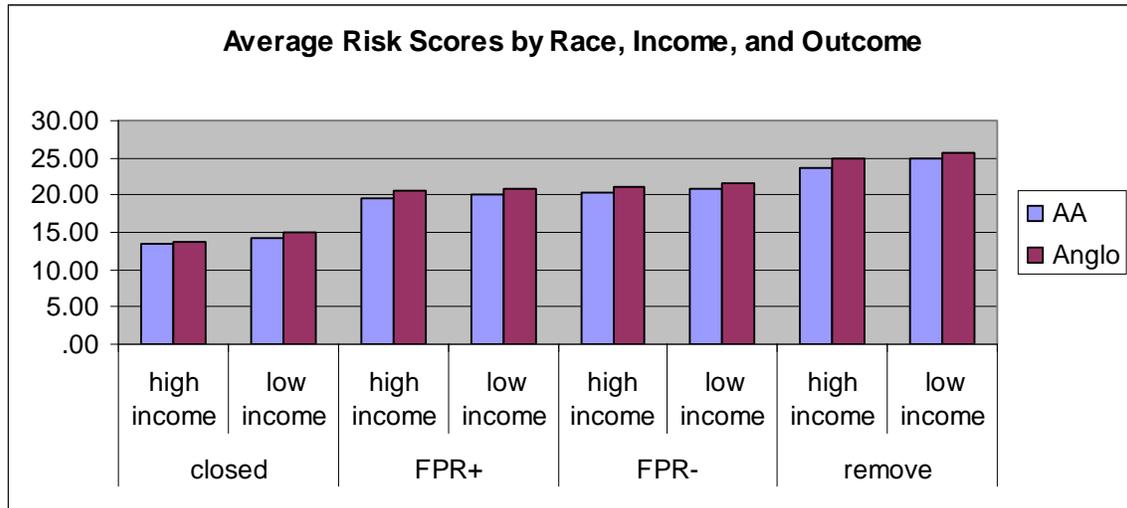
The results of this analysis cannot be directly compared to the previous reports due to differences in methodology and variables. However, the results did confirm an issue identified in the 2010 report and investigated in several other analyses: the relationship of race, risk, and poverty is a complicated one (DFPS, 2010; Rivaux et al., 2008; Dettlaff, 2011). Borrowing from the Dettlaff article, Figure 3 shows the average risk score for African American and Anglo investigations for low and high income families for each investigation outcome. The graph shows, as did the Dettlaff analysis using Texas data from earlier years, that African Americans consistently have a lower risk score than Anglos within the same outcome and income category. This means that for families who seem to have the same characteristics and worker-identified levels of risk, sometimes a more intrusive intervention (in home services instead of remove one or more children from the home or close the case in the investigation stage of service instead of provide in home services) is given to African American families and a less intrusive intervention is given to Anglo families. In addition, families with a higher income (\$20,550 and higher) consistently have lower risk scores than families with a lower income within the same outcome and race/ethnicity category.<sup>9</sup> Again, this means that for two families with similar characteristics and worker-identified levels of risk, the higher income family is

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<sup>9</sup> These differences in the average risk scores for all comparison groups were statistically significant.

more likely to receive a more intrusive intervention and the lower income family a less intrusive one. This graph indicates that risk is acted upon differently based on income and race (the decision threshold of when to provide services or remove is different). It is possible that the different decision thresholds are actually the result of differences between the families in each group that are not captured in the current analysis. Further analysis is necessary to study this complex interaction.

**Figure 3**



### Conclusions

Both the relative rate indices and the multinomial regression analysis considering other factors indicate that African American families disproportionately experience removals from their homes instead of the case closing compared to Anglo families. However, African Americans do not differ from Anglos in the receipt of FPR services with either a positive or negative outcome compared to cases closing in the investigation stage of service. By all measures, Hispanic families continue to fare well compared to Anglo families; Hispanics are less likely to be removed and more likely to receive FPR services with a positive outcome compared to the case closing in the investigation stage of service. The statistics for the Other category indicate disproportionality is not a concern for this category as a whole, but subpopulations could experience disproportionality. While these conclusions cannot be directly compared to the results of previous analyses due to methodological differences, the results are similar.

This analysis could have been improved with the inclusion of an indicator for parental drug and alcohol use, a more in-depth analysis of the impact of geography using indicators for urban versus rural and a measure of the available services in an area, or using Census data to incorporate a measure of the racial composition or socioeconomic status of the area where the investigation occurred. In addition, the differing odds ratios for race/ethnicity by region in the regional results indicate that disproportionality may be primarily driven by a few regions, and future research in Texas should investigate whether this is the case and investigate the reasons for these regional differences.

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## Appendix A: Glossary

**Age of the Youngest Child** – The age of the youngest child in the family at the start of the investigation was calculated and these ages were categorized into the following age groups: under 1 year old, 1-2 years old, 3-5 years old, 6-12 years old (reference category), and 13-17 years old. These age categories correspond to stages of child development: infant, toddler, pre-school, school-aged, and teenager.

**Allegation Type** – The allegation type is the type(s) of abuse or neglect alleged when the incident is initially reported. Allegations were classified into mutually exclusive groups. The neglect only category includes cases with only one allegation of neglectful supervision, medical neglect, physical neglect, abandonment, or refusal to accept parental responsibility. The abuse only category includes cases with only one allegation of physical, sexual, or emotional abuse. The multiple category includes all cases where more than one allegation was made. The allegations were categorized based on previous analyses, theory, and similar effects in the analysis. The neglect only category was used as the reference category.

**Cultural Competency** – Cultural competency is the ability to learn from, work with, and communicate respectfully with people from different backgrounds.

**Disproportionality** – Disproportionality refers to the over- or under-representation of a particular racial or ethnic group in the CPS system as compared to their numbers in the general population or a previous stage of the system.

**Disparity** – Disparity is unequal treatment or outcomes for one group compared to another.

**Family Income** – This variable was gathered from the family at the time of the investigation. Income is entered in the IMPACT system using check boxes for the following income categories: \$0 - \$10,149, \$10,150 - \$20,549, \$20,550 - \$40,549, \$40,550 - \$62,999, and \$63,000 and higher. Previous analyses combined the two highest categories since they had similar effects in the analysis. This analysis combined the top three categories into \$20,550 and more based on similar effects in the analysis and to reduce the categories to allow the multinomial analysis to run properly. The final income categories were \$0 - \$10,149, \$10,150 - \$20,549, \$20,550 and more (reference category).

**Family Race/Ethnicity** – This variable was based on the race/ethnicity of all children in the family as reported in the IMPACT system. If all children in the family were not of the same race/ethnicity, the family would be listed as a mixed race family. Families were designated as African American, Anglo, Hispanic, Asian, American Indian, Other, and Mixed Race. In the final analysis, these groups were further condensed due to small populations in several of the groups. The final groups used in the analysis were African American, Anglo (reference category), Hispanic, and Other (which includes everyone not in one of three largest groups).

**FPR Negative** – Family Preservation services are part of the Family Based Safety Services program. They are in-home services provided to prevent a removal of a child from his or her home. The FPR stages were sorted into positive and negative outcomes to better accommodate the diverse reasons these services can be closed. FPR negative includes stage of service closures for the following reasons: child outside of the home but no conservatorship transfer to DFPS, child is removed from the home, only child in the family died, family moved or we are unable to locate them, family refused services, and there is no legal justification for CPS involvement.

**FPR Positive** – Family Preservation services are part of the Family Based Safety Services program. They are in-home services provided to prevent a removal of a child from his or her home. The FPR stages were sorted into positive and negative outcomes to better accommodate the diverse reasons these services can be closed. FPR positive includes stage of service closures for the following reasons: court ordered services closed, risk is reduced in the family, services inappropriate (the case could have been closed instead of sent to FPR), and administrative closures.

**Marital Status** – The marital status of the parents in the case was based on the status of all people listed as parents in the system for a particular case, excluding step parents and absent parents. In the current IMPACT system, there is not an easy way to determine who the child lives with if not all parents live together. In addition, many families have more than two parents listed which made creating a reliable marital status indicator difficult. First, all statuses were combined into two categories: married and single (includes divorced, widowed, etc.). If all parents listed in the case had the same marital status listed, regardless of whether there was one parent or five parents, that was the marital status assigned to the family. For cases where the statuses did not match, the case was assigned a status of inconclusive (this was the largest category). Married was used as the reference category.

**Multinomial Logistic Regression** – A model used to ascertain the effects of independent variables on the dependent variable. Multinomial is used with categorical dependent variables and means the dependent outcome can have more than two possible outcomes. The model uses the independent variables to predict the outcome, or dependent variable.

**Odds Ratio** – Multinomial logistic regression analysis produces odds ratios for each independent variable (or level of the variable for categorical variables) and each outcome (dependent variable possible value) telling how much each independent variable contributes to the odds of certain outcomes. The odds ratio tells us how much more or less likely it is for an investigation with that characteristic (e.g., African American or teen parent) to result in a certain outcome when all other factors are held constant.

For categorical variables, an odds ratio greater than one indicates that value for the variable increases the odds of an investigation resulting in that specific outcome, and an odds ratio less than one indicates that value of the variable decreases the odds of an investigation resulting in that specific outcome, both in comparison to the reference population and the reference outcome. For example, for the family race/ethnicity, Anglo

serves as the reference group and the odds ratios for the other race/ethnicities are the odds compared to Anglos of going to that outcome instead of closing. For non-categorical variables, the odds ratio means for each one unit increase in the variable, the odds of that outcome increase by a factor of the odds ratio (e.g., if the odds ratio for risk score for removals is two, then for each one unit increase in risk score, the odds of the investigation resulting in a removal increase by a factor of two, and for a one unit increase it is twice as likely).

**Region** – Region is the area of the state where the investigation took place. While Texas CPS is a state-run system, since the state is so large it is split into administrative regions and each region has their own regional management. Several regions were combined to reduce the overall number of categories. The final categories were: Region 1 High Plains/Region 10 Upper Rio Grande; Region 2 Northwest/Region 9 West; Region 4 Upper East/Region 5 Southeast; Region 6 Gulf Coast, Houston; Region 7 Central Texas, Austin; Region 8 Upper South, San Antonio; Region 11 Lower South; and Region 3 North Central, Dallas/Fort Worth. Region 3 was used as the reference category.

**Relative Rate Index** – The relative rate index (also called a disparity index) gives the relative rates of removals for each race/ethnic group, relative because they are in comparison to a reference group, in this case Anglos. The relative rate index tells us how much more or less likely it is for one group to have an event (e.g., the removal of an African American child) compared to another group (e.g., the removal of an Anglo child). A relative rate index can be calculated in comparison to the population or to the previous stage in the system to identify which decision points are contributing to disproportionality. A relative rate index greater than one indicates a group has a greater probability of an event occurring than the comparison group, and a number less than one indicates a group has a lesser probability of an event occurring than the comparison group. The relative rate index for the comparison group, Anglos, is always one.

For example, a relative rate index can be calculated for children removed compared to alleged victims as it is in this report (the prior stage in the system). By comparing to the number of alleged victims in this calculation instead of the population or children in reports, the influence of disproportionality in reports is eliminated. Also, because this index looks at the proportion of alleged victims that are removed, it does not matter if the number of alleged victims for African Americans or Hispanics are two or three times the number of alleged victims for Anglos due to disproportionate reporting, the percent of alleged victims that are removed and the relative rate index that uses these percentages will still be comparable. This also allows for an examination of disparity specifically at the point where the removal decision is made.

The resulting number means that alleged victims for the racial/ethnic group are removed at however many times the Anglo rate of removal. If the African American relative rate index is 3 and the Hispanic relative rate index is 0.5, this means that African American alleged victims are removed about three times more often than Anglo alleged victims and Hispanic alleged victims are removed about half as often as Anglo alleged victims, after

accounting for the different rates of alleged victims for each group. For this example, the equation is:

Relative rate index for African Americans = (AA removals / AA alleged victims) / (Anglo removals /Anglo alleged victims).

**Report Source** – The report source is the type of person who called in the report of abuse or neglect. Report source was reduced to two categories: 1) Law, Medical, and CPS, and 2) Other, which includes school and day care workers, relative, friends, victims, anonymous, and anyone categorized as other in the system. The Other category was used as the reference category.

**Risk Score** – The risk score is the sum of the Scale of Concern scores for each of the seven concepts on the risk assessment tool used during an investigation. Each concept has a Likert scale for the Scale of Concern where 1 = not all concerned and 5 = extremely concerned. The numerical values for the ranked responses for each of the seven concepts are added up for the total risk score (ranges from 7-35). The seven concepts are child vulnerability, caregiver capability, quality of care, maltreatment pattern, home and social environment, response to intervention, and protective capacities.

**RTB in Prior Year** – This variable indicates if one or more of the children in the family were involved in at least one other investigation that was substantiated (the allegations of abuse or neglect were confirmed) in the year prior to the current investigation. No RTB in the prior year was the reference category.

**Teen Parent** – The teen parent variable indicates if any of the parents in the investigation were under age 19 at the start of the investigation. Not a teen parent is the reference category.

**Appendix B: Demographics**

		Total	Close		Removal		FPR Positive		FPR Negative	
		Number	Number	%	Number	%	Number	%	Number	%
<b>Total</b>		384,481	320,368	83.3%	13,845	3.6%	39,546	10.3%	10,722	2.8%
<b>Family Race/Ethnicity</b>	African American	75,102	62,417	83.1%	3,494	4.7%	6,883	9.2%	2,308	3.1%
	Hispanic	145,681	120,559	82.8%	4,028	2.8%	17,261	11.8%	3,833	2.6%
	Other	43,916	36,444	83.0%	1,562	3.6%	4,665	10.6%	1,245	2.8%
	Anglo	119,782	100,948	84.3%	4,761	4.0%	10,737	9.0%	3,336	2.8%
<b>Allegation Type</b>	Abuse Only	104,324	95,459	91.5%	1,612	1.5%	5,950	1.2%	1,303	1.2%
	Multiple	129,983	101,124	77.8%	6,896	5.3%	17,260	13.3%	4,703	3.6%
	Neglect/Aban Only	150,174	123,785	82.4%	5,337	3.6%	16,336	10.9%	4,716	3.1%
<b>Risk Score</b>	20-26	56,070	24,683	44.0%	6,497	11.6%	19,268	34.4%	5,622	10.0%
	27-35	11,780	2,024	17.2%	5,791	49.2%	2,859	24.3%	1,106	9.4%
	7-19	316,631	293,661	92.7%	1,557	0.5%	17,419	5.5%	3,994	1.3%
<b>Region</b>	Regions 1 & 10	27,688	22,930	82.8%	839	3.0%	2,918	10.5%	1,001	3.6%
	Regions 2 & 9	22,774	18,113	79.5%	921	4.0%	3,053	13.4%	687	3.0%
	Regions 4 & 5	34,687	30,324	87.4%	1,436	4.1%	2,114	6.1%	813	2.3%
	Region 6	71,552	59,490	83.1%	3,248	4.5%	6,946	9.7%	1,868	2.6%
	Region 7	45,966	40,849	88.9%	1,780	3.9%	2,456	5.3%	881	1.9%
	Region 8	46,642	37,639	80.7%	1,449	3.1%	5,841	12.5%	1,713	3.7%
	Region 11	42,551	33,655	79.1%	1,072	2.5%	6,663	15.7%	1,161	2.7%
	Region 3	92,621	77,368	83.5%	3,100	3.3%	9,555	10.3%	2,598	2.8%
<b>Family Income</b>	\$0 - \$10,149	100,975	71,749	71.1%	7,598	7.5%	16,165	16.0%	5,463	5.4%
	\$10,150 - \$20,549	123,006	103,458	84.1%	3,440	2.8%	12,851	10.4%	3,257	2.6%
	\$20,550 and more	160,500	145,161	90.4%	2,807	1.7%	10,530	6.6%	2,002	1.2%
<b>Report Source</b>	Law, Medical, CPS	135,806	104,386	76.9%	7,958	5.9%	18,510	13.6%	4,952	3.6%
	Other	248,675	215,982	86.9%	5,887	2.4%	21,036	8.5%	5,770	2.3%
<b>Age of Youngest Child</b>	Under 1	74,107	50,751	68.5%	5,736	7.7%	13,352	18.0%	4,268	5.8%
	1-2	86,513	69,878	80.8%	2,820	3.3%	11,052	12.8%	2,763	3.2%
	3-5	83,848	72,774	86.8%	1,746	2.1%	7,625	9.1%	1,703	2.0%

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		<b>Total</b>	<b>Close</b>		<b>Removal</b>		<b>FPR Positive</b>		<b>FPR Negative</b>	
		Number	Number	%	Number	%	Number	%	Number	%
<b>Age of Youngest Child</b>	13-17	37,244	34,372	92.3%	1,386	3.7%	1,135	3.0%	351	0.9%
	6-12	102,769	92,593	90.1%	2,157	2.1%	6,382	6.2%	1,637	1.6%
<b>Marital Status</b>	Single	124,019	102,040	82.3%	4,970	4.0%	13,124	10.6%	3,885	3.1%
	Inconclusive	160,912	132,527	82.4%	6,360	4.0%	17,083	10.6%	4,942	3.1%
	Married	99,550	85,801	86.2%	2,515	2.5%	9,339	9.4%	1,895	1.9%
<b>Teen Parent</b>	Teen Parent	13,936	9,633	69.1%	799	5.7%	2,676	19.2%	828	5.9%
	Not Teen Parent	370,545	310,735	83.9%	13,046	3.5%	36,870	10.0%	9,894	2.7%
<b>RTB in Past Year</b>	RTB in Prior Year	72,386	57,331	79.2%	4,352	6.0%	8,064	11.1%	2,639	3.6%
	No RTB in Prior Year	312,095	263,037	84.3%	9,493	3.0%	31,482	10.1%	8,083	2.6%

## Appendix C: Methodology Details

Investigations were removed from the final dataset for analysis for the following reasons: missing critical information (risk score, income, allegations, region), none of the children in the investigation could be identified as part of the immediate family being investigated (victims were niece or nephew, friend of the family, etc), the associated FPR stage was still open, the investigation opened during another non-investigation stage (such as an investigation during an open Family Preservation stage or while a child is already in DFPS custody), investigations that opened to an FPR stage that was already linked to another investigation (usually when two investigations are not merged together and both close to the same FPR stage), overlapping investigations that close on the same day, investigations where the closure reason did not match the next stage (ex: closure code is closed without services but then an FPR stage was opened), and investigations that closed for reasons outside of the control of CPS (such as the family refused to cooperate and no legal intervention was possible or the family moved or could not be located). In total, seven percent of investigations were removed.

Crosstabs were run to ensure that all independent variables and their categories had a sufficient number of cases for logistic regression. The Nagelkerke  $R^2$  equals .494 for the model, indicating the independent variables included in the model have an acceptable relationship with the dependent variable. An additional indicator that the independent variables improve the model is the -2 log-likelihood statistic. The -2 log-likelihood statistic decreased when the independent variables were added to the model indicating they improve the model's accuracy and this improvement was statistically significant. Finally, a common test for model fit for multinomial models is the classification accuracy rate (Garson, 2011). The model was able to correctly predict the outcome for investigations 85.8 percent of the time. This exceeds the classification rate of 70.7 that would be achieved simply by chance.<sup>10</sup> However, a common expectation in assessing goodness of fit is for a model to achieve an accuracy rate at least 25 percent higher than the chance accuracy rate (Garson, 2011). The model falls slightly short of this rate, which is 88.3. Overall, the model has a reasonable classification accuracy rate and is approaching the accepted 25 percent increase over chance rate.

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<sup>10</sup> The chance accuracy rate is calculated using the proportions of the possible outcomes of the dependent variable.

**Appendix D: Multinomial Logistic Regression Analysis Results**

		Removal		FPR Positive		FPR Negative	
		Univariate Odds Ratio	Multivariate Odds Ratio	Univariate Odds Ratio	Multivariate Odds Ratio	Univariate Odds Ratio	Multivariate Odds Ratio
<b>Family Race/ Ethnicity</b>	African American	<b>1.187</b>	<b>1.182</b>	<b>1.037</b>	<i>1.004</i>	<b>1.119</b>	<i>0.997</i>
	Hispanic	<b>0.708</b>	<i>0.958</i>	<b>1.346</b>	<b>1.150</b>	<i>0.962</i>	<b>0.860</b>
	Other	<b>0.909</b>	<b>0.924</b>	<b>1.203</b>	<i>1.031</i>	<i>1.034</i>	<b>0.886</b>
	Anglo	Reference					
<b>Allegation Type</b>	Abuse Only	<b>0.392</b>	<b>0.565</b>	<b>0.472</b>	<b>0.679</b>	<b>0.358</b>	<b>0.567</b>
	Multiple	<b>1.582</b>	<b>1.158</b>	<b>1.293</b>	<b>1.142</b>	<b>1.221</b>	<b>1.095</b>
	Neglect/Aban Only	Reference					
<b>Risk Score</b>		<b>1.739</b>	<b>1.786</b>	<b>1.382</b>	<b>1.418</b>	<b>1.429</b>	<b>1.455</b>
<b>Region</b>	Regions 1 & 10	<b>0.913</b>	<b>2.652</b>	<i>1.030</i>	<b>2.212</b>	<b>1.300</b>	<b>3.031</b>
	Regions 2 & 9	<b>1.269</b>	<b>2.115</b>	<b>1.365</b>	<b>1.790</b>	<b>1.130</b>	<b>1.466</b>
	Regions 4 & 5	<b>1.182</b>	<i>0.931</i>	<b>0.564</b>	<b>0.519</b>	<b>0.798</b>	<b>0.665</b>
	Region 6	<b>1.363</b>	<b>10.544</b>	<b>0.945</b>	<b>3.733</b>	<b>0.935</b>	<b>4.207</b>
	Region 7	<b>1.088</b>	<i>1.034</i>	<b>0.487</b>	<b>0.488</b>	<b>0.642</b>	<b>0.652</b>
	Region 8	<i>0.961</i>	<b>2.136</b>	<b>1.257</b>	<b>1.987</b>	<b>1.355</b>	<b>2.332</b>
	Region 11	<b>0.795</b>	<b>1.252</b>	<b>1.603</b>	<b>2.139</b>	<i>1.027</i>	<b>1.524</b>
Region 3	Reference						
<b>Family Income</b>	\$0 - \$10,149	<b>5.476</b>	<b>3.100</b>	<b>3.106</b>	<b>1.778</b>	<b>5.521</b>	<b>3.007</b>
	\$10,150 - \$20,549	<b>1.719</b>	<b>1.317</b>	<b>1.712</b>	<b>1.287</b>	<b>2.283</b>	<b>1.667</b>
	\$20,550 and more	Reference					
<b>Report Source</b>	Law, Medical, CPS	<b>2.797</b>	<b>2.006</b>	<b>1.821</b>	<b>1.404</b>	<b>1.776</b>	<b>1.341</b>
	Other	Reference					
<b>Age of Youngest Child</b>	Under 1	<b>4.852</b>	<b>2.664</b>	<b>3.817</b>	<b>2.558</b>	<b>4.757</b>	<b>2.921</b>
	1-2	<b>1.732</b>	<b>1.240</b>	<b>2.295</b>	<b>1.840</b>	<b>2.237</b>	<b>1.678</b>
	3-5	<i>1.030</i>	<b>0.836</b>	<b>1.520</b>	<b>1.354</b>	<b>1.324</b>	<b>1.140</b>

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		Removal		FPR Positive		FPR Negative	
		Univariate Odds Ratio	Multivariate Odds Ratio	Univariate Odds Ratio	Multivariate Odds Ratio	Univariate Odds Ratio	Multivariate Odds Ratio
<b>Age of Youngest Child</b>	13-17	<b>1.731</b>	<b>1.473</b>	<b>0.479</b>	<b>0.405</b>	<b>0.578</b>	<b>0.493</b>
	6-12	Reference					
<b>Marital Status</b>	Single	<b>1.662</b>	<i>1.046</i>	<b>1.182</b>	<b>0.861</b>	<b>1.724</b>	<b>1.097</b>
	Inconclusive	<b>1.637</b>	<i>0.945</i>	<b>1.184</b>	<b>0.829</b>	<b>1.688</b>	<i>1.036</i>
	Married	Reference					
<b>Teen Parent</b>	Teen Parent	<b>1.976</b>	<i>1.076</i>	<b>2.341</b>	<b>1.202</b>	<b>2.700</b>	<b>1.208</b>
	Not Teen Parent	Reference					
<b>RTB in Past Year</b>	RTB in Prior Year	<b>2.103</b>	<b>1.123</b>	<b>1.175</b>	<b>0.704</b>	<b>1.498</b>	<b>0.884</b>
	No RTB in Prior Year	Reference					

Significant odds ratios are bolded, non-significant odds ratios are in italics.

**Appendix E: Regional Results**

		<b>African American</b>	<b>Hispanic</b>	<b>Other</b>	<b>Risk</b>	<b>Income low</b>	<b>income mid-low</b>
<b>Regions 1 &amp; 10 - High Plains and Upper Rio Grande</b>	Removal	<b>0.700</b>	<b>0.748</b>	<b>0.678</b>	<b>1.724</b>	<b>3.117</b>	<b>1.293</b>
	FPR Positive	<i>0.935</i>	<b>1.660</b>	<i>1.129</i>	<b>1.399</b>	<b>1.845</b>	<b>1.269</b>
	FPR Negative	<i>0.840</i>	<i>0.961</i>	<i>0.985</i>	<b>1.456</b>	<b>2.803</b>	<b>1.425</b>
<b>Regions 2 &amp; 9 - Northwest and West Texas</b>	Removal	<i>1.264</i>	<i>1.176</i>	<i>0.976</i>	<b>1.998</b>	<b>3.154</b>	<b>1.452</b>
	FPR Positive	<i>0.854</i>	<b>1.149</b>	<i>1.059</i>	<b>1.508</b>	<b>1.926</b>	<b>1.393</b>
	FPR Negative	<i>0.951</i>	<i>1.090</i>	<i>1.121</i>	<b>1.594</b>	<b>2.492</b>	<b>1.525</b>
<b>Regions 4 &amp; 5 - Upper East and Southeast</b>	Removal	<i>1.010</i>	<i>1.165</i>	<i>0.963</i>	<b>1.637</b>	<b>2.038</b>	<i>0.874</i>
	FPR Positive	<i>0.938</i>	<i>0.932</i>	<i>0.950</i>	<b>1.362</b>	<b>1.856</b>	<i>1.119</i>
	FPR Negative	<i>0.926</i>	<i>1.041</i>	<i>0.853</i>	<b>1.400</b>	<b>2.925</b>	<b>1.380</b>
<b>Region 6 - Gulf Coast/Houston</b>	Removal	<b>1.373</b>	<i>1.010</i>	<i>0.872</i>	<b>1.786</b>	<b>3.718</b>	<b>1.422</b>
	FPR Positive	<i>1.016</i>	<i>1.033</i>	<i>0.957</i>	<b>1.441</b>	<b>1.889</b>	<b>1.344</b>
	FPR Negative	<i>0.988</i>	<b>0.673</b>	<i>0.882</i>	<b>1.464</b>	<b>3.113</b>	<b>1.727</b>
<b>Region 7 - Central Texas/Austin</b>	Removal	<b>1.257</b>	<i>0.984</i>	<i>1.154</i>	<b>1.657</b>	<b>2.328</b>	<i>1.039</i>
	FPR Positive	<i>1.051</i>	<i>1.115</i>	<i>1.014</i>	<b>1.397</b>	<b>1.863</b>	<b>1.312</b>
	FPR Negative	<i>1.039</i>	<i>0.966</i>	<i>0.965</i>	<b>1.414</b>	<b>3.309</b>	<b>1.491</b>
<b>Region 8 - Upper South Texas/San Antonio</b>	Removal	<i>1.238</i>	<i>0.939</i>	<i>0.822</i>	<b>1.815</b>	<b>4.301</b>	<b>1.714</b>
	FPR Positive	<b>1.261</b>	<b>1.343</b>	<b>1.215</b>	<b>1.412</b>	<b>1.533</b>	<b>1.238</b>
	FPR Negative	<b>1.626</b>	<b>1.296</b>	<i>1.152</i>	<b>1.428</b>	<b>2.663</b>	<b>1.450</b>
<b>Region 11 - Lower South/Rio Grande Valley</b>	Removal	<b>2.060</b>	<i>0.862</i>	<i>1.053</i>	<b>1.930</b>	<b>2.063</b>	<i>1.005</i>
	FPR Positive	<i>0.998</i>	<i>1.078</i>	<i>1.148</i>	<b>1.430</b>	<b>1.479</b>	<b>1.197</b>
	FPR Negative	<i>1.405</i>	<b>0.652</b>	<i>0.768</i>	<b>1.454</b>	<b>1.908</b>	<b>1.484</b>
<b>Region 3 - North Central, Dallas/Fort Worth</b>	Removal	<i>1.070</i>	<i>0.954</i>	<i>0.884</i>	<b>1.838</b>	<b>3.558</b>	<b>1.441</b>
	FPR Positive	<b>0.927</b>	<b>1.094</b>	<i>0.955</i>	<b>1.420</b>	<b>1.960</b>	<b>1.306</b>
	FPR Negative	<b>0.834</b>	<b>0.741</b>	<b>0.702</b>	<b>1.479</b>	<b>4.011</b>	<b>2.113</b>

Significant odds ratios are bolded, non-significant odds ratios are in italics.