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Parental Substance Abuse and Child Welfare Outcomes: A Study of Biological Mothers and their Children in Out-of-Home Placement in Allegheny County

Courtney Lewis

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PARENTAL SUBSTANCE ABUSE AND CHILD WELFARE OUTCOMES:
A STUDY OF BIOLOGICAL MOTHERS AND THEIR CHILDREN
IN OUT-OF-HOME PLACEMENT IN ALLEGHENY COUNTY

A Thesis
Submitted to the McAnulty College and Graduate School of Liberal Arts

Duquesne University

In partial fulfillment of the requirements for
the degree of Master of Arts in Social and Public Policy

By
Courtney S. Lewis

May 2014
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ABSTRACT

PARENTAL SUBSTANCE ABUSE AND CHILD WELFARE OUTCOMES:
A STUDY OF BIOLOGICAL MOTHERS AND THEIR CHILDREN
IN OUT-OF-HOME PLACEMENT IN ALLEGHENY COUNTY

By
Courtney S. Lewis
May 2014

Thesis supervised by Dr. Michael Irwin

This study uses logistic regression to examine whether parental substance abuse makes biological mothers more or less likely to have their children returned home if the children have been removed by the Office of Children, Youth and Families (CYF). CYF handles the executive branch child welfare responsibilities for Allegheny County, which includes the city of Pittsburgh, PA. The sample in this study included children who had been removed from the home for the first time in 2012, and was split by age, creating two models. Parental drug abuse was found to make the child less likely to reunify in both models. Alleged or reported neglect and family structure significantly contributed to the model for children ages 0 to 8. Results for children ages 9 to 17 indicated that if the child was removed from the home due to the child’s behavior problem, the child was more likely to reunify.
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LIST OF ABBREVIATIONS

DHS - Allegheny County Department of Human Services
OCR - Office of Community Relations, Department of Human Services
ASFA - Adoption and Safe Families Act
CYF - Office of Children, Youth and Families, Department of Human Services
I. Introduction and Statement of Problem

Allegheny County’s child welfare system is a nationally-recognized model that focuses on strengthening and preserving families. The Office of Children, Youth and Families (CYF) handles Allegheny County’s executive branch responsibilities for child welfare. CYF is one of the program offices in the Department of Human Services (DHS). DHS strives for an integrated, holistic approach for its clients, including families involved in multiple human services systems, such as child welfare, mental health, and drug and alcohol services. CYF states that it is mandated to protect children from abuse and neglect and provides services to work with children and families, with an emphasis on family preservation (“Office of Children, Youth and Families” 2013). In some child welfare cases, children are removed from their parent(s)’ home for safety reasons. This arrangement is called “out-of-home placement,” which is the temporary home for the children when they are removed from their parent’s care (Good and Dalton 2011). When CYF serves families with children in out-of-home placement, CYF and DHS refer or provide appropriate human services to parents and children, in hopes that filling a service need will allow for the children to safely return to their parents, and thus preserve the family (“Permanency for Children” 2013). As a result, many of the families in CYF are involved with multiple human services systems in Allegheny County.

Each time that a child is removed from his or her home by CYF, the reasons for the child’s removal are documented. Some of the reasons for removal are human services-related, such as inadequate housing or substance abuse. In these situations, DHS attempts to help rectify the causes of the family’s child welfare involvement through services offered by the DHS program offices and contracted providers. Some of these causes are simpler to rectify than others, and each family is different. However, substance abuse has posed a complex problem for
the child welfare system since its inception. One of the most frequently cited substance abuse struggles was the crack cocaine epidemic of the late 1980s and 1990s, which sent Allegheny County’s child welfare system into crisis with an overload of cases (O’Toole 2013:1). Allegheny County residents were coping with “an extremely large number of cases of actual or potential child victimization a year, the majority of which involved drugs” (O’Toole 2013:1). Although Allegheny County has drastically reformed its child welfare system since then, substance abuse remains a root problem for many child welfare cases, both in Allegheny County and nationally. National child welfare research commonly cites that one- to two-thirds of children in the child welfare system are affected by substance abuse disorders, reported by the U.S. Department of Health and Human Services in 1999 (National Center on Substance Abuse and Child Welfare 2003). CYF currently recognizes that “addictive disease disorder” is a major reason why families enter the child welfare system (“Permanency for Children” 2013).

Overcoming addiction is often a lengthy and complicated process. Relapse and other issues caused by addiction may lengthen the time that individuals need to participate in treatment, and some individuals may need treatment and ongoing support for up to two years (Smith 2003). This can pose a problem when parents struggling with addiction have children in out-of-home placement, because research shows that it is very important to identify a safe and permanent living situation for children in a timely manner. Child placement instability is associated with negative outcomes, including “child behavioral and emotional problems, such as aggression, coping difficulties, poor home adjustment, and low self-concept” (Harden 2004). Creating a permanent solution for children in a timely manner provides them with long-term family relationships (“Permanency Planning” 2013). National child welfare policy has emphasized this need for timely permanency. Specifically, the Adoption and Safe Families Act
(ASFA) of 1997 provided incentives to states for increasing the number of adoptions and created permanency timelines (Allen and Bissell 2004). ASFA dictates that if children are in foster care for 15 out of 22 months, the child welfare agency must file to terminate parental rights, or present a reason for not doing so (Child Welfare Information Gateway 2010).

One of the ways that the child welfare system addresses each child’s need for permanency is through “permanency goals,” which are identified to plan for the child’s future permanent living situation after the child has been removed from the home (“Permanency Planning” 2013). Permanency planning occurs throughout the life of an active child welfare case for every child in foster care (Murphy 2013). Goals are revisited every three or six months during Family Service Planning and in preparation for court hearings (Murphy 2013). These goals can change based on the progress of the family (Good 2013). They are discussed by all key decision makers in the child welfare process, including the parents, child, contracted service providers, judge, and assigned caseworker (Murphy 2013). After reviewing feedback by all parties, caseworkers recommend permanency goals in each court hearing (Murphy 2013). The assigned Family Court Judge rules on these recommendations and can formally change a permanency goal if needed (Murphy 2013).

Children in out-of-home placement in Allegheny County can have three types of permanency goals:

- **Reunification** indicates that the goal is for the child to be returned to his or her parent(s) after the family engages in intensive in-home and community based services (“Permanency for Children” 2013). All families in CYF begin the permanency planning process with reunification as their permanency goal, since family preservation is considered the ideal situation, as long as it is safe for the child.
• **Adoption** is often the second most desirable permanency goal. If reunification does not appear to be a safe or timely permanency goal, adoption may become the new goal, especially for younger children. Adoptions by family members or foster parents whom the child already knows are generally considered first, and if that is not a feasible option, adoption by another party is considered.

• **Legal guardianship** may be assigned as the permanency goal if adoption is not desired or possible. CYF refers to this scenario as “permanent legal custodianship,” which is established by a court order and grants custody to someone who is not the child’s parent (Good and Dalton 2011). This permanency goal does not require that parental rights are terminated, so the child is still related to his or her parents (Good and Dalton 2011).

The child welfare system must decide on a case by case basis whether reunification—as opposed to adoption or legal guardianship—is the appropriate goal for a family. Weighing the importance of timeliness versus family preservation can be especially difficult when parents are struggling with addiction, since recovery can be a long and complicated process. For cases in which substance abuse is one of the root problems, the parent’s recovery process could take longer than is healthy for the child to wait for safe reunification, and other permanency options could be explored.

**Rationale**

This study examines some of the most difficult problems in social services. A significant amount of literature exists regarding permanency planning for families affected by substance abuse. However, this analysis presents aggregate data and statistical results that show trends in the local population dealing with these issues, which provides information to the local child welfare system and similar systems across the county. Allegheny County’s child welfare system is known as a national model, so using data from DHS should present meaningful results to other jurisdictions that have modeled their techniques after the county’s system. This study is unique because many jurisdictions do not have access to reliable cross-system data. DHS, on the other
hand, is an integrated human services system that collects data through various software programs and stores the data in its “Data Warehouse.” DHS refers to its Data Warehouse as a “central repository of social services data” that allows DHS to track client data across its program offices (“The DHS Data Warehouse” 2013). This streamlined data system makes this analysis possible.

Local policy makers should value the results of this study, because it discusses issues that affect child well-being. Allegheny County is responsible for the children in its child welfare system, so it is important to study how it can best serve these children and their families. DHS already produces research and reports for this purpose, and these reports are accessible to the public. However, a study like this has not yet been published, so it will provide new information to DHS.

Research Question and Hypotheses

This study analyzes biological mothers in Allegheny County whose children were removed from the home in 2012. The research question is: Are permanency outcomes impacted by whether alcohol or drugs are cited as a reason for a mother having her children removed from the home? In other words, when children are removed from the home due to parental substance abuse, does that impact the likelihood that they will return home? The student researcher hypothesizes that substance abuse does affect permanency outcomes. Specifically, the student researcher hypothesizes that mothers who had substance abuse cited as a reason for their children’s removal are less likely to achieve reunification with their children than mothers who did not have substance abuse cited as a removal reason.

For the purpose of this research, DHS provided data for an “entry cohort,” or a data snapshot of a group of cases over a specific timeframe. DHS determined the timeframe of the
data. Specifically, DHS provided data for all cases of families that had children removed from the home in Allegheny County in 2012. No cases of children who were removed from the home after 2012 were included in the data set. The data included information about these cases up until November 15, 2013, which is when the data set was compiled. Cases that exited the system within the data timeframe (January 1, 2012 to November 15, 2013) showed an “exit outcome,” indicating where the child had been placed when the case was closed. Cases that still had children in out-of-home placement at the end of the timeframe showed a permanency goal, since the case had not yet been closed. This information was used to study trends in permanency outcomes during that time period.

II. Review of History, Policy and Literature

Child Welfare Background

Allegheny County traces its child welfare history as far back as the 18th century, when a harsh form of foster care existed: children whose parents could not take care of them were indentured to the highest bidder, a practice that lasted until 1927 (O’Toole 2013:4). By the 19th century, however, many children found shelter in almshouses, where poor families went to find refuge (O’Toole 2013:4). This trend resulted in the earliest child welfare policy in 1883, when The Children’s Law was passed in Pennsylvania (O’Toole 2013:4). The Children’s Law dictated that children between the ages of two and 16 could not remain in almshouses for more than 60 days, since almshouses were terrible places to raise children (O’Toole 2013:4). Since discharging children from the almshouses often meant separating families, The Children’s Law triggered tension between those advocating for family reunification and those advocating for child protection (O’Toole 2013:4). Although the child welfare system clearly has evolved since then,
the friction between prioritizing timely permanency for children or family preservation emerged as early as the 19th century.

While The Children’s Law shows some government involvement in child welfare, it was the private sector that historically acted as a safety net for children and families. Following the Civil War, charitable and religious groups in Pittsburgh provided aid to widows and orphans (O’Toole 2013:5). Many children’s institutions appeared in the late 19th century, when families heavily relied on orphanages, even temporarily sending their children to orphanages in times of financial distress (O’Toole 2013:5). Shortly after, in 1902, Allegheny County created one of the first Children’s Courts in the nation (O’Toole 2013:5). Children were removed from the adult jail population and, for the first time, the county’s judicial system recognized the separate needs of children and adults (O’Toole 2013:5). “Judges and probation officers worked with families to solve the problems that brought children into the system,” O’Toole writes, marking the local judicial system’s long history of working with families to improve child welfare (O’Toole 2013:5). Pennsylvania’s first Department of Welfare was founded in 1921, and relied on local county boards to inspect child welfare institutions (O’Toole 2013:8). The state offered recommendations to the institutions, but did not provide funding to implement changes (O’Toole 2013:8).

Not surprisingly, these children’s institutions were crushed with demand during the Great Depression. Private sector institutions stepped in where they could to help fill the gap, but as the crisis deepened, pressure grew for federal action (O’Toole 2013:9). In 1935, the federal government responded with the first Social Security Act, which gave aid to families with dependent children, and administered the first federal funds to foster care and child welfare services (O’Toole 2013:9). On a local level, Allegheny County had created a Juvenile Court in
1933, and by 1935, 85 percent of the children in foster care were under the court’s supervision (O’Toole 2013:9). During this time, a campaign developed to move children from congregate care to permanency (O’Toole 2013:11). As a result, orphanages began to disappear, and family reunification became the primary focus (O’Toole 2013:11).

In the 1950s, child welfare research began to differentiate between dependent children and delinquent children (O’Toole 2013:11). The Allegheny County Health and Welfare Association recommended that the county establish a separate agency for dependent children (O’Toole 2013:11). A decade later, the Civil Rights Act and the War on Poverty enlarged federal programs, and amendments to the Aid to Families with Dependent Children (AFDC) provided federal funding to foster care, including funds to reimburse counties for child welfare costs (O’Toole 2013:11). AFDC also created the first federal foster care program in 1961, which was established for children who could not safely remain with their families receiving AFDC (Allen and Bissell 2004:48). These changes in federal legislation forced Allegheny County to provide separate services to dependent children, so Allegheny County created a new department called Child Welfare Services (CWS) in 1963 (O’Toole 2013:12). CWS would later become Children and Youth Services (CYS), and then the present-day Office of Children, Youth and Families (CYF).

Additional legislation in the 1970s, specifically the federal government’s Child Abuse Prevention and Treatment Act and Pennsylvania’s Child Protective Services Law, mandated medical professionals and other specific professionals to report suspected child abuse (O’Toole 2013:14). The demand for services increased, and by 1977, CWS was serving 11,794 children (O’Toole 2013:12). Increased awareness of child abuse in the 1980s raised the number of caseloads, and when children were removed from their homes, the overwhelmed system often
left them in long-term placements (O’Toole 2013:14). Many abused children ended up staying in institutions for years, and new national research began to show that a disproportionate number of these children were African American (O’Toole 2013:14). Dr. Walter Smith, the present Deputy Director of CYF, remembers, “After a family crisis of 30 to 60 days, children might be out of the home for 22 months” (O’Toole 2013:14). Too often, he explained, a temporary family crisis resulted in a larger trauma (O’Toole 2013:14).

By the 1990s, the local media had begun to expose several cases of child abuse and even child death, which garnered significant attention, and depleted the public’s confidence in the county’s child welfare system (O’Toole 2013:14). O’Toole explains, “After years of CYS veering between two philosophies—family reunification and separation from family—the public questioned whether either strategy truly protected children” (O’Toole 2013:15). The child welfare system had reached its breaking point, and one of the major causes of the crippling caseload was the national epidemic of crack cocaine, which had begun in 1985 (O’Toole 2013:15). Allegheny County responded to the crisis, and a new director, Marc Cherna, was appointed to CYS in 1996 to lead an aggressive reform (O’Toole 2013:15). CYS began to institute reforms to refocus on child permanency, and the federal government would reinforce the importance of permanency a year later with the passage of ASFA. In 1997, Marc Cherna was appointed as the director of the newly created Allegheny County Department of Human Services. DHS was a new mega-agency that integrated the county’s human services offices, including child welfare, mental health, intellectual disability, substance abuse, homelessness and hunger, and aging services (O’Toole 2013:21). The integration of these services allowed DHS to serve families involved with multiple systems in a more streamlined manner. With the creation of DHS and a reformed child welfare service approach, Allegheny County was able to significantly
reduce foster placements. Allegheny County’s number of children in out-of-home placements dropped 60 percent between 1996 and 2012 (O’Toole 2013:26). Half of the remaining placements were children who were placed with relatives, which is nearly double the national rate of 26 percent (O’Toole 2013:26). In 2012, Allegheny County reported that the median length of out-of-home placements had decreased two months since 1996 (O’Toole 2013:26).

Adoption and Safe Families Act (ASFA)

The federal policies that influenced the development of CYF continue to influence child welfare today. The Adoption Assistance and Child Welfare Act of 1980 created the framework for federal foster care policy, and later foster care policy built on that framework (Allen and Bissell 2004:48). The most notable policy since that framework was established is the Adoption and Safe Families Act (ASFA), passed in 1997, the same year when Allegheny County began to institute child welfare reforms. Allen and Bissell explain that ASFA significantly changed national child welfare policy by:

- defining when it is reasonable to seek family reunification;
- expediting timelines for permanency decisions;
- recognizing kinship care, or placement with a family member, as a permanency option;
- and providing financial incentives to the states for increasing the number of adoptions (Allen and Bissell 2004:48).

Allen and Bissell explain that ASFA was intended to address concerns about children who were placed in foster care and remained there long-term without a permanent family (Allen and Bissell 2004:52). These concerns reflect the national child welfare issues at that time, to which Allegheny County was not an exception. Congress’ main goals with ASFA were to shorten the amount of time that children stayed in foster care and reduce the number of children waiting to be adopted (Allen and Bissell 2004:52). ASFA emphasized that foster care is “intended to
provide a safe and temporary way station while children prepare for permanent homes” (Allen and Bissell 2004:52). ASFA set two permanency timelines: permanency hearings must be held no later than 12 months after a child enters foster care, and states are required to initiate termination of parental rights proceedings if a child has been in placement for 15 out of 22 months (Allen and Bissell 2004:53). ASFA included three exceptions to the timeline for terminating parental rights:

- when the child is in a relative’s care;
- when the state child welfare agency has documented a compelling reason why terminating the parental rights is not in the child’s best interest; and
- when the agency has not provided the family with the services that the state deemed necessary, consistent with the time period outlined in the case plan, to facilitate a safe return for the child (Allen and Bissell 2004:53).

ASFA emphasized that the safety and health of the child must be the highest priority when child welfare agencies make decisions about removing a child from the home, returning the child home, and providing care during placement (Allen and Bissell 2004:53). Congress also eliminated “long-term foster care” as a permanency option for children, and recognized “kinship care,” or placement with “fit and willing relatives” or a legal guardian, as a permanency option (Allen and Bissell 2004:54).

ASFA made significant changes to national child welfare policy, and continues to shape how child welfare agencies operate. However, Allen and Bissell point out that despite all of the changes that ASFA made in terms of permanency, more than 550,000 children were still in foster care in 2004, seven years later (Allen and Bissell 2004:61). They discuss how policies in other areas, specifically substance abuse, mental health, domestic violence, housing, and taxation, also affect children and families involved in child welfare (Allen and Bissell 2004:58). Allen and Bissell name substance abuse as an important consideration, because children whose parents
have substance abuse issues are nearly three times more likely to be neglected than children whose parents do not (Allen and Bissell 2004:60). Some states have attempted to address this issue through the Child Welfare Demonstration Waiver Program, which has allowed states to respond more creatively to child welfare issues with federal funding (Allen and Bissell 2004:61). However, no federal laws currently address the links between child welfare and substance abuse, or other policy areas like mental health (Allen and Bissell 2004:60).

ASFA is commonly regarded as the most prominent recent federal child welfare policy. However, child welfare policy has certainly not remained stagnant since 1997. Other recent federal child welfare policy has focused on youth who “age out” of foster care, meaning that their case is still active when they reach 18 years old. The Foster Care Independence Act of 1999 created extra provisions for this population, increasing funds for independent living activities, including provisions for room and board for young adults ages 18 to 21 who were leaving foster care (Allen and Bissell 2004).

In addition to federal policy, pertinent regulations have emerged from the states, because while federal policies provide standards and guidelines, state laws and regulations primarily govern child welfare issues (Child Welfare Information Gateway). Documents from the Child Information Gateway, a service of the U.S. Department of Health and Human Services, provide clarity about Pennsylvania statues that apply to child welfare. Pennsylvania laws on child welfare include regulations about reasonable efforts to preserve or reunify families; grounds for involuntary termination of parental rights; court hearings to determine permanency; and determining the best interests of the child.
State Regulations on Child Welfare and Permanency for Children

Laws in all states require that child welfare agencies make “reasonable efforts” to provide services that will “help families remedy the conditions that brought the child and family into the child welfare system” (Child Welfare Information Gateway). Generally, these efforts are accessible, available and culturally appropriate services, which may include family therapy, parenting classes, and drug and alcohol services. Under AFSA, the health and safety of the child are the paramount concerns in determining whether reasonable efforts have been made to reunify the family (Child Welfare Information Gateway). The state requires child welfare agencies to demonstrate that reasonable efforts have been made to meet the family’s needs, except in certain circumstances, including if the parent subjected the child to “aggravated circumstances,” as defined by state law. Aggravated circumstances may include abandonment, torture, and sexual abuse; if the parent committed murder of another child of the parent; and if the parent’s rights to a sibling of a child were involuntarily terminated (Child Welfare Information Gateway). In Pennsylvania, child welfare agencies are also not required to make reasonable efforts if the parent was convicted of certain crimes in which the victim was a child, including aggravated assault, rape, and indecent assault, or if the parent attempted to commit such a crime (Child Welfare Information Gateway).

The states also regulate grounds for involuntary termination of parental rights. The termination of parental rights ends the legal parent-child relationship, and when this occurs, the child is legally free to be placed for adoption (Child Welfare Information Gateway). Several situations constitute grounds for involuntary termination of parental rights, many of which are similar to the grounds for an exception to making reasonable efforts. In Pennsylvania, a parent’s rights may be involuntarily terminated if:
• the child has been in out-of-home placement for at least six months, and the conditions that led to removal continue still exist;
• the parent cannot or will not remedy the conditions in a reasonable amount of time;
• the services available likely would not remedy the conditions;
• and the termination of parental rights would best serve the needs of the child (Child Welfare Information Gateway).

Involuntary termination of parental rights may also occur in Pennsylvania if 12 or more months have elapsed since the child has been removed from the home, the conditions for the removal still exist, and the termination of parental rights would best serve the needs of the child (Child Welfare Information Gateway). Pennsylvania regulations also state that parental rights may not be involuntarily terminated solely on the basis of “environmental factors,” such as inadequate housing, clothing, or medical care, if beyond the control of the parent (Child Welfare Information Gateway).

In all states, court hearings are used to review the status and determine the permanent placement of children (Child Welfare Information Gateway). Under ASFA, the status of each child in out-of-home placement must be reviewed at least once every six months by a court or an administrative review (Child Welfare Information Gateway). A permanency planning hearing must be held within 12 months of the child entering care, and subsequent hearings must be held every 12 months thereafter (Child Welfare Information Gateway). If it has been determined that reasonable efforts to reunite the child with his or her family are unnecessary, a permanency planning hearing must be held within 30 days (Child Welfare Information Gateway). The main purpose of permanency hearings is to assess whether the current placement of the child is safe and appropriate (Child Welfare Information Gateway). Permanency hearings are also used to determine whether the case plan determined by the child welfare agency is appropriately meeting
the child’s needs; how the family is complying with the case plan; how much progress has been made in remedying the issues that led to the child’s placement; and whether the child welfare agency has made reasonable efforts to meet the child and family’s needs (Child Welfare Information Gateway). Pennsylvania law dictates that if the sibling of a child who has been removed from the home is in a different placement, permanency hearings should assess whether reasonable efforts have been made to place the siblings together, unless contrary to the well-being of the children (Child Welfare Information Gateway). Pennsylvania law also dictates that notification of a permanency hearing will be provided to the child’s foster parent, any preadoptive parent, and a relative providing care for the child (Child Welfare Information Gateway).

These state laws and regulations have guided how federal policy has been implemented in Pennsylvania. While all states are required to follow ASFA and other federal child welfare policies, each state has its own nuances for how the policies are interpreted, which dictates how child welfare agencies perform their duties. Differences exist even between counties, so understanding the context of child welfare at the national, state and county levels is essential in analyzing child welfare practice at the local level. The standards for child welfare are similar under the influence of federal policy, but child welfare trends in different states and counties should be viewed as a specific population within a broader child welfare context.

National, State, and Local Child Welfare Statistics

The history, policy and practice of child welfare have shaped the state of child welfare today. Child welfare statistics on national, state and local levels reveal what child welfare policy reform has produced in terms of placement numbers. On September 30, 2011, about 400,540 children were in foster care in the United States (Child Welfare Information Gateway). More
than a quarter of the children were in the care of a relative, while 47 percent were in the home of a nonrelative (Child Welfare Information Gateway). About half of the children had reunification as their permanency goal—and about half of the children actually ended up leaving the system to be reunified with their parents or primary caretakers (Child Welfare Information Gateway). Of the children who left foster care, 46 percent had been in care for less than one year (Child Welfare Information Gateway).

On a state level, at the end of 2011, Pennsylvania had 14,175 children in foster care (State Child Welfare Policy Database). Children between the ages of 13 and 21 accounted for 46 percent of the children in foster care, which was the largest age group (State Child Welfare Policy Database). Pennsylvania’s statistics are comparable to national statistics. On average, children spent 21.7 months in foster care, which was lower than the national average of 23.8 months (State Child Welfare Policy Database). Nearly 8 percent of Pennsylvania children spent more than five years in foster care, which was slightly better than the national average of 9.5 percent (State Child Welfare Policy Database). About a quarter of the children in foster care were living with relatives (State Child Welfare Policy Database). Both nationally and in Pennsylvania, nearly 40 percent of children only experienced one placement in foster care (State Child Welfare Policy Database). Nearly 26 percent experienced two placements (State Child Welfare Policy Database). A smaller number of children experienced three placements, nearly 13 percent, but nearly 23 percent experienced four or more placements (State Child Welfare Policy Database). Out of the 9,584 children that exited foster care in Pennsylvania in 2011, 52 percent were returned to their parents; more than 21 percent were adopted; more than 13 percent left to live with relatives or guardians; and nearly 9 percent aged out of the system at age 18 or older (State Child Welfare Policy Database). These percentages are very similar to national statistics.
However, Pennsylvania’s foster care statistics differed from national statistics when broken down by race and ethnicity. In Pennsylvania, the largest population of children in foster care was non-Hispanic black, accounting for nearly 44 percent of the children (State Child Welfare Policy Database). Nationally, only 27.5 percent of the children in foster care are non-Hispanic black (State Child Welfare Policy Database). Inversely, only about 12 percent of Pennsylvania children in foster care were Hispanic, compared to more than 20 percent nationally (State Child Welfare Policy Database). This difference could be influenced by the racial makeup of Pennsylvania versus the rest of the nation. Specifically, Pennsylvania’s Hispanic population is not as large as some other parts of the country. The racial differences between Pennsylvania statistics and the national averages only applied to minorities. Pennsylvania’s number of non-Hispanic white children in foster care, 40.5 percent, was very close to the national average (State Child Welfare Policy Database).

Allegheny County’s child welfare statistics are similar to state and national numbers, though some trends are more consistent than others. In 2011, DHS released a report that detailed long-term trends in CYF’s placement dynamics. The report stated that in 2010, 1,765 children were in out-of-home placement in Allegheny County (Good and Dalton 2011). Out-of-home placement was particularly prevalent in specific communities and neighborhoods, many of which were considered “severely distressed,” defined as having higher rates of poverty, low employment, high high-school dropout rates and high numbers of female-headed households (Good and Dalton 2011). African American children made up the majority of children in out-of-home placement—about 60 percent of cases, despite the fact that African Americans comprise only 18 percent of the county’s population (Good and Dalton 2011). This trend is consistent with Pennsylvania’s statistics, though more pronounced at the county level. Allegheny County
reported a high percentage of children in kinship care, compared to state and national statistics. Of the children in placement in the county, the percentage of youth placed in kinship care was about 38 percent in 2009 (Good and Dalton 2011). DHS also reported that the majority of children in Allegheny County reunified with their families, regardless of age (Good and Dalton 2011).

National, state, and local child welfare statistics can be difficult to compare in detail, since the more specific data may be measured differently. In addition, the timeframes and type of data available may differ. However, the basic information provided here shows that aside from race, the statistics are fairly consistent. And, most pertinent to this study, at least half of children typically return home from out-of-home placement in Allegheny County, Pennsylvania, and the U.S.

Drug and Alcohol Background

Substance Abuse and Substance Dependence

Looking at child welfare statistics creates a general sketch of the number and characteristics of children in out-of-home placement. This provides a baseline for understanding the data that is discussed in this report. However, taking the review a step further and analyzing child welfare dynamics within the context of substance abuse requires an overview of information about drug and alcohol treatment. The National Association of Social Workers (NASW) provides information about substance abuse in order to provide substance abuse professionals and child welfare workers with a better understanding of how clients involved in both systems may be impacted by ASFA. NASW references 2001 statistics from the Department of Health and Human Services, which indicate that 80 percent of children in out-of-home placements were removed from the home due to parental substance abuse problems (Smith
Such a significant percentage makes it particularly important for professionals in both areas to understand how the problems are related.

NASW explains that not all individuals who receive drug and alcohol services meet diagnostic criteria for substance dependence (Smith 2003). From a diagnostic standpoint, there are two broad categories for individuals with substance use disorders: dependence and abuse (Smith 2003). According to criteria from the American Psychiatric Association, individuals with substance dependence continue to use a substance “despite significant substance-related problems” (Smith 2003). Individuals with substance dependence exhibit a pattern of behavior that usually results in “tolerance, withdrawal, and compulsive drug-taking behavior” (Smith 2003). Substance abuse, on the other hand, is defined by a pattern of substance use that has “significant adverse consequences related to the repeated use of substances” (Smith 2003). This may include a pattern of failing to fulfill obligations, legal problems, and social and interpersonal problems (Smith 2003). Substance abuse is the more serious of the two categories. Individuals who meet the diagnostic criteria for substance abuse may never meet the criteria for substance dependence (Smith 2003).

NASW also explains that not all individuals who seek drug and alcohol services are required to completely abstain from substance use. Individuals diagnosed with substance dependence generally have abstinence as their expected outcome (Smith 2003). Achieving and maintaining abstinence is a difficult process that may involve relapse, or engaging in substance use again, in the recovery process (Smith 2003). Individuals seeking help for substance abuse, however, may not need to abstain from all substance use unless that is their desired goal (Smith 2003). NASW points out that “temporary or long-term abstinence may be required for some of these individuals, particularly adults involved with the child welfare system wanting to maintain...
parental rights” (Smith 2003). Treatment goals are based on the type of diagnosis, whether substance dependence or abuse, and are planned with the individual who is receiving services and the substance treatment professional. Abstinence is often the treatment goal, especially for individuals seeking help for substance dependence (Smith 2003). However, an individual with substance abuse issues may focus instead on eliminating harmful behaviors and consequences that stem from the abuse, such as driving while intoxicated, for example (Smith 2003). Parents seeking treatment for substance abuse may or may not need to abstain from substance abuse completely, and they may need to learn “parenting skills and harm reduction techniques” to help with the substance use (Smith 2003).

The amount of time that individuals should participate in substance abuse treatment is an important consideration, especially in the context of ASFA, but can be difficult to define in general terms since all individuals are different. NASW states that the average length of treatment “varies widely,” and depends on the type of treatment (Smith 2003). NASW states that based on a variety of research, longer treatment stays may result in positive outcomes (Smith 2003). Researchers from the University of Chicago and Brown University found that treatment for up to 18 months in residential settings and up to 15 months in outpatient treatment produce the best outcomes, potentially reducing drug use by two-thirds or more (Ascribe Newswire 2003). However, these timelines are at least as long as the ASFA timelines. And, once individuals complete treatment, they may relapse, which is also difficult to quantify. On one hand, research has indicated that, in diagnostic terms, individuals who have been treated for substance abuse relapse within one year at significantly lower rates than other chronic and treatable diseases, such as insulin-dependent diabetes (Smith 2003). Individuals who have been treated for substance dependence, however, which is a “chronic, relapsing condition,” may
receive treatment multiple times before they successfully achieve and maintain abstinence (Smith 2003). Drug dependence is a “chronic medical illness,” and some research indicates that 40 to 60 percent of individuals who receive substance abuse treatment relapse within one year (McLellan et. al 2000).

**Impact of Parental Substance Abuse on Child Development**

Although it is difficult to discern how long substance abuse treatment is needed to effectively reach abstinence or other treatment goals, the general treatment timelines and the chronic nature of drug dependence clearly indicate that reaching substance abuse treatment goals is most often a lengthy process. This poses a significant problem within the context of the child welfare system, where the focus is to place children in a stable, safe, and permanent environment in a timely manner. The Child Welfare Information Gateway states that a “predictable, consistent environment, coupled with positive caregiver relationships, is critical for normal emotional development of children.” The problems that stem from substance abuse are inconsistent with creating such an environment. Parental substance abuse can cause children’s environments to become “chaotic” and “unpredictable,” leading to child maltreatment (Child Welfare Information Gateway). Child neglect can occur with parental substance abuse because the parent’s process of obtaining, using and recovering from substances may supersede the child’s needs. Child Welfare Information Gateway explains, “The search for drugs or alcohol, the use of scarce resources to pay for them, the time spent in illegal activities to raise money for them, or the time spent recovering from hangovers or withdrawal symptoms can leave parents with little time or energy to care properly for their own children.”

As a result, parental substance abuse can have a significant impact on all stages of child development. Substance abuse can disrupt the bonding process between parent and child, which
can influence child development, especially if it is disrupted in the early stages of life (Child Welfare Information Gateway). To form an attachment between the parent and the child, the parent must give the child attention and notice the child’s attempts to communicate (Child Welfare Information Gateway). In addition, children who are exposed to substance use, either prenatally or postnatally, are more likely to experience symptoms of depression and anxiety; suffer from psychiatric disorders; exhibit behavior problems; score lower on achievement tests; and demonstrate other difficulties in school (Child Welfare Information Gateway). Research also indicates that adolescents with parents who have substance use disorders are more likely to engage in substance use themselves (Child Welfare Information Gateway).

**Child Welfare Referrals for Substance Abuse in Allegheny County**

Child abuse or neglect can be reported at any time by calling the Pennsylvania ChildLine and Abuse Registry, commonly known as “ChildLine” (“Reporting Child Abuse”). Callers may also contact CYF to report alleged child abuse or neglect. DHS lists “concerns about addiction” on its website as helpful additional information that the caller may provide, if applicable (“Reporting Child Abuse”). Anyone with concern about a child’s wellbeing may contact ChildLine or CYF. However, some individuals are mandated to report child abuse or neglect. Under Pennsylvania law, mandated reporters are individuals who come into contact with children through their employment, occupation or profession. If such individuals have reasonable cause to suspect, on the basis of their professional training, that a child under their supervision, or of an agency, institution, or organization with which that individual is affiliated, that individual is mandated to report the suspected abuse or to cause a report to be made (“Reporting Child Abuse”). Mandated reporters include licensed physicians, registered nurses, coroners,
funeral directors, psychologists, school administrators, school teachers, social services workers, and law enforcement officials (“Reporting Child Abuse”).

Since medical personnel are mandated reporters, one way that substance parental abuse is revealed is when drug-exposed newborns are referred to child welfare agencies. DHS released a data brief about drug-exposed newborns in 2013, which studied referrals for newborn exposure to drugs made to CYF from 2009 through 2011 (Drug Exposed Newborns). The data brief revealed that the highest single-year total of newborns referred from substance exposure was 330 in 2010 (Drug Exposed Newborns). Most referrals were made during the newborn’s first three days of life (Drug Exposed Newborns). Marijuana was listed most frequently as the substance to which the newborn had allegedly been exposed (Drug Exposed Newborns). In fact, marijuana accounted for 67 percent of the referrals (Drug Exposed Newborns). Opiates, such as heroin, accounted for 31 percent of referrals, and cocaine and crack cocaine were identified in 15 percent of referrals (Drug Exposed Newborns). More than one in four of the newborns referred to CYF for substance exposure in 2009 and 2010 were again referred to CYF at least one more time before the end of 2011 (Drug Exposed Newborns).

These numbers indicate the prevalence of parental substance abuse before the child is born. Some newborns may be removed from the home due to parental substance abuse, and cases like these are included in the data analyzed in this study. Before discussing the data analysis conducted for this study, it is necessary to learn what similar research has already been published. Examining the structure and results of related studies justifies the need for this study and helps to indicate the method for structuring this study’s data analysis.
Parental Substance Abuse Background

Many of the studies regarding substance abuse and child welfare are dated in the 1990s, when the crack cocaine epidemic forced the intersection of these problems into the forefront of child welfare policy in the U.S. More recent studies exist, but they generally focus on drug and alcohol treatment programs alone. For example, Brook and McDonald conducted a program evaluation study on a comprehensive service-delivery program in rural Kansas for families with substance abuse problems (2007). For those with children in child welfare, they studied the program’s impact on reunification, and whether the families were likely to reenter the system after reunifying. They found that many of the families involved in the substance abuse program reunified within one year, but that reentry rates into foster care remained high (Brook and McDonald 2007:665). Their study supported previous research studies indicating that shorter child welfare placements result in higher reentry rates. In addition to their results, Brook and McDonald recognized the need for more studies on the topic:

[While] many studies have documented the presence of substance abuse in cases referred to child abuse and neglect authorities, few studies have followed these same referrals to ascertain how alcohol and other drug abuse (or treatment) affects permanency outcomes (such as reunification rates, maltreatment recurrence, reunification stability, termination of parental rights, adoption, and guardianship) (Brook and McDonald 2007:664).

Brook and McDonald help to fill the gap in this type of research. However, they focus on reentry rates after reunification, which does not include those that remain in placement or reach other permanency outcomes, which this study includes. In addition, Brook and McDonald only focus on the drug and alcohol treatment population within this specific program, while this study looks at all cases that have drugs or alcohol as a reason for removal.

Green, Rockhill and Furrer also studied parents in drug and alcohol treatment and highlighted the lack of recent studies on the topic (2005:460). They write, “Although substance
abuse is one of the primary reasons that parents become involved with the child welfare system, there is surprisingly little empirical research that examines the relationship of substance abuse treatment to child welfare outcomes” (Green et al. 2005:460). They cite literature from the 1990s that measures the presence of parental substance abuse in foster care cases somewhere between 25 and 80 percent, clearly indicating the problem’s relevance, which is why this gap in the literature might be surprising (Green et al. 2005:460). In their study, Green, Rockhill and Furrer found that treatment completion was a significant predictor of reunification, and that parents who entered treatment more quickly had children who spent less time in out-of-home placement (2005:470). Like Brook and McDonald, this study only focused on parents in treatment. Green, Rockhill and Furrer cite a study conducted by Smith (2003), which they regard as “the most comprehensive study to date,” before their study. Smith focused on drug and alcohol treatment compliance in relation to reunification, which is very similar to Green, Rockhill and Furrer’s study.

Brook and McDonald completed another study in 2009 that focused on the stability of family reunifications for cases that had involved parental substance abuse. They only examined families that reunified, but included families that had no drug and alcohol involvement. They controlled for a number of characteristics, some of which are included in this study. Brook and McDonald used Cox regression analysis and found that the group with both drug and alcohol problems had significantly higher reentry rates than the other groups, and that drug and alcohol issues as a reason for initial removal increased the likelihood of reentering the system (2009:197). The main difference between this study and the current study is that Brook and McDonald focused on the events after reunification occurred, rather than general permanency.
outcomes, and they did not include data on cross-system involvement, such mental health system involvement, which this study does.

A different study focused specifically on mothers, similar to this study. Grella, Hser and Huang focused on mothers in substance abuse treatment in California who were and were not involved with child welfare services (2006). They focused on the substance abuse characteristics of the mothers, including method of referral and type of drug use. They found that in their substance abuse treatment population, mothers involved in child welfare were younger, had more children, and had more economic problems (Grella et al. 2006). The child welfare mothers were more likely to be referred by the criminal justice system and to have a history of physical abuse (Grella et al. 2006). Grella, Hser and Huang’s focus on mothers is similar to this study, but their data is derived from substance abuse treatment, so they only examined mothers in treatment, and their comparison group of mothers was not involved in child welfare. In this study, all of the mothers were involved in child welfare, and drugs or alcohol as a removal reason will indicate substance abuse, rather than enrollment in substance abuse treatment.

It appears that the somewhat limited number of related studies stems from the inconsistent availability of data. Specifically, lack of cross-system data accounts for the gap in research literature on parental substance abuse and permanency outcomes. Young, Boles and Otero identify the lack of cross-system data collection requirements as the root of limited knowledge on substance abuse and child maltreatment (2007). They explain, “Collecting data on these subsets of families did not become a priority until more recently, when policy makers and administrators recognized the value of collecting data on families who represent an overlap in client populations” (Young et al. 2007:137). They point out that the child welfare system uses the child as the unit of analysis, while the drug and alcohol system uses the adult as the unit of
analysis, and that parenting data for those involved in drug and alcohol treatment is not collected on a national level (Young et al. 2007:137).

The report also states that the ASFA timelines are often incompatible with the recovery process, which was a theme throughout the related literature (Young et al. 2007:147). Young, Boles and Otero recognize that despite this incompatibility, ASFA timelines create a sense of urgency for substance abuse and child welfare services to address these issues (2007: 147). Marsh, Smith and Bruni also examine ASFA’s clash with the addiction recovery process (2011). They highlight the differences in measurement between the two systems. In child welfare, substance abuse progress is typically indicated by abstinence and treatment compliance (Marsh et al. 2011). However, measuring progress only through abstinence is inconsistent with the substance abuse research that views addiction as a “chronic brain disease,” typically involving relapse in the recovery process (Marsh et al. 2011:468). The treatment compliance is framed by the ASFA timelines, which also clashes with the evidence that longer drug and alcohol treatment is linked with more lasting positive outcomes (Marsh et al. 2011:468). Child welfare policy focuses on making a decision about whether the family will be reunified in a shorter amount of time, while substance abuse research indicates that in terms of achieving abstinence, shortening the treatment timeframe may reduce positive long-term outcomes.

This literature reveals that the majority of studies on substance abuse published in the last decade were hampered by the lack of integrated data between the child welfare, drug and alcohol, and other human services systems. As a result, nearly all of the recent studies only incorporate data from drug and alcohol treatment programs. However, DHS’s Office of Data Analysis, Research and Evaluation collects cross-system data, which allows researchers to examine the service involvement of parents active in child welfare. This type of data better
measures drug and alcohol abuse, since it is not limited to individuals in treatment, and will be used in this study. This study will help to fill the literature void that stems from the nationwide data limitations that likely account for the sparse amount of studies on parental substance abuse and permanency outcomes.

III. Theoretical Framework

In addition to research on related studies, research on child welfare theory helped to structure this analysis. Attachment theory, which provided the theoretical framework for this study, is perhaps the most popular theory in modern child welfare research. Attachment theory was applied to this study, because it underlies the current child welfare practice of preserving the family when possible. Attachment theory justifies why CYF and child welfare agencies across the country place an emphasis on family preservation, because it explains the importance of the attachments between parent and child.

A number of theories, in addition to attachment theory, have been applied to child welfare research. Three of the most popular theories were considered for this study: attachment theory, crisis intervention theory, and anti-discrimination theory. Crisis intervention theory, which was not applied in this study, asserts that individuals can typically overcome change, but when an individual’s coping mechanisms are overwhelmed, they either overcome the stressor by gaining coping mechanisms, or they are unable to handle the stressor, resulting in a decreased ability to handle life events (Washington 2008:10). Failing to acquire the coping skills and thus failing to handle the stressor can lead to behavioral and mental health problems, according to theory (Washington 2008:10). While this theory has been applied to children’s ability to cope with abuse and neglect and being removed from their homes, the theory only focuses on children, rather than on the parent and child, so it was not applied in this study.
Anti-discrimination theory, which was also not applied in this study, states that oppressive conditions serve to advance the power of privileged groups, and that discrimination is harmful to society and should be challenged (Washington 2008:11). This theory has been applied to study minority involvement in the child welfare system. If this study had examined the disproportionate number of African American children removed from their homes, anti-discrimination theory could have contributed to this study. However, minority groups are not a focus of this study, because a significant percentage of racial data was missing, so anti-discrimination was not included in the theoretical framework. Since both crisis intervention theory and anti-discrimination theory were eliminated, only attachment theory was applied to this study.

**Overview of Attachment Theory**

How does attachment theory justify the child welfare policy focus on family preservation? Attachment theory asserts that the relationship between an infant and the primary caregiver is critically important for the child’s later development and will impact the child’s relationships throughout his or her life (Washington 2008:8). Babies attempt to communicate with their caregivers, and if parents repeatedly miss their babies’ cues, the babies eventually stop providing them (Child Welfare Information Gateway). Cues can be missed when neglect or abuse occurs, including neglect that stems from parental substance abuse. When babies stop providing cues, the parents and baby have difficulty forming a healthy and appropriate relationship (Child Welfare Information Gateway).

Proponents of attachment theory suggest that the theory is useful in understanding the psychological impact of child abuse and neglect (Washington 2008:8). Children with secure attachments tend to establish satisfying relationships later in life (Washington 2008:9).
Attachment theory postulates that the difficulty that children experience even after being removed from an abusive situation stems from the trauma experienced from repeated separations from caregivers (Washington 2008:9). Such difficulties due to poor attachments are not limited to interpersonal relationships, but also impact social, cognitive, behavioral, and academic performance (Washington 2008:9). According to Child Information Gateway, children who do not form secure attachments may:

- become more mistrustful of others;
- resist learning from adults;
- have difficulty understanding others’ emotions or regulating their own emotions;
- struggle to form and maintain relationships with others;
- have reduced ability to feel remorse or empathy;
- show a lack of confidence or social skills;
- or demonstrate impaired social cognition.

Attachment theory helps to explain the child welfare system’s focus on family preservation and kinship care. Modern child welfare policy attempts to make decisions about placement and permanency based on the child’s caregiver attachments, hoping to avoid disruption to attachments when possible. Mennen and O’Keefe use attachment theory to underscore the negative outcomes associated with child placement instability (2004). They explain how attachment theory can help child welfare service professionals understand the relationship between children and their caretakers, and how the quality of the attachment between children and their caretakers relates to positive outcomes (Mennen and O’Keefe 2004:578). They claim that the use of attachment theory can help the child welfare system to avoid harmful consequences of child welfare intervention (Mennen and O’Keefe 2004:578). According to Mennen and O’Keefe,
Attachment theory postulates that a key developmental task of infancy is forming an attachment to the mother or primary caregiver.... Early life experiences, particularly those that occur in the context of the parent-child relationships, are believed to form the child’s initial mental representations of self, others, and relationships (2004:579).

Attachment theory suggests that the child-caregiver attachments are the foundation of social and emotional development. Attachment theory provides the framework for the current service delivery approach in child welfare, which includes a focus on reunification, when timely and possible. It is also relevant because it underpins why the conflict between timely permanency for children and the lengthy addiction recovery process are such important issues to research and analyze. In cases of parents struggling with addiction, timely permanency is in direct contradiction with family preservation.

Criticisms of Attachment Theory

Although attachment theory is rather popular, its critics have presented reasons why they think that attachment theory has weaknesses. One of the most popular criticisms of attachment theory stems from the nature versus nurture debate (Washington 2008:9). Since attachment theory focuses on environmental factors, critics argue that it does not account for biological factors. Some researchers have found that personality traits primarily stem from biology, rather than environmental factors (Washington 2008:9). Specifically, the idea of “inborn temperament” is not included in attachment theory, meaning that the theory does not account for how an individual’s biological makeup can influence his or her personality traits (Washington 2008:9).

Additional criticism stems from the feminist perspective, from which some have argued that attachment theory disproportionately focuses on the mother. Washington explains that attachment theorists do not claim that only mothers are able to act as primary caregivers, but much of the attachment theory literature focuses on females as primary caregivers. Since
attachment theory postulates that difficulties in child development can be attributed to the child-caregiver relationship, some critics see attachment theory as “mother blaming” (Washington 2008:10). However, Washington adds that contemporary attachment theory literature has included temperament research, examining the interaction between biological factors and attachment, thus adding a nature component to attachment theory’s nurture-focused argument.

Since the data used in this study focuses on children who have been removed from the home, attachment theory provides an appropriate theoretical framework. The families in this study have been separated, and although the issues that led to that separation could be tied to biological factors, the potentially damaged attachment between the child and primary caregiver is still relevant. This study includes children up to 17 years of age who have entered the child welfare system for the first time. Although the older children’s attachments were not damaged by being removed from the home when they were babies, at least through the child welfare system, earlier issues that affected their attachments could be the root of their issues as teenagers. Attachment theory is still appropriate to apply to these older cases, because regardless of age, attachment theory underlies the child welfare system’s focus on family preservation.

Attachment theory, the literature reviewed on this topic, and interviews with DHS staff provided the rationale for selecting the variables in this study, as described in the next section, and determining how they should be measured and analyzed. This study focuses on mothers to investigate how substance abuse influences whether they are able to potentially preserve their attachments with their children though reunification. This will be examined by analyzing the relationship between mothers who had substance abuse cited as a reason for their children’s removal and the permanency outcomes for their family. Based on the information from the literature review, this study hypothesizes that substance abuse impacts whether a mother is
reunited with her children. More specifically, this study hypothesizes that substance abuse decreases the chances that a child will return to his or her primary caregiver in a safe and timely manner, so the child’s attachment to the primary caregiver will be atrophied because the child will be placed with other caregivers or remain in the system. If the child was neglected or abused due to parental substance abuse, the child and caregiver may not have had a high-quality attachment even before the removal, which may cause developmental difficulties for the child and could make out-of-home placement even more difficult for the child.

Attachment theory and child welfare policy helped to frame the research question presented in this study. This study did not specifically analyze attachment theory, as such research would focus on infant-caregiver relationships and child development. Rather, this study used attachment theory to explain why the child welfare system is concerned with a child’s attachments. The focus on family preservation reflects concern about a child’s attachments with his or her parents. In addition, concern about children needing stable and safe caregiver attachments, which may or may not be biological, has led the child welfare system to develop a strong focus on timely permanency. The questions in this study examine how timely permanency for children interacts with parental substance abuse treatment needs. The child welfare debate between preserving a child’s attachments with his or her caregivers and placing the child with new caregivers was influenced by ASFA, which clearly prioritized the child’s safety and timely permanency over attempting to preserve biological attachments. Child welfare policy still favors returning the child to his or her original caregivers, but if that is not a safe or timely option, ASFA indicates that the child should be given a different option to form new stable attachments, such as adoption, rather than remaining in the system. The results in this study showed that most
of the children in out-of-home placement in Allegheny County returned home, indicating that DHS has preserved most of the children’s attachments to their original caregivers.

IV. Research Design and Descriptive Statistics

This study analyzed data provided by DHS in order to examine the link between permanency outcomes and families whose children have been removed from the home due to parental alcohol or drug abuse. The population for this study is mothers involved with CYF in Allegheny County whose children have been removed from the home. The sample for this study includes mothers whose children were removed from the home by CYF during 2012. The data was collected by DHS, which uses a number of software programs to catalog client data. DHS client data is stored in its Data Warehouse, from which DHS extracted the data requested for this study.

This study was granted exempt status from the Duquesne University Institutional Review Board (IRB), meaning that the data used for this analysis did not require review from the full IRB committee. The data set provided by DHS was de-identified by a DHS data analyst, meaning that any identifiable client data, such as names, was removed. Certain information was not provided in the data set, such as addresses or case numbers of clients, so that the study was eligible for exempt status. The researcher was required to keep the data on a secure flash drive to ensure confidentiality. See Appendix A for the letter of approval from the Duquesne University IRB.

Variable Definition

Since certain client information was not requested for this study, in order to receive exempt status from the IRB, some variables were not available for the analysis. For example,
since addresses were not requested, no variable existed to indicate whether the family members were in the same household. Other information was either not available or was not requested, such as income level and formal education level of the mother. This impacted the variables considered for the statistical models in this study, as well as the research design and results. Without this information, not all variables for whether a child returns home could be included.

The variables that were included in this study were selected to examine how substance abuse affects the likelihood that mothers in the sample would be reunified with their children. The dependent variable, or permanency outcomes, was collapsed into a dichotomous variable, specifically whether the family reunified or not. Logistic regression is a statistical test that used predictor variables to evaluate the odds, or probability, whether cases of parental substance abuse resulted in reunification. Several predictor variables were considered for inclusion in the logistic regression analysis. All of the potential predictor variables, or independent variables, were studied and used in the initial stages of structuring the logistic regression analysis. All of the predictor variables are dichotomous categorical variables, coded 0 for no and 1 for yes, with the exception of the variables for the child’s age and the length of the child’s placement, which are continuous variables.

The variables examined in this analysis and considered for logistic regression are defined in the following terms:

**Dependent Variable**

- **Reunify or no**: The dependent variable is whether the family reunified, so that the study can examine if substance abuse affects whether a mother has her children returned, or if a different permanency outcome is more likely. The dependent variable was collapsed into a dichotomous variable, labeled reunification or no reunification. Dichotomizing the dependent variable was required for logistic regression analysis.
“Reunify” indicates that the child returned home to his or her biological mother, and any other primary caregivers, within the data timeframe.

“No reunify” comprises three categories: children who were adopted; children who were permanently placed with a legal custodian or “fit and willing” relative; and children who remained in the system at the end of the data timeframe.

**Predictor Variables of Interest**

- **Parental drug abuse**: Was parental drug abuse cited as a reason for the child being removed from the home? This predictor variable, along with parental alcohol abuse, was used to indicate whether the child had been subjected to parental substance abuse, and therefore applied directly to the research question presented in this study.

- **Parental alcohol abuse**: Was parental alcohol abuse cited as a reason for the child being removed from the home? This predictor variable, along with parental drug abuse, was used to indicate whether the child had been subjected to parental substance abuse, and therefore applied directly to the research question presented in this study.

- **Neglect**: Was alleged or reported neglect cited as a reason for the child being removed from the home? As discussed in the literature review, neglect may overlap with parental substance abuse in some cases. This variable indicates whether neglect was noted on the case, independent of potential substance abuse issues. For example, if both parental drug abuse and neglect were cited as removal reasons, both reasons would be listed on the case.

- **Mother ever in D&A services**: Has the biological mother ever received DHS-funded drug and alcohol services? This variable was used to study whether mothers who had drugs or alcohol cited as a reason for removal had a higher chance of reunification as a permanency outcome if they utilized drug and alcohol treatment resources.

- **Mother in MH services**: Has the biological mother ever received DHS-funded mental health services? This variable is relevant because mental health issues are a common reason for child welfare involvement, in addition to drug and alcohol problems. This variable was used to determine if mothers in the sample had different permanency outcomes based on involvement in the mental health system.
Additional Predictor Variables - Removal Reasons

- **Inadequate housing**: Was inadequate housing cited as a reason for the child being removed from the home? Although not directly related to the research question, whether inadequate housing was cited as a reason for removal was considered as a variable in order to clarify the predictive abilities of parental substance abuse.

- **Parental incarceration**: Was parental incarceration cited as a reason for the child being removed from the home? Although not directly related to the research question, whether parental incarceration was cited as a reason for removal was considered as a variable in order to clarify the predictive abilities of parental substance abuse.

- **Child’s behavior problem**: Was the child’s behavior problem cited as a reason for the child being removed from the home? Many older youth are removed from the home for behavioral reasons, so this variable was considered as a predictor variable to avoid blurring the predictive abilities of parental substance abuse.

Additional Predictor Variables - Other

- **Additional parent active on case**: Was a parent other than the biological mother listed as active on the child’s case? This variable was used to look at the family structure of each case, and specifically was used to identify single mothers.

- **One or both parents are black**: Was at least one of the child’s biological parents black or African American? This information was indicated by the race of the child. The literature review and anti-discrimination theory indicated that black or African American children are disproportionately represented in out-of-home placement.

- **Age of child**: How old was the child at the time of his or her removal from the home? The literature review indicated that the age of the child can impact permanency outcomes. For example, older children may be less likely to be adopted, so mothers with older children in out-of-home placement may have different outcomes than mothers that do not have older children in placement.

Child Welfare Information Gateway states that although adoption is viewed as the best permanency option after reunification, some older children may resist losing legal ties with their birth parents. DHS reports that permanency outcomes are highly influenced by age, and younger children are more likely to be reunified or adopted (Good and Dalton 2011). According to DHS, length of placement is also correlated with age (Good and Dalton 2011).
**Number of days in placement:** How long was the child in placement? This was calculated by subtracting the date of the child’s removal from the date of the child’s exit. If the child did not exit the system within the data timeframe, the end of the data timeframe was used as the end date for the purposes of this variable.

This variable is important because permanency goals are more likely to change the longer that the child is in placement. It is also relevant because of the ASFA, which mandates child welfare agencies to consider terminating parental rights after 15 out of 22 months in out-of-home placement, as mentioned previously.

Before running logistic regression with these variables, descriptive statistics were examined to learn more about the data. Learning about the distribution of the data helped to indicate which variables might be best to use in the logistic regression analysis. In addition, descriptive statistics present their own results, providing knowledge about the trends in the data set.

**Description of Data**

Before descriptive statistics could be examined, a number of cases needed to be excluded from the data set. These cases were excluded to ensure that the sample was sufficiently homogenous, since a rather heterogeneous sample would undermine logistic regression’s ability to predict a particular outcome. After the cases were excluded, descriptive statistics were run on the final sample.

**Excluded Cases**

This study excluded several groups of cases after carefully determining which subsets of the sample were not appropriate for inclusion. The original data set provided by DHS included 1,273 cases of children who had been removed from the home in 2012. The analysis only included “first entry” children, however, or children who entered the child welfare system for the first time in their lives in 2012. Reentry cases were excluded from the study in order to create a
more homogenous sample and stay within the limited scope of this study. The data set included 918 first entry cases, and the others were eliminated.

Additional cases were excluded based on the children’s permanency outcomes. Cases of child death, transfers to other counties or states, or non-specified permanent living arrangements were excluded, since they were significantly different from the other outcomes, and were very rare. In addition, the data for these cases did not include enough information to relate the outcomes to parental characteristics, so they could not have been linked to parental substance abuse. Cases of children who aged out of the system were also excluded, since their permanency outcome was based on a biological characteristic, specifically the age of the child, rather than a parental characteristic. After these cases were excluded, three major categories of permanency outcomes remained: children who were reunified; children who had no permanency outcome, and remained in the system past the end of the data timeframe; and children who were adopted, or were permanently placed with a relative or legal custodian. With these cases excluded, 847 cases remained for analysis.

Cases that did not have a biological mother listed as active on the case were also excluded, since in these cases the children were presumed not to have been living with their mother at the time of removal. This dropped the number of cases to 795. Younger siblings were also excluded from the sample to eliminate duplicate mothers from sibling groups. The oldest (or only) child from each sibling group was kept in the sample, so that all of the biological mothers are unique. This only would have applied to siblings with the same biological mother that were removed from the home in 2012. After the younger siblings were excluded, the sample was finally prepared, with 551 cases remaining for analysis.
The smaller sample is a more appropriate group for this study, because it is comprised of the cases that presumably were most impacted by the biological mothers’ characteristics and parental substance abuse. A more homogenous group is more likely to respond to the predictor variables chosen for the analysis. Leaving the excluded cases in the sample would have confused the ability to analyze whether parental substance abuse had a significant impact on whether the children in the sample returned home.

Age of Children and Removal Reasons

The first variable studied was the age of the child at the time of the removal from the home. Descriptive statistics revealed that the age of the children in the data set reflects a reverse bell curve, shown in the figure below. The most common age for children to be removed is less than one year old, followed by fifteen year olds. Children are most likely to be very young or teenagers at the time of their first removal from the home.
Figure 1. Histogram of Children’s Ages at the Time of Removal from the Home

The pattern reflected in this histogram would cause problems with logistic regression analysis, since logistic regression requires linearity, and this variable would violate that assumption. So, the age of child was a key variable in structuring the logistic regression analysis, as discussed later in this study. The sample was split by the age of the children, creating a younger and older subset, in order to meet the requirements of logistic regression.

The sample was split by age for statistical reasons, and substantive interpretations supported the decision to create two smaller samples. The age results suggested that perhaps there were different situations that were likely to occur at ages 0 to 2 and ages 14 to 16 that make children more likely to enter the child welfare system for the first time. Child welfare informed staff at DHS suggested that infants and babies may be more likely to be removed from the home
because they are seen as especially vulnerable, and that child welfare system involvement may be triggered by the mother testing positive for drug use at the hospital when the child is born. Staff also suggested that the higher rate of removal during teenage years was likely caused by conflict between parent and child, and also mentioned that teenagers are old enough to call DHS themselves to report concern for their own wellbeing. Running frequencies on the data confirmed the suggestions made by DHS staff, and provided additional information, shown in the table below.

**Table 1. Reasons for Children Ages 0 to 8 Being Removed from the Home**

<table>
<thead>
<tr>
<th>Reason</th>
<th>Frequency</th>
<th>Percentage of Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child substance abuse</td>
<td>1</td>
<td>0.2%</td>
</tr>
<tr>
<td>Caregiver cannot cope due to illness or other reason</td>
<td>59</td>
<td>13.6%</td>
</tr>
<tr>
<td>Abandonment or relinquishment</td>
<td>16</td>
<td>3.7%</td>
</tr>
<tr>
<td>Child behavior problem</td>
<td>3</td>
<td>0.7%</td>
</tr>
<tr>
<td>Incarceration of parent(s)</td>
<td>39</td>
<td>9.0%</td>
</tr>
<tr>
<td>Physical abuse (alleged/reported)</td>
<td>28</td>
<td>6.4%</td>
</tr>
<tr>
<td>Sexual abuse (alleged/reported)</td>
<td>4</td>
<td>0.9%</td>
</tr>
<tr>
<td><strong>Neglect (alleged/reported)</strong></td>
<td><strong>92</strong></td>
<td><strong>21.1%</strong></td>
</tr>
<tr>
<td>Inadequate housing</td>
<td>56</td>
<td>12.9%</td>
</tr>
<tr>
<td>Child’s disability</td>
<td>1</td>
<td>0.2%</td>
</tr>
<tr>
<td>Parental alcohol abuse</td>
<td>30</td>
<td>6.9%</td>
</tr>
<tr>
<td><strong>Parental drug abuse</strong></td>
<td><strong>106</strong></td>
<td><strong>24.4%</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>435</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Note: Some children had more than one reason cited for being removed from the home, up to six reasons. For the 270 cases of children ages 0 to 8, 435 reasons for removal were reported.

The most common reasons for children under age 9 to be removed from the home are alleged or reported neglect and parental drug abuse. Neglect and parental drug abuse account for nearly half of the removal reasons for children under age 9, with neglect and parental drug abuse each counting for more than 20 percent of the reasons. Crosstabulation revealed that 33 cases, or about 12 percent of the children, in the younger subset have both neglect and parental substance...
listed as removal reasons. Child behavior problem accounts for less than one percent of the removal reasons for this age group. Inadequate housing and caregiver inability to cope are the only other two removal reasons that accounted for more than 10 percent of the reasons.

As the child welfare informed staff at DHS suggested, the removal reasons for children ages 9 and older show very different results, as indicated by the table below.

Table 2. Reasons for Children Ages 9 to 17 Being Removed from the Home

<table>
<thead>
<tr>
<th>Reason</th>
<th>Frequency</th>
<th>Percentage of Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child substance abuse</td>
<td>11</td>
<td>2.6%</td>
</tr>
<tr>
<td>Caregiver cannot cope due to illness</td>
<td>48</td>
<td>11.3%</td>
</tr>
<tr>
<td>or other reason</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abandonment or relinquishment</td>
<td>16</td>
<td>3.8%</td>
</tr>
<tr>
<td><strong>Child behavior problem</strong></td>
<td>136</td>
<td><strong>32.1%</strong></td>
</tr>
<tr>
<td>Incarceration of parent(s)</td>
<td>21</td>
<td>5.0%</td>
</tr>
<tr>
<td>Physical abuse (alleged/reported)</td>
<td>44</td>
<td>10.4%</td>
</tr>
<tr>
<td>Sexual abuse (alleged/reported)</td>
<td>13</td>
<td>3.1%</td>
</tr>
<tr>
<td>Neglect (alleged/reported)</td>
<td>49</td>
<td>11.6%</td>
</tr>
<tr>
<td>Inadequate housing</td>
<td>34</td>
<td>8.0%</td>
</tr>
<tr>
<td>Child's disability</td>
<td>2</td>
<td>0.5%</td>
</tr>
<tr>
<td>Parental alcohol abuse</td>
<td>16</td>
<td>3.8%</td>
</tr>
<tr>
<td>Parental drug abuse</td>
<td>34</td>
<td>8.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>424</td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Note: Some children had more than one reason cited for being removed from the home, up to six reasons. For the 281 cases of children ages 9 to 17, 424 reasons for removal were reported. No children were 18 years old, since children who aged out of the system were excluded.

The most common reason that children age 9 and older were removed from the home is for the child’s behavioral problem, which is consistent with attributing the spike in teenage first entries with parent and child conflict. More than 30 percent of the removal reasons for this age group are accounted for by the child’s behavioral problem. This reason is followed by caregiver inability to cope, and alleged or reported physical abuse or neglect. However, each of these reasons only accounts for slightly more than 10 percent of the reasons. This is very different from the younger
age group, in which child behavioral problems were very rare as removal reasons. The different characteristics of these two age groups indicates that analyzing the groups separately may produce more accurate results. So, the characteristics of the younger and older subsets reinforced the decision to split the sample by age for the purposes of logistic regression. Based on the reverse bell curve distribution of the children’s ages and the unique characteristics of the younger and older subsets, the sample was split at age 9, creating two smaller samples for analysis.

**Permanency Outcomes**

As mentioned previously, several permanency outcomes were excluded based on lack of information or lack of association of parental characteristics. Cases of child death, transfers to other counties or states, non-specified permanent living arrangements, and children who aged out of the system were excluded. Since the dependent variable is permanency outcomes, defined as whether the child was reunified, outcomes that are unrelated to parental characteristics were excluded from this analysis. After these cases were excluded, the remaining categories for permanency outcomes were: the child was permanently placed in another home, through adoption, permanent legal custodianship, or permanent placement with a relative; the child returned home, or was reunified; or the child still remained in the system at the end of the data timeframe.
Table 3. Permanency Outcomes for All Children in Sample

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adoption</td>
<td>9</td>
<td>1.6</td>
</tr>
<tr>
<td>Permanent Legal Custodianship</td>
<td>12</td>
<td>2.2</td>
</tr>
<tr>
<td>Permanent Placement in the Home of a 'Fit and Willing' Relative</td>
<td>11</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Return Home</strong></td>
<td><strong>311</strong></td>
<td><strong>56.4</strong></td>
</tr>
<tr>
<td>Still in System</td>
<td>208</td>
<td>37.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>551</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Note: Data on permanency outcomes current as of November 15, 2013.

As Table 3 shows, the most common permanency outcomes are that the children returned home or remained in the system. More than half of the children reunified, and nearly 40 percent were still in the system as of November 15, 2013. This trend is consistent across the two age groups, although more than 60 percent of children in the older subset reunified, so returning home is more common among the older children.

Sex and Race

The sex breakdown of the children is very even, and the racial breakdown of the children is predominantly white and black or African American, as shown in Tables 4 and 5.

Table 4. Sex of All Children in Sample

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>256</td>
<td>46.5</td>
</tr>
<tr>
<td>Male</td>
<td>295</td>
<td>53.5</td>
</tr>
<tr>
<td>Total</td>
<td>847</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 5. Race of All Children in Sample

<table>
<thead>
<tr>
<th>Race</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>214</td>
<td>38.8</td>
</tr>
<tr>
<td>Black or African American Biracial</td>
<td>267</td>
<td>48.5</td>
</tr>
<tr>
<td>Other or Missing</td>
<td>70</td>
<td>12.7</td>
</tr>
<tr>
<td>Total</td>
<td>551</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: The children in the “Other” category identified as Asian Indian, Korean, Samoan, and Native Hawaiian.

Table 5 shows that the most common race of the children is black or African American, accounting for nearly half of the children. A small number of the children who identified as black or African American also identified as white. These children were collapsed into the black or African American category, since they are still a minority status. The Other category was comprised of races very rarely identified, including Asian Indian, Korean, Samoan, and Native Hawaiian. This group was collapsed with the group of children that did not have a race identified. A large number of children do not have a race identified, because that information was not available in the Data Warehouse. This could stem from a number of reasons, but the information was not submitted into the child welfare software, so the data could not be collected.

Biological Mothers: Drug and Alcohol Service Involvement

As stated previously, children who do not have biological mothers listed as active on their cases were excluded from the study. Descriptive statistics revealed that the majority of these biological mothers were active in DHS-contracted drug and alcohol services at some point in their lives. However, most of the mothers were not active in drug and alcohol services at the end of 2012, as indicated by the tables below.
Table 6. Biological Mothers EVER Active in Drug and Alcohol Services?

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>261</td>
<td>47.4</td>
</tr>
<tr>
<td>Yes</td>
<td>290</td>
<td>52.6</td>
</tr>
<tr>
<td>Total</td>
<td>551</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: Drug and alcohol services data current as of December 31, 2012.

More than half of the biological mothers were active in drug and alcohol services at some point in their lives. However, about 47 percent of the biological mothers had never been active in drug and alcohol services.

Table 7. Biological Mothers Active in Drug and Alcohol Services at the End of 2012?

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>343</td>
<td>62.3</td>
</tr>
<tr>
<td>Yes</td>
<td>208</td>
<td>37.7</td>
</tr>
<tr>
<td>Total</td>
<td>551</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: Drug and alcohol services data current as of December 31, 2012.

Although many of the biological mothers had received drug and alcohol services at some point in their lives, about 62 percent of the mothers were not active in drug and alcohol services at the end of 2012, after their children had been removed from the home.

The tables above show that more biological mothers had ever been involved in drug and alcohol services than mothers who were active in drug and alcohol services at the end of 2012. These results indicate that most of the mothers with drug and alcohol service involvement were active at the end of 2012, after their children had been removed from the home, and a small number of mothers had been in drug and alcohol services before the end of 2012, but were not active at the end of the year. These two variables were compared using crosstabs to ensure that this was the case, shown in the table below.
Table 8. Crosstabs of Biological Mother Drug and Alcohol Service Involvement

<table>
<thead>
<tr>
<th></th>
<th>Mother Active in D&amp;A at End of 2012?</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Mother Ever</td>
<td>261</td>
<td>0</td>
<td>261</td>
</tr>
<tr>
<td>Active in D&amp;A?</td>
<td>Yes</td>
<td>82</td>
<td>208</td>
</tr>
<tr>
<td>Total</td>
<td>343</td>
<td>208</td>
<td>551</td>
</tr>
</tbody>
</table>

Crosstabs confirms that 261 of the mothers showed no drug and alcohol service involvement any time before the end of 2012. Only 82 mothers have drug and alcohol service involvement, but were not active in these services at the end of 2012. The remaining 208 mothers who show drug and alcohol service involvement were active in services at the end of 2012, and therefore also were active at some point in their lives. These numbers indicate that the two variables for maternal drug and alcohol service involvement overlap quite a bit, and measure nearly the same thing. Logistic regression assumes that the predictor variables included in the analysis are measuring distinctly different factors, so both of these variables could not be included in the analysis. The variable that indicates whether the biological mothers had ever been involved in drug and alcohol services was considered as a predictor variable, since it is the more relevant of the two variables. The children in the sample were removed from the home at different times in 2012, so measuring service involvement for all of the biological mothers on the same date may not provide an accurate indicator of how service involvement is connected with their children being removed from the home.

However, using the variable for whether the biological mothers had even been involved in drug and alcohol services as a predictor variable could pose a similar problem with logistic
regression. This study examines how parental substance abuse as a removal reason impacts whether a child returns home. Cases in which parental substance abuse is cited as a reason for the child being removed from the home may correlate highly with whether the biological mother has ever been involved in drug and alcohol services. In that case, using both variables as predictor variables would violate the assumptions of logistic regressions. To check for this potential violation, crosstabs and the chi-square test for independence were used to examine whether the variables were correlated.

Table 9. Crosstabs of Parental Drug Abuse and Maternal D&A Service Involvement

<table>
<thead>
<tr>
<th>Parental Drug Abuse as Removal Reason?</th>
<th>No</th>
<th>Yes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother Ever in D&amp;A Services?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>238</td>
<td>23</td>
<td>261</td>
</tr>
<tr>
<td>Yes</td>
<td>173</td>
<td>117</td>
<td>290</td>
</tr>
<tr>
<td>Total</td>
<td>411</td>
<td>140</td>
<td>551</td>
</tr>
</tbody>
</table>

The table above shows that in 117 cases, the child was removed due to parental drug abuse and the biological mother was involved in drug and alcohol services at some point in her life, likely in 2012, based on the crosstabs previously discussed. In only 23 cases, parental drug abuse was cited as a removal reason but the biological mother was not ever active in drug and alcohol services. It is important to note that, as indicated previously, only cases with biological mothers actively involved were included in the sample. So, a maternal lack of drug and alcohol service involvement would not stem from a mother not being involved with the child’s case, in this sample. This table shows that the majority of the time, if parental drug abuse was cited as a removal reason, the mother showed drug and alcohol service involvement. This indicates that the
two variables may correlate too highly for logistic regression, because they are measuring similar information, rather than two different factors.

The chi-square test for independence confirmed that the variables were too highly correlated. According to Pallant, the chi-square test for independence is used to explore the relationship between two categorical variables (2011:217). The chi-square test for independence uses the frequencies in crosstabs to assess whether the two variables are associated (Pallant 2011: 217). The Pearson Chi-Square Continuity Correction for the two variables is 70.413, and is statistically significant, indicating that the two variables are associated. The phi coefficient is .362, indicating that the two variables are strongly correlated. Therefore, both variables—whether the mother had ever been in drug and alcohol services, and whether parental drug abuse was cited as a reason for removing the child—cannot be included in the same logistic regression test. Since they are too highly correlated, the variable indicating maternal service involvement will need to be eliminated, since the reason the child was removed from the home is central to the research question. This will be confirmed in the development of the models, when all of the variables are considered as predictor variables, and checked for correlation issues.

**Biological Mothers: Mental Health Service Involvement**

Compared to maternal drug and alcohol service involvement, an even greater majority of the biological mothers were active in DHS-contracted mental health services, as indicated by the tables below. This suggests that mental health service involvement is a prevalent characteristic among the mothers in the sample, so this variable is important to consider for inclusion in the logistic regression test. Like drug and alcohol service involvement, the mental health service involvement data was provided in two ways: whether the mother was ever in mental health
services, and if the mother was in mental health services at the end of 2012, after the child had been removed from the home.

**Table 10. Biological Mothers EVER Active in Mental Health Services?**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>145</td>
<td>26.3</td>
</tr>
<tr>
<td>Yes</td>
<td>406</td>
<td>73.7</td>
</tr>
<tr>
<td>Total</td>
<td>551</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: Mental health services data current as of December 31, 2012.

The table above shows that about 74 percent of the biological mothers had been active in the mental health system at some point in their lives. Therefore, the mothers were about 52 percent more likely to have received mental health services than drug and alcohol services.

**Table 11. Biological Mothers Active in Mental Health Services at the End of 2012?**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>282</td>
<td>51.2</td>
</tr>
<tr>
<td>Yes</td>
<td>269</td>
<td>48.8</td>
</tr>
<tr>
<td>Total</td>
<td>551</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: Mental health services data current as of December 31, 2012.

The table above indicates that the percentage of mothers active in mental health services at the end of 2012 was an even split. Half of the mothers were active in mental health services at the end of 2012, after their children were removed, and half of the mothers were not. Therefore, the biological mothers were about 13 percent more likely to be involved in mental health services than drug and alcohol services after their children were removed from the home.

Like the variables for drug and alcohol service involvement, it is necessary to examine whether the two mental health variables are too closely correlated. In the table below, crosstabs shows how the variables overlap:
### Table 12. Crosstabs of Biological Mother Mental Health Service Involvement

<table>
<thead>
<tr>
<th>Mother Ever in MH Services?</th>
<th>Mother Active in MH Services at End of 2012?</th>
<th>No</th>
<th>Yes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td></td>
<td>145</td>
<td>0</td>
<td>145</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>137</td>
<td>269</td>
<td>406</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>282</td>
<td>269</td>
<td>551</td>
</tr>
</tbody>
</table>

Crosstabs revealed that 145 of the biological mothers had never accessed mental health services. Out of the mothers who had accessed mental health services, 269 mothers were active in services at the end of 2012. About half as many mothers had been in mental health services at some point in their lives, but not at the end of 2012. These numbers show that the two mental health variables are measuring very similar information, so both of them should not be included in the logistic regression test. The variable that indicates whether the mothers had ever been involved in mental health services will be considered for inclusion in the logistic regression analysis, since that variable captures more mothers involved in services, and the end of 2012 may not be the best indicator for maternal involvement in services, since all of the children were removed from the home at different times in the year.

**Maternal Service Involvement by Child’s Age**

The data on maternal service involvement suggests that a significant number of the biological mothers were active in drug and alcohol and/or mental health services, especially at some point before the end of 2012. The mothers were more likely to be active in mental health services than drug and alcohol services. Additional descriptive statistics revealed that the biological mothers of children under age 9 were even more likely to be involved in drug and
alcohol and/or mental health services. For children under age 9, about 64 percent of biological mothers were active in drug and alcohol services at some point in their lives, and about 52 percent were active in drug and alcohol at the end of 2012. Also for children under age 9, about 80 percent of mothers were active in mental health services at some point in their lives, and about 63 percent were active in mental health services at the end of 2012. Biological mothers of children age 9 and older were less likely to be active in drug and alcohol and/or mental health services. About 42 percent of biological mothers for children age 9 and older were active in drug and alcohol services at some point in their lives, and only about 25 percent of the mothers were active in drug and alcohol services at the end of 2012. Also for children age 9 and older, about 67 percent of the biological mothers were ever active in mental health services, and about 36 percent of the mothers were active in mental health services at the end of 2012.

This information indicates that maternal service involvement may be especially important when analyzing the younger subset. Since drug and alcohol service involvement is too highly correlated with the variable for parental substance abuse as a removal reason, and therefore cannot be included in the logistic regression test, maternal mental health service involvement will be considered as an important factor, especially for the younger subset.

Additional Parents Active on Case

Out of all the children removed for the first time in 2012, biological mothers were the most likely parental figure to be listed as active on the children’s cases. After the cases with inactive biological mothers were excluded, all cases in the sample had biological mothers listed as a parental figure. The next most common parental figure was biological fathers.
Table 13. Biological Fathers Active on Child’s Case?

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inactive</td>
<td>100</td>
<td>18.1</td>
<td>20.1</td>
</tr>
<tr>
<td>Active</td>
<td>397</td>
<td>72.1</td>
<td>79.9</td>
</tr>
<tr>
<td>Total</td>
<td>497</td>
<td>90.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Missing</td>
<td>54</td>
<td>9.8</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>551</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Nearly three quarters of the children have biological fathers active on their cases. About 18 percent of the children’s cases have the biological fathers listed as inactive, and about 10 percent of the cases do not have a biological father listed. Several other parental figures are also listed on the children’s cases. The following parental roles are listed as active on some of the children’s cases:

- Legal custodian
- Adoptive father
- Legal father
- Putative father
- Step father
- Unknown father
- Legal guardian
- Legal mother
- Step mother

Most of the children have a parental figure other than the biological mother listed as active on the case, as indicated by the table below. Other parental figures include biological fathers and the parental roles listed above.

Table 14. Additional Parent Other than Biological Mother Active on Case?

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>125</td>
<td>22.7</td>
</tr>
<tr>
<td>Yes</td>
<td>426</td>
<td>77.3</td>
</tr>
<tr>
<td>Total</td>
<td>551</td>
<td>100.0</td>
</tr>
</tbody>
</table>
About 77 percent of the children have a parent other than the biological mother listed as active on their case. About 23 percent of the children do not have a parent other than the biological mother listed on their case. Those cases that do not have another parent listed on the case are presumably single female headed families.

This variable will be considered for inclusion in the logistic regression test, since it could suggest how family structure impacts whether the children are returned home. Specifically, single female headed families may have different outcomes than families with a father listed as active on the case. This factor could be important in influencing permanency outcomes, so it is important to consider for the logistic regression test.

*Length of Time in Placement*

The measured amount of time that the children spent in placement varies, depending on whether the child was removed near the beginning or end of 2012, and how long the child stayed in the system from that point until the end of the data timeframe. Table 12 shows the descriptive statistics on how long the children were in placement, represented in both months and days.

**Table 15. Length of Time Children Spent in Placement**

<table>
<thead>
<tr>
<th></th>
<th>Number of months in placement</th>
<th>Number of days in placement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>8.8411</td>
<td>269.10</td>
</tr>
<tr>
<td>Median</td>
<td>8.4764</td>
<td>258.00</td>
</tr>
<tr>
<td>Mode</td>
<td>.10</td>
<td>3</td>
</tr>
<tr>
<td>Minimum</td>
<td>.03</td>
<td>1</td>
</tr>
<tr>
<td>Maximum</td>
<td>22.28</td>
<td>678</td>
</tr>
<tr>
<td>Sum</td>
<td>4871.43</td>
<td>148274</td>
</tr>
</tbody>
</table>

The average length of time that the children in this sample were in placement is about 8 months. However, the mode of .10 months indicates that the most frequent length of stay in placement is only three days. The shortest placement stay in the sample is one day, while the longest is 22
months, when the data timeframe ended. Some of these children may have reunified in 2014 or later. However, a recent DHS research report that studied long-term trends in Allegheny County’s child welfare system found that only 23 percent of children returned to their families after having spent more than 17 months in placement (Good and Dalton 2011:35). This was a significant drop from 52 percent of children returning home after spending 12 to 17 months in placement (Good and Dalton 2011:35). The figure below visually represents the length of the children’s time in placement.

**Figure 2. Histogram of the Number of Months the Children Were in Placement**

Figure 2 indicates that many of the children exited placement very quickly, within the first month. The number of children who exited placement then decreases, before increasing again
after 10 months. The increase around 10 months is accounted for by the children who were still in the system at the end of the data timeframe. If the children who were still in the system at the end of the data timeframe were removed from the sample for the purposes of descriptive statistics, the distribution of the amount of time in placement would steadily decrease, without the increase between 10 and 22 months.

V. Logistic Regression

The descriptive statistics discussed in the previous section were examined to begin to discern which variables should be included in the logistic regression analysis. This study used logistic regression to examine if the variables provided could predict whether the children in the sample were reunified with their biological mothers. According to Pallant, logistic regression is a statistical test used to assess how well a set of predictor variables is able to predict or explain a categorical dependent variable (2011:171). Tabachnik and Fidell (2007) state that logistic regression predicts a discrete outcome, such as group membership, from a set of variables. Logistic regression is more flexible than some other types of analysis, such as standard multiple regression, and is especially popular in the field of health sciences (Tabachnik and Fidell 2007:437). Logistic regression has few restrictions and can handle a variety of complex data (Tabachnik and Fidell 2007:437). However, logistic regression does have some limitations. In theoretical terms, researchers that use logistic regression must exercise caution about causal inferences (Tabachnik and Fidell 2007:441). A set of variables may increase the probability of correctly classifying a group of cases, but that does not prove that those variables cause the outcome. For example, parental substance abuse could increase the probability that a child is not reunified, but does not necessarily prove that parental substance abuse causes a child not to return home. This limitation was accounted for by carefully wording the results to reflect this
limitation. Another limitation, in practical terms, is that logistic regression is sensitive to very high correlations among predictor variables, as discussed throughout the descriptive statistics (Tabachnik and Fidell 2007:443). This limitation was accounted for, however, through the model development process outlined in the next section.

In this study, the categorical dependent variable was whether the children reunified with their parent(s), presumably their biological mothers, during the data time frame. The set of predictor variables was drawn from characteristics of the biological mothers. The predictor variables chosen are referred to as a “model.” Logistic regression provides information about how well the model predicts the dependent variable, in this case whether the children were reunified. Logistic regression also indicates how the predictor variables interact with each other in the model.

Development of Models

For this study, the sample was split by the children’s ages, as indicated in the descriptive statistics. The age of the children in the larger sample showed a reverse bell curve, indicating that the youngest children (infants and babies) and the oldest children (15 and 16 year olds) were the most common age ranges of children to be removed from the home for the first time. Descriptive statistics revealed that the younger subset of children were most likely to be removed from the home due to parental drug abuse. The older subset of children showed the child’s behavior problem as the most common reason for the child being removed from the home. Noting this distribution is important, because logic regression assumes that a linear relationship exists between any continuous predictors, like age, and the dependent variable (Tabachnik and Fidell 2007:443). In other words, logistic regression needs to have a linear relationship between a continuous predictor variable—in this case, the age of the child—and the dependent variable.
Without splitting the sample by age, this assumption would have been violated, and logistic regression would not have been able to handle the pattern of the data. So, the sample was split by age and two models were created, so that the age of the child could be accounted for, but would not violate the assumptions of logistic regression.

All variables in the data set that could have potentially predicted permanency outcomes were considered for inclusion in the development of the models. Initially, the variable for the number of days that the child had been in placement was one of the variables considered. The variable’s statistical significance was very strong, because the length of time a child was in placement was very closely related to whether the child was reunified. The longer that the child was in placement, the less likely that the child was reunified. This inverse relationship is logical, since permanency outcomes other than reunification require a longer amount of time than returning the child home. As a result, the variable for the length of time that the child was in placement had such a strong significance that it over-predicted the impact of the other variables. The length of time in placement (the predictor variable) and whether the child reunited (the dependent variable) were actually forms of the same variable, so errors in the dependent variable were correlated with errors in the predictor variable. Therefore, the length of time in placement had an exaggerated effect. The relationship was not necessarily predictive, but rather an inherent quality of the child welfare system, so the length of time in placement was removed from the models.

After the length of time in placement was eliminated as a potential variable, the other variables were studied through bivariate analysis. Logistic regression was run with each of the potential variables as the only variable in the model for each of the two age groups. Those variables that showed statistical significance were the first variables considered for the models.
for each age group. This strategy was used so that the variables’ significance could be studied individually, and their influence was not distorted by other variables in the model. Once the uniquely significant variables were identified, a model was created for each age group using the significant variables in that subset. These two models were compared to full models, or models that included all of the potential predictor variables, aside from the length of time in placement.

In logistic regression, there are numerous models: the model that includes no predictor variables; a full model, which includes the constant plus all predictors; and the incomplete model, which includes the constant plus some predictors; and a hypothetically perfect model, which would have an exact fit of expected and observed frequencies, with the right set of predictor variables (Tabachnik and Fidell 2007:457). The reduced models were compared to the full models in an effort to find the “perfect” model. Goodness of fit tests provided by logistic regression indicated how close the model was to the exact fit. Comparing the models was used to examine whether the $R^2$ statistic for the reduced models could be increased, closer to the $R^2$ statistics for the full models, while maintaining a good model fit. Maximizing the $R^2$ statistic through this method created the most significant models that did not violate the requirements of logistic regression, specifically the assumption of multicollinearity. When variables were eliminated from the full model, the $R^2$ statistic dropped, but this was done to clarify the effects of the reduced model, which showed a better goodness of fit. Less variance was explained by the reduced models, but the reduced models provided a clearer picture of which variables were impacting how well logistic regression was able to predict whether the cases resulted in reunification.

The following two tables show the progression from the full model to the reduced model for each of the two age groups. The first column shows the variables in the full model, with the
significance statistic reported for each of the variables. The $R^2$ statistic and the goodness of fit statistics are also reported. The full model progresses to the reduced model, which has a slightly lower $R^2$, but a much better goodness of fit test result. The reduced model, in the last column, shows the variables that were included in the final models for each age group. These discussion models are intended to highlight the differences between the full models and the reduced models. The section following the discussion models details the variables in the final models and reports the results for each age group.
Table 16. Discussion Model 1: Children Ages 0-8

<table>
<thead>
<tr>
<th>FULL MODEL</th>
<th>REDUCED MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neglect</td>
<td>Neglect</td>
</tr>
<tr>
<td>Sig: .040</td>
<td>Sig: .041</td>
</tr>
<tr>
<td>Additional Parent on Case</td>
<td>Additional Parent on Case</td>
</tr>
<tr>
<td>Sig: .100</td>
<td>Sig: .100</td>
</tr>
<tr>
<td>Parental Drug Abuse</td>
<td>Parental Drug Abuse</td>
</tr>
<tr>
<td>Sig: .305</td>
<td>Sig: .308</td>
</tr>
<tr>
<td>Mother Ever in MH Services</td>
<td>Mother Ever in MH Services</td>
</tr>
<tr>
<td>Sig: .120</td>
<td>Sig: .118</td>
</tr>
<tr>
<td>Mother Ever in D&amp;A Services</td>
<td>Mother Ever in D&amp;A Services</td>
</tr>
<tr>
<td>Sig: .251</td>
<td>Sig: .240</td>
</tr>
<tr>
<td>Inadequate Housing</td>
<td>Inadequate Housing</td>
</tr>
<tr>
<td>Sig: .344</td>
<td>Sig: .343</td>
</tr>
<tr>
<td>Parental Alcohol Abuse</td>
<td>Parental Alcohol Abuse</td>
</tr>
<tr>
<td>Sig: .876</td>
<td>Sig: .869</td>
</tr>
<tr>
<td>Parental Incarceration</td>
<td>Parental Incarceration</td>
</tr>
<tr>
<td>Sig: .941</td>
<td>Sig: .939</td>
</tr>
</tbody>
</table>


Omnibus Test: .087    Omnibus Test: .057    Omnibus Test: .034    Omnibus Test: .020    Omnibus Test: .014

Hosmer and Lemeshow Test: .546    Hosmer and Lemeshow Test: .315    Hosmer and Lemeshow Test: .373    Hosmer and Lemeshow Test: .590    Hosmer and Lemeshow Test: .253

Omnibus Test: .012

Note: Nagelkerke R² is a pseudo R² statistic, which indicates how much variation of the dependent variable is explained by the model. The Omnibus Test of Model Coefficients is a goodness of fit test, for which a highly significant value is less than .05. The Hosmer and Lemeshow Test is also a goodness of fit test, which indicates good model fit with a significance value greater than .05.
## Table 17. Discussion Model 2: Children Ages 9-17

<table>
<thead>
<tr>
<th>FULL MODEL</th>
<th>REDUCED MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Behavior</td>
<td>Child Behavior</td>
</tr>
<tr>
<td>Problem Sig: .167</td>
<td>Problem Sig: .139</td>
</tr>
<tr>
<td>Parental Drug Abuse Sig: .262</td>
<td>Parental Drug Abuse Sig: .262</td>
</tr>
<tr>
<td>Additional Parent on Case Sig: .114</td>
<td>Additional Parent on Case Sig: .117</td>
</tr>
<tr>
<td>Parental Incarceration Sig: .294</td>
<td>Parental Incarceration Sig: .297</td>
</tr>
<tr>
<td>One or both Parents are black Sig: .381</td>
<td>One or both Parents are black Sig: .375</td>
</tr>
<tr>
<td>Mother Ever in D&amp;A Services Sig: .345</td>
<td>Mother Ever in D&amp;A Services Sig: .348</td>
</tr>
<tr>
<td>Mother Ever in MH Services Sig: .527</td>
<td>Mother Ever in MH Services Sig: .518</td>
</tr>
<tr>
<td>Inadequate Housing Sig: .781</td>
<td>Inadequate Housing Sig: .792</td>
</tr>
<tr>
<td>Parental Alcohol Abuse Sig: .836</td>
<td>Parental Alcohol Abuse Sig: .821</td>
</tr>
<tr>
<td>Neglect Sig: .821</td>
<td></td>
</tr>
</tbody>
</table>

### Nagelkerke $R^2$:
- FULL MODEL: .093
- REDUCED MODEL: .080

### Omnibus Test:
- FULL MODEL: $.032
- REDUCED MODEL: $.020

### Hosmer and Lemeshow Test:
- FULL MODEL: .041
- REDUCED MODEL: .912

Note: Nagelkerke $R^2$ is a pseudo $R^2$ statistic, which indicates how much variation of the dependent variable is explained by the model. The Omnibus Test of Model Coefficients is a goodness of fit test, for which a highly significant value is less than .05. The Hosmer and Lemeshow Test is also a goodness of fit test, which indicates good model fit with a significance value greater than .05.

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Model 1: Children Ages 0-8

Variables in Model 1

The younger subset of the sample, children ages 0 to 8, reflected parental drug abuse as the most common reason for the child being removed from the home. The youngest children were removed from the home at the highest rate of any of the children. The model for this subset included the following predictor variables, which were expected to predict whether the children were returned to their biological mother:

- **Parental drug abuse**: Was parental drug abuse cited as a reason for the child being removed from the home?
- **Neglect**: Was alleged or reported neglect cited as a reason for the child being removed from the home?
- **Mother received MH treatment**: Has the biological mother ever received DHS-funded mental health services in her lifetime?
- **Additional parent active on case**: Was someone other than the biological mother, most likely the biological father, active on the child’s case?

The dichotomous categorical dependent variable was whether the child was reunified by November 2013. Children in the “did not reunify” category included those who were still in the system, or had another permanent placement. Cases of children who aged out of the system were excluded. Since cases without an actively participating biological mother were also excluded, those children who were reunified presumably were returned home to their biological mothers.

Logistic Regression Results for Model 1

There were 270 cases included in the subset of children ages 0 to 8 in this sample. The sample was comprised of first entry cases with biological mothers active on their cases. Only the oldest sibling, if a mother had more than one child in the sample, was included in the sample. All
of the predictor variables in the model were dichotomous categorical variables, coded 0 for no and 1 for yes.

Logistic regression shows the predictive power of the model by showing results before and after the model has been applied. The table below shows the ability of logistic regression to predict whether the cases in the sample had resulted in reunification before applying any of the predictor variables. Essentially, the results below are a baseline for determining how well the model helps to predict whether children are reunited based on the variables in the model.

Table 18. Results BEFORE Model 1 is Applied - Children Ages 0-8

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Did not reunify</th>
<th>Reunified</th>
<th>Percentage Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was child reunified?</td>
<td>Did not reunify</td>
<td>140</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Reunified</td>
<td>130</td>
<td>0</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

These results indicate that without applying any predictor variables, logistic regression was able to classify accurately 51.9 percent of the cases according to whether the children in the sample were reunified. Logistic regression calculated this by assuming that all of the children did not reunify, which was accurate 51.9 percent of the time in this sample. Ideally, once the model has been applied, a higher percentage of cases will be accurately predicted.

Once the model was tested, the results indicated that the predictor variables in the model had improved logistic regression’s ability to classify whether the children in the sample reunified.
After the model was applied, 59.3 percent of the cases were accurately classified, an improvement from 51.9 percent. While this may not seem like a large improvement, it is a statistically significant improvement, as indicated by the information in the table below. Even a 7.4 percent improvement is important, because if the child welfare system was able to improve safely its reunification rates by 7.4 percent, many more children would return home.

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Did not reunify</th>
<th>Reunified</th>
<th>Percentage Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not reunify</td>
<td>108</td>
<td>32</td>
<td>77.1</td>
</tr>
<tr>
<td>Reunified</td>
<td>78</td>
<td>52</td>
<td>40.0</td>
</tr>
<tr>
<td>Overall Percentage</td>
<td></td>
<td></td>
<td><strong>59.3</strong></td>
</tr>
</tbody>
</table>

After showing the accuracy results before and after the model, logistic regression provides a number of statistics that create a more detailed picture of how the model has performed. The table below shows the following results: two goodness of fit tests, called the omnibus test of model coefficients and the Hosmer and Lemeshow test; pseudo $R^2$ statistics, called Cox & Snell $R^2$ and Nagelkerke $R^2$; and multiple test results that provide information for how each individual variable is impacting the model. The interpretation for this information follows the table, in the order listed.
Table 20. Logistic Regression Results for Model 1 - Children Ages 0-8

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
<th>95% C.I.for EXP(B)</th>
<th>Lower</th>
<th>Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neglect (alleged/reported)</td>
<td>.544</td>
<td>.265</td>
<td>4.205</td>
<td>1</td>
<td>.040*</td>
<td>1.723</td>
<td>1.024</td>
<td>2.898</td>
<td></td>
</tr>
<tr>
<td>Additional Parent on Case</td>
<td>-.568</td>
<td>.286</td>
<td>3.941</td>
<td>1</td>
<td>.047*</td>
<td>.567</td>
<td>.323</td>
<td>.993</td>
<td></td>
</tr>
<tr>
<td>Parental Drug Abuse</td>
<td>-.438</td>
<td>.257</td>
<td>2.890</td>
<td>1</td>
<td>.089</td>
<td>.646</td>
<td>.390</td>
<td>1.069</td>
<td></td>
</tr>
<tr>
<td>Mother Ever in MH Services</td>
<td>.385</td>
<td>.321</td>
<td>1.439</td>
<td>1</td>
<td>.230</td>
<td>1.470</td>
<td>.784</td>
<td>2.757</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>.020</td>
<td>.374</td>
<td>.003</td>
<td>1</td>
<td>.958</td>
<td>1.020</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Omnibus Test of Model Coefficients**

<table>
<thead>
<tr>
<th>Chi-Square</th>
<th>Degrees of Freedom</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.947</td>
<td>4</td>
<td>.012</td>
</tr>
</tbody>
</table>

**Hosmer and Lemeshow Test**

<table>
<thead>
<tr>
<th>Chi-Square</th>
<th>Degrees of Freedom</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.201</td>
<td>7</td>
<td>.991</td>
</tr>
</tbody>
</table>

**Pseudo R² Statistics**

<table>
<thead>
<tr>
<th>Cox &amp; Snell R²</th>
<th>Nagelkerke R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>.047</td>
<td>.062</td>
</tr>
</tbody>
</table>

* p < .05, indicating statistical significance

**Interpretation of Goodness of Fit Tests**

The two goodness of fit tests in the table above are the omnibus test of model coefficients and the Hosmer and Lemeshow test. These are the results that logistic regression provides from the two statistical tests that indicate how well the model has helped to classify the cases according to the dependent variable. The omnibus test of model coefficients indicates how well the model performs compared to the results obtained without applying the model. A significance statistic below .05 for the omnibus test indicates that the model is highly significant, meaning that model allowed for the cases to be classified significantly more accurately than the baseline.
test. The model for children age 0 to 8 passes the omnibus test of model coefficients, since the significance value is less than .05, indicating that the model allows logistic regression to classify cases significantly more accurately than without the model. The second test, the Hosmer and Lemeshow test, also indicates how well the model fits the dependent variable. If the significance value for the Hosmer and Lemeshow test is above .05, the model fits the dependent variable significantly well. This model passes the Hosmer and Lemeshow test, since the significance value is greater than .05. Since the significance value is high, the model is a good fit for predicting whether the children in the sample returned home to their mothers.

**Interpretation of Pseudo R$^2$ Statistics**

R$^2$ statistics also provided information about how well the model worked. Pseudo R$^2$ statistics are used in logistic regression to approximate the amount of variance in the dependent variable (Tabachnik and Fidell 2007:460). Logistic regression provides two pseudo R$^2$ statistics: Cox & Snell R$^2$, and Nagelkerke R$^2$. Nagelkerke R$^2$ is a correction to Cox & Snell, because Cox & Snell cannot achieve a maximum value of 1, while Nagelkerke can reach 1 (Tabachnik and Fidell 2007:460). The pseudo R$^2$ statistics were .047 and .062, indicating that the model explained between 4.7 and 6.2 percent of the variability in the dependent variable. While these R$^2$ statistics are rather small, they are statistically significant, as indicated by the significance tests previously discussed.

**Interpretation of Individual Predictor Variables**

Logistic regression also provides information about the contribution of the individual variables to the model. Each column in the table above provides specific information about each variable, noted by the column headings:
The B values are used to calculate the probability that a case would fall into a specific category. Positive B values indicate that cases in the “yes” category of that variable are more likely to have reunified, while negative B values indicate that cases in the “no” category of that variable are less likely to have reunified.

The Wald statistics are the results of the Wald test, which evaluates the variable’s contribution to the model (Tabachnik and Fidell 2007:459). The Wald test evaluates the statistical significance of each of the coefficients (Tabachnik and Fidell 2007:445).

The significance value indicates whether that variable’s unique contribution was statistically significant to the predictive ability of the model.

The Exp(B) column provides the odds ratios for each of the variables, which means that the Exp(B) value indicates how many times a case is more or less likely to have reunified. The Exp(B) value is measured as the difference above or below 1.

The last two columns in the table below show a 95 percent confidence interval, which is a range of numbers that is 95 percent likely to include the odds ratio, or Exp(B) (Pallant 2011:177). The Exp(B) odds ratio is an estimate of the odds ratio based on the data sample, while the confidence interval accounts for the sample size, which affects the ability to generalize the results to the entire population (Pallant 2011:177).

The results for Model 1 indicate that the strongest predictor of whether a child was reunified in the younger subset was whether the child was removed from the home for alleged or reported neglect. Neglect has a significance value of .04, which is less than .05, indicating statistical significance. The odds ratio is 1.723, indicating that children in this sample were nearly three-quarters more likely to reunify if neglect was cited as a reason for the child being removed from the home, controlling for all other factors in the model. Whether an additional parent was active
on the case was also a statistically significant variable, with a value of .047. The odds ratio was .567, indicating that children in this sample were about half less likely to reunify if an additional parent was active on the case. The other two variables in the model are not uniquely significant. However, as discussed in the previous section regarding the development of the models, including all four variables was important for the significance of the overall model.

**Model 2: Children Ages 9-17**

**Variables in Model 2**

Model 2 included the older subset of the sample, children ages 9 to 17. In the older subset, the child’s behavior problem was the most common reason for removing the child from the home. Children ages 15 and 16 were the most common removals in the older subset. The following variables were included in the model in order to predict whether children ages 9 to 17 were reunified:

- **Child’s behavior problem**: Was the child’s behavior problem cited as a reason for the child being removed from the home?

- **Parental drug abuse**: Was parental drug abuse cited as a reason for the child being removed from the home?

- **Additional parent active on case**: Was someone other than the biological mother, most likely the biological father, active on the child’s case?

- **Parental incarceration**: Was parental incarceration cited as a reason for the child being removed from the home?

Like Model 1, the dichotomous categorical dependent variable was whether the child was reunified by November 2013. Children in the “did not reunify” category included those who were still in the system, or had another permanent placement. Cases of children who aged out of the system were excluded. Since cases without an actively participating biological mother were
also excluded, those children who were reunified presumably were returned home to their biological mothers.

*Logistic Regression Results for Model 2*

There were 281 cases included in the subset of children ages 9 to 17 in this sample. The sample was comprised of first entry cases with biological mothers active on their cases. Only the oldest sibling, if a mother had more than one child in the sample, was included in the sample. All of the predictor variables in the model were dichotomous categorical variables, coded 0 for no and 1 for yes. Like Model 1, logistic regression provided output that showed the percentage of cases that were accurately classified both before and after the model was applied. For the baseline results, logistic regression assumed that all of the cases were reunified.

<table>
<thead>
<tr>
<th>Table 21. Results BEFORE Model 2 is Applied - Children Ages 9-17</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variable</strong></td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td>Did not reunify</td>
</tr>
<tr>
<td>Reunified</td>
</tr>
<tr>
<td><strong>Overall Percentage</strong></td>
</tr>
</tbody>
</table>

Before the model was applied, 64.4 percent of the cases were accurately classified. Ideally, the model will increase this percentage.

<table>
<thead>
<tr>
<th>Table 22. Results AFTER Model 2 is Applied - Children Ages 9-17</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variable</strong></td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td>Did not reunify</td>
</tr>
<tr>
<td>Reunified</td>
</tr>
<tr>
<td><strong>Overall Percentage</strong></td>
</tr>
</tbody>
</table>
As Table 22 shows, the application of the model increased the percentage of accurately classified cases from 64.4 percent to 67.3 percent. The following tables will show that the difference was statistically significant. Even a 3 percent increase in the number of children who return home would impact many families in Allegheny County.

As discussed in Model 1, after showing the accuracy results before and after the model, logistic regression provides a number of statistics that create a more detailed picture of how the model has performed. The table below shows the results, with an interpretation below.

**Table 23. Logistic Regression Results for Model 2 - Children Ages 9-17**

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
<th>95% C.I. for EXP(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child’s Behavior Problem</td>
<td>.570</td>
<td>.278</td>
<td>4.206</td>
<td>1</td>
<td>.040*</td>
<td>1.768</td>
<td>1.024 - 2.898</td>
</tr>
<tr>
<td>Parental Incarceration</td>
<td>-.548</td>
<td>.483</td>
<td>1.290</td>
<td>1</td>
<td>.256</td>
<td>.578</td>
<td>.323 - .993</td>
</tr>
<tr>
<td>Additional Parent Active on Case</td>
<td>-.557</td>
<td>.349</td>
<td>2.542</td>
<td>1</td>
<td>.111</td>
<td>.573</td>
<td>.390 - 1.069</td>
</tr>
<tr>
<td>Parental Drug Abuse</td>
<td>-.678</td>
<td>.392</td>
<td>2.990</td>
<td>1</td>
<td>.084</td>
<td>.508</td>
<td>.784 - 2.757</td>
</tr>
<tr>
<td>Constant</td>
<td>.924</td>
<td>.358</td>
<td>6.670</td>
<td>1</td>
<td>.010</td>
<td>2.519</td>
<td></td>
</tr>
</tbody>
</table>

**Omnibus Test of Model Coefficients**

<table>
<thead>
<tr>
<th>Test</th>
<th>Degrees of Freedom</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square</td>
<td>4</td>
<td>.002</td>
</tr>
</tbody>
</table>

**Hosmer and Lemeshow Test**

<table>
<thead>
<tr>
<th>Test</th>
<th>Degrees of Freedom</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi-Square</td>
<td>4</td>
<td>.912</td>
</tr>
</tbody>
</table>

**Pseudo R^2 Statistics**

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cox &amp; Snell R^2</td>
<td>.058</td>
</tr>
<tr>
<td>Nagelkerke R^2</td>
<td>.080</td>
</tr>
</tbody>
</table>

* p < .05, indicating statistical significance
**Interpretation of Goodness of Fit Tests**

The model passed the omnibus test of model coefficients, since the significance statistic is .002, which is less than .05. This result indicates that the model’s ability to predict whether children in the older subset were reunified is statistically significant. The Hosmer and Lemeshow test also supported the model, indicating that the model had a good fit, since the significance statistic is .912, which is greater than .05. These tests indicate that the model significantly predicted whether a child between the ages of 9 and 17 returned home to his or her biological mother.

**Interpretation of Pseudo R^2 Statistics**

Pseudo R^2 statistics also provided information about the model. The pseudo R^2 statistics were .058 and .080, indicating that the model explained between 5.8 and 8.0 percent of the variability in the dependent variable. While these R^2 statistics are not large, they are statistically significant, as indicated by the significance tests previously discussed.

**Interpretation of Individual Predictor Variables**

The table shows that the strongest predictor of whether a child was reunified in this sample was whether the child’s behavior problem was cited as a reason for the child being removed from the home. Child’s behavior problem has a significance value of .04, which is less than .05, indicating statistical significance. The odds ratio was 1.768, indicating that children in this sample were nearly three quarters more likely to reunify if a child’s behavior problem was cited as a reason for the child being removed from the home, controlling for all other factors in the model. A child’s behavior problem was the only uniquely statistically significant variable in the model. However, whether parental drug abuse was cited as a reason for the child being removed from the home had a significance statistic of .08, which was close to statistically
significant. While a child’s behavior problem as a removal reason made a child more likely to reunify, parental drug abuse as a removal reason made a child less likely to reunify, controlling for the other factors in the model. The other two variables in the model are not uniquely significant. However, as discussed in the previous section regarding the development of the models, including all four variables was important for the significance of the overall model.

**Summary of Statistical Test Results**

Even before the results for each of the models were examined, descriptive statistics revealed that the length of time that the child is in placement was very strongly correlated with whether the child was reunified with his or her family. However, upon closer examination, it was revealed that the length of time in placement is not necessarily a predictor of whether children are reunified, but rather is an inherent quality of the child welfare system. Permanency outcomes other than returning the child home all require a longer timeframe, especially with the focus in the child welfare system on preserving families, when possible. Due to this observation, the length of time that a child is in placement was not included in the models. The models for the younger and older subsets produced different results, due to the different characteristics of the subsets based on age.

The results for Model 1 indicated that first entry children, ages 0 to 8, who have their biological mother active on the case, were significantly more likely to reunify if alleged or reported neglect was cited as a reason for them being removed from the home. They were significantly less likely to reunify if they had a parent active on the case in addition to their biological mother, which was a somewhat surprising result. Parental drug abuse and whether the mother had received mental health services were also controlled for in the model, but were not statistically significant. Several possible explanations for these results could be surmised,
although they cannot be proven through the research presented in this study. Based on information from staff members in the DHS data office, alleged or reported neglect is often related to basic needs of the child not being met, which is an issue that potentially could be addressed more quickly than other problems, such as parental substance abuse, for example. Since neglect may be able to be addressed more quickly, depending on the individual case and a variety of factors not controlled for in this study, that may account for why children in this sample were more likely to reunify if neglect was cited as a reason for their removal.

This result for neglect is not particularly surprising, due to the possible explanation presented. The results for whether an additional parent was active on the case, however, were surprising. A variety of types of additional parents were included in this variable, though the very high majority of the additional parents were biological fathers. Individuals involved in human services work might expect that an additional parent on the case would increase the chances of a child reunifying, as opposed to single female headed families. However, that was not the case in the results for this sample. Additional research would be needed to examine this result. One possible explanation is that if both parents are struggling with substance abuse, it may be more difficult for them to overcome their substance abuse issues with their partner than on their own, especially if they are in the same home. Another possible explanation is that if the biological father is a safety risk to the child, and the biological mother is in the same home as the father, the child may not be able to be safely returned. These potential explanations are merely speculative, as this study does not provide any evidence for these possibilities.

The results for Model 2 indicate that the child’s behavior problem is a significant predictor for whether first entry children, ages 9 to 17, who have biological mothers active on their cases, were reunified. The results of this study indicated that if a child is removed from the
home due to the child’s behavior problem, the family is more likely to be reunified. This result was consistent with the experience of the staff at DHS. Parent and child conflict is a more common reason for removal among teenagers, and in these cases, DHS often attempts to help diffuse the conflict and return the child home, depending on the case. The other variables in the model for the older subset were not statistically significant.

It is important to note, however, that the interpretation of these results assumes that the logistic regression models are reasonably specified, meaning that they account for most or all of the predictor variables that influence the dependent variable. In other words, the results for logistic regression are only strong if the model is reasonably close to a hypothetically perfect model. Since this study was not able to include all of the variables that likely impact whether a child returns home, for various reasons outlined in the sections below, the strength of these statistical results may be somewhat compromised.

**VI. Discussion**

This study hypothesized that parental substance abuse would make children less likely to reunify with their biological mothers. The logistic regression results presented in this analysis did not statistically prove this hypothesis based on the standard levels used to judge statistical significance. Parental alcohol abuse did not appear to be close to statistically significant, so it was not included in either model. However, both models included parental drug abuse, and both models suggested that when children are removed from the home due to parental drug abuse, they are less likely to return home. Parental drug abuse resulted in a .08 significance level for both models, which is somewhat close to reaching statistical significance at .05, indicating that perhaps if other variables had been included in the model, parental drug abuse would have been statistically significant.
The variables included in this study were not able to account for all sources of variation in the dependent variable. Specifically, the models were missing key variables, such as maternal characteristics like race, education level, employment status, and income level. Some of this information was not requested for this study, and other information was not available. For example, race was requested for this study, but due to the number of missing cases, it was not included in the models. The other information was not requested or not available. However, logistic regression assumes that all of the key variables have been included in the model development process, and assumes that the independent variables have been measured without error (Tabachnik and Fidell 2007:122). Without all of the key variables, logistic regression can result in a Type I error, which is a false positive, or a Type II error, which is missing a positive result (Tabachnik and Fidell 2001: 468). Tabachnik and Fidell recognize that measuring those independent variables without any error is impossible in most social and behavioral science research (2007:122). So, the best technique is to select the most reliable independent variables possible, and create a better set of predictors (Tabachnik and Fidell 2007:122, 468). Without relevant and reliable predictor variables, the model can be affected by a Type I or Type II error.

The variables included in the models were key predictors, but were not exhaustive. Since all of the necessary variables were not included, the strength of the model is reduced. Both of the models suggested that parental drug abuse made the children less likely to return home, which is consistent with the studies cited in the literature review. However, the results did not show a strong enough effect for parental drug abuse to be statistically significant at the standard level. Based on the compromised strength of the model, though, the significance level for this study can be reduced from the standard .05, or 5 percent, to .10, or 10 percent. Changing the
significance level to 10 percent will help to account for the fact that the models are not fully specified.

With the less strict significance level, the variable for parental drug abuse becomes significant in both models. In both the younger and older subsets, the variable for parental drug abuse showed 8 percent significance, which is statistically significant according to the 10 percent adjustment. This result is supported by the literature review and was suggested by logistic regression even before the significance level was adjusted. The conclusion is that when children are removed from the home due to parental drug abuse, they are significantly less likely to return home. This conclusion is justified, because several key variables were missing from the models, which reduced the strength of the models. Adjusting the significance level prevents this study from making a Type II error by missing the statistical significance of parental drug abuse.

The results presented in this study are consistent with the main themes presented in the literature review and the overview of attachment theory. Specifically, most of the children placed in out-of-home placement return home, which reaffirms that attachment theory underpins child welfare policy. In addition, this study finds that parental drug abuse makes a child less likely to reunify, perhaps because the timeline associated with recovery from addiction is too long for the child to be without parental attachments, as defined by child welfare policy. Those two points on reunification were the most emphasized themes in the literature review, and this study finds consistent results. And, the findings about how the child’s age impacts reunification were consistent with the literature review. This study emphasized that child age is particularly relevant, perhaps even more than the studies in the literature review.

The results for neglect as a removal reason were not discussed in the literature, but appear to be logical based on information from DHS staff. This study suggests that younger children
who were removed from the home due to alleged or reported neglect have a higher likelihood of returning home to their biological mothers, who then have a chance to preserve or repair the attachment with their child. Failing to meet the basic needs of a child, or neglect, is indicative of a damaged attachment, according to attachment theory. In this analysis, these children were more likely to return home. In the framework of attachment theory, for the children who are returned home, DHS may be helping to equip these mothers and other parents with the skills they need to foster healthy attachments with their children by teaching the parents how to meet their children’s basic needs.

Not all of the details in this study’s results were consistent with the related literature. The literature on race and the child welfare system was not able to be incorporated into the statistical results, because race was not included in the model due to missing cases. While the findings are not inconsistent, since no statistical results were included concerning race, the lack of comment on race is different from the other literature. The most inconsistent result, however, is the impact of family structure on reunification. Generally, it is expected that families with more than one parent would be more likely to have the child return home. This study found the opposite. This may have stemmed from the way the variable was measured; specifically, whether a parent is active on the case may not be the best way to collect data on family structure.

Further study would be needed to clarify or support the results presented in this analysis. Perhaps the most interesting point of further study would be to examine the results pertaining to having an additional parent on the case. The relationship between family structure and parental drug abuse would need to be studied to further examine how that variable fits into the context of this research. In addition, the impact of the type of drugs being abused when a child is removed from the home may also provide an interesting topic for follow-up study.
VII. Limitations

This study was impacted by a variety of limitations, including its scope and timeframe. It was also somewhat limited by the data included in this analysis. For example, this study did not include information about type of drug use in cases of parental drug abuse; the ages of the biological mothers; whether domestic violence was present in the home; and additional characteristics of the mothers and children. In addition, many of the racial identities were missing from the data available for this study. In future related studies, these variables should be considered for inclusion in the model. Reliability also could have impacted this study, since the data that is provided by DHS depends on the consistency and accuracy of the social workers who enter the information into the data collection systems.

The timeline of the data used for this study may also have limited its results. Specifically, the subset of children who were still in the child welfare system at the end of the data timeframe potentially could have reunified at a later date. Since the data set was prepared on November 15, 2013, any children that reunified after that date would have fallen into the “no reunify” category of the dependent variable for the purposes of this study, because the child had not yet reunified.

However, DHS research shows that children are less likely to reunify the longer that they remain in the system. The children in the data set used in this study would have been in placement for at least 10 months, and potentially up to 22 months, depending on how early in 2012 they were removed from the home. According to DHS research on data collected from 2000-2009, children in placement for less than 11 months reunify about 82 to 67 percent of the time, depending on how much time the child has spent in placement (Good and Dalton 2011). After 11 months in placement, however, children reunify only 52 percent of the time, and the child’s chances of reunifying continue to drop (Good and Dalton 2011). Children in placement...
longer than 17 months reunify about 23 percent of the time, and children in the system three years or longer reunify about 14 percent of the time (Good and Dalton 2011). So, although some of the children in the “no reunify” category ultimately could have reunified after the data timeframe, it is less likely, especially for children who had been in placement for at least 17 months. Related studies should take the reunification timelines into careful consideration.

Other factors limited this study from a broader perspective. Certain influences could not be taken into account due to the limited scope of this study. The following questions illustrate these factors, and present topics for further research that would help to clarify the implications of this study’s results:

- **Is Allegheny County ASFA compliant?** The arguments made in this study about parental substance abuse, specifically regarding the ASFA timeline of 15 out of 22 months, assumes that Allegheny County and other jurisdictions comply with ASFA. While 15 months may not provide enough time for parents struggling with addiction to overcome their issues and reunify with their child, this is only relevant if the child welfare system is actually complying with the timeline in the policy. Further research would clarify whether the child welfare system follows ASFA and files to terminate parental rights after 15 out of 22 months that the child is in out-of-home placement. Such research would also indicate how often the ASFA exceptions prevent parental rights from being terminated. This information would indicate how many families are affected by the policy problem presented in this study.

- **How accurately does the child welfare system identify parental substance abuse in CYF cases?** The data for this research may be skewed by the difficulty of identifying parental substance abuse. The reliability of this study somewhat depends on the child
welfare system’s ability to determine substance abuse as a cause of a family’s issues. Some of the mothers who do not have alcohol or drugs cited as a removal reason could still have substance abuse issues, but would not have been included in the substance abuse sample unless drug or alcohol abuse was cited as a reason for removing the child. So, the classification of “parental substance abuse” is dependent on the child welfare system’s ability to identify such abuse, and then accurately and consistently record such information.

- **If children who were removed from the home due to parental substance abuse are reunified with their parent(s), are they likely to reenter the child welfare system?**

This study did not account for whether the mothers who reunified with their children ended up reentering the system. This study examines whether families were reunified during the data timeline, but does not have information about whether children reentered the system at a later date. For example, a child in this timeframe may have been removed from the home in 2012, and then was reunified in 2013. This study would show that the family was reunified, but could not account for whether the child would again be removed from the home later in that year, or even over a year later. This could threaten the validity of the interpretation of this study’s results, since reunification is seen as a permanent solution, but may not necessarily be permanent after time passes. This study was not able to take reentries into account due to its limited scope, but a future study on reentries would clarify the results presented in this study.

Further research on these three questions would provide a better context for the results presented in this study, and would help to indicate how child welfare policy is impacting permanency and
parental substance abuse. The following section provides the policy implications that were able to be drawn from the results presented in this study, which could be clarified by further research.

VIII. Policy Implications

The results discussed in this study have practical policy implications, both in terms of data quality and permanency timelines. This study makes two recommendations—one related to DHS data collection, and the other in regard to the ASFA permanency timeline. These recommendations stem from the development of the statistical models, the logistic regression results, and the interpretation of those results in the context of the literature review and DHS staff interviews.

The data set provided for this study contained information from various human services systems. The integrated data from DHS is impressive, relative to other human services departments. Nevertheless, the quality of some of the data was an issue during the development of the logistic regression models, as is common in social science research. Specifically, the indicator for family structure provided unclear information about how many “parental roles” were involved with the child’s case, and whether those parents were in the same household. The child welfare system can create unique challenges in gathering this type of data. If a parent is listed as active on a case, which is the data that was provided for this study, that parent is assumed to be playing an active role in that child’s life. It is unclear whether this is an accurate indicator for identifying a child’s parental figures. And, this indicator does not provide information about whether the parents listed on the case are living together, or if the child is spending time with them in separate households. DHS has the ability to indicate whether the parents have the same addresses, but keeping current addresses can be very difficult, especially for this population.
Therefore, this study recommends that DHS develop a better indicator and gather more information about the structure of the families in child welfare. Perhaps the best way to learn about family structure is to ask the family members themselves, and set up a mechanism for the social worker to record that information in the child welfare software in a manner that would create easily digestible data. This data quality improvement would allow for further research on the surprising results regarding family structure presented in this study. This would also make it easier for future child welfare studies to account for the influence of family structure on other child welfare topics. An alternative option is to conduct a follow up study using a smaller sample, for which more detailed information on family structure would be gathered for the purposes of that study. Using a smaller sample would likely make it easier to reach a fully specified model, although using too small of a sample would hinder the ability to generalize the results to the entire population.

In terms of child welfare policy, the results of this study support the hypothesis that child welfare permanency timelines are in conflict with addiction recovery timelines. More specifically, the results of this study suggest that 15 months is generally not long enough for a parent struggling with drug addiction to overcome their addiction and related issues and create a stable environment for their child to return home. This study’s statistical finding that parental drug abuse makes a child significantly less likely to reunify indicates that parents overcoming substance abuse issues will not reunify with their children within 15 months. In the context of ASFA, this suggests that parental substance abuse issues would make a parent more likely to be affected by the 15 out of 22 month permanency timeline, and those parents may have their parental rights terminated. This assertion assumes that Allegheny County is ASFA compliant, as indicated in the limitations section.
This study recommends that judges have the discretion to extend the 15 month ASFA timeline, if they believe an extension is in the child’s best interest. Family Court judges should be informed about the relationship between parental substance abuse and reunification, based on DHS data, to supplement the experience they already have working with children and families. This will help to ensure that they have the best information possible to make decisions about family preservation. As previously indicated, the ASFA permanency timeline has exceptions, including if the child is placed with a relative, and if the child welfare agency documents a “compelling reason” why terminating the parental rights would not be in the child’s best interest. With these exceptions in place, it is possible that judges are already extending the 15 month timeline to account for addiction recovery timelines. For this reason, this study recommends that further research be conducted to examine how Allegheny County complies with ASFA. Is Allegheny County ASFA compliant? And, how many cases of out-of-home placement that extend past 15 months result in the termination of parental rights? In the event that judges are already using their discretion to extend the 15 month timeline, this study recommends that DHS provides the judges with information about parental substance abuse timelines. With this data-driven information, the judges would have important knowledge to help them decide what is best for each child on a case-by-case basis.

Both of these recommendations include the suggestion for further research on child welfare and parental substance abuse. The recommendations presented in this study indicate how future research on this topic might be most effective, using the information gained from this study. With the results from further research, more can be learned about how parental substance abuse impacts permanency outcomes, and perhaps outcomes can be improved for children based on this information.
IX. Conclusion

This study recognizes that parental substance abuse will continue to be an issue in the child welfare system. As long as children are affected by parental substance abuse, drug and alcohol addiction will intersect with the child welfare system. This study shows that although most of the children in the sample returned home, children who were removed from the home due to parental substance abuse were less likely to return home. Other factors had an impact on the chances of reunification, as well, specifically in terms of age. Younger children were more likely to return home if they had been removed from the home due to neglect. Older children were more likely to return home if they had been removed due to the child’s behavior problem.

However, regardless of age, cases of parental drug abuse were less likely to result in reunification. With this information, this study helps to illustrate the conflict between timely permanency for children and addiction recovery timelines. This is important, because by studying parental substance abuse and child welfare, it could be possible to improve the reunification rates of children whose parents struggle with substance abuse. The many facets of this problem need to be clearly understood before effective improvements can be made. Further research, as specified in this study, is needed to clarify this problem.
References


Murphy, Samantha. 2013. Interview by author. Allegheny County Department of Human Services: Pittsburgh, PA.


Appendix A: Duquesne University IRB Letter of Approval

DUQUESNE UNIVERSITY
Office of Research
310 ADMINISTRATION BUILDING • PITTSBURGH, PA 15282-0202

Dr. Linda M. Goodfellow
Chair, IRB-Human Subjects
Office of Research
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E-mail: goodfellow@duq.edu

December 10, 2013


Dr. Michael Irwin
McAnulty School, Sociology Department
Duquesne University
Pittsburgh PA 15282

Dear Dr. Dr. Irwin,

Thank you for submitting the research proposal of your student, Courtney Lewis, to the IRB. Based on the review of IRB representative, Dr. James Purdy, and my own review, your study is approved as Exempt based on 45-Code of Federal Regulations-46.101.b.1 regarding research involving the collection or study of existing data.

The approval pertains to the submitted protocol. If you and Ms. Lewis wish to make changes to the research, you must first submit an amendment and receive approval from this office. In addition, if any unanticipated problems arise in reference to human subjects, you should notify the IRB chair before proceeding. In all correspondence, please refer to the protocol number shown after the title above.

Once the study is complete, please provide our office with a short summary (one page) of your results for our records.

Thank you for contributing to Duquesne’s research endeavors.

Sincerely yours,

Linda M. Goodfellow, PhD, RN

Linda M. Goodfellow, PhD, RN

C: Michael Irwin/Courtney Lewis
James Purdy
IRB Records
# Appendix B: CITI Training Certificate

## Collaborative Institutional Training Initiative (CITI)

**Social & Behavioral Research - Basic/Refresher Curriculum Completion Report**

*Printed on 10/03/2013*

**Learner:** Courtney Lewis (ID: 3796195)

**Department:** Social and Public Policy

**Email:** lewisc3@duq.edu

**Institution:** Duquesne University

**Expiration Date:** 10/02/2016

**Social & Behavioral Research - Basic/Refresher:** Choose this group to satisfy CITI training requirements for investigators and staff involved primarily in Social/Behavioral Research with human subjects.

**Course/Stage:** Basic Course/1

**Passed On:** 10/03/2013

**Reference ID:** 11432694

### Required Modules

<table>
<thead>
<tr>
<th>Module</th>
<th>Date Completed</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belmont Report and CITI Course Introduction</td>
<td>10/02/13</td>
<td>3/3 (100%)</td>
</tr>
<tr>
<td>Students in Research</td>
<td>10/02/13</td>
<td>9/10 (90%)</td>
</tr>
<tr>
<td>History and Ethical Principles - SBE</td>
<td>10/02/13</td>
<td>5/5 (100%)</td>
</tr>
<tr>
<td>Defining Research with Human Subjects - SBE</td>
<td>10/02/13</td>
<td>4/5 (80%)</td>
</tr>
<tr>
<td>The Regulations - SBE</td>
<td>10/02/13</td>
<td>4/5 (80%)</td>
</tr>
<tr>
<td>Assessing Risk - SBE</td>
<td>10/02/13</td>
<td>4/5 (80%)</td>
</tr>
<tr>
<td>Informed Consent - SBE</td>
<td>10/03/13</td>
<td>4/5 (80%)</td>
</tr>
<tr>
<td>Privacy and Confidentiality - SBE</td>
<td>10/03/13</td>
<td>5/5 (100%)</td>
</tr>
<tr>
<td>Research with Prisoners - SBE</td>
<td>10/03/13</td>
<td>3/4 (75%)</td>
</tr>
<tr>
<td>Research with Children - SBE</td>
<td>10/03/13</td>
<td>4/4 (100%)</td>
</tr>
<tr>
<td>Research in Public Elementary and Secondary Schools - SBE</td>
<td>10/03/13</td>
<td>3/4 (75%)</td>
</tr>
<tr>
<td>Internet Research - SBE</td>
<td>10/03/13</td>
<td>5/5 (100%)</td>
</tr>
<tr>
<td>Research and HIPAA Privacy Protections</td>
<td>10/03/13</td>
<td>3/5 (60%)</td>
</tr>
<tr>
<td>Vulnerable Subjects - Research Involving Workers/Employees</td>
<td>10/03/13</td>
<td>4/4 (100%)</td>
</tr>
<tr>
<td>Conflicts of Interest in Research Involving Human Subjects</td>
<td>10/03/13</td>
<td>4/5 (80%)</td>
</tr>
<tr>
<td>The IRB Member Module - “What Every New IRB Member Needs to Know.”</td>
<td>10/03/13</td>
<td>5/7 (71%)</td>
</tr>
</tbody>
</table>

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI Program participating institution or be a paid Independent Learner. False information and unauthorized use of the CITI Program course site is unethical, and may be considered research misconduct by your institution.

Paul Braunschweiger Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Program Course Coordinator
CONFIDENTIALITY AGREEMENT

Between
Allegheny County Department of Human Services
And

Effective Date: 9/25/13

In order to protect certain proprietary information, which may be disclosed to [RECIPIENT NAME] (hereinafter called "the Recipient") by the Allegheny County Department of Human Services (hereinafter called "the Discloser"); the two parties agree as follows:

1. The proprietary information (hereinafter called "Data") to be disclosed under this Agreement is described as Allegheny County Department of Human Services client data including but not limited to client related data collected by the Department of Human Services and client-related data collected by the Department of Human Services from external sources. The Data are to be used by Recipient for activities specified in each data request.

Recipient agrees not to disclose Data to any third party.

2. This Agreement controls only proprietary information, which is disclosed only for the time period specified for each data request.

3. The parties’ representatives for disclosing and receiving proprietary information are:

Recipient:

Discloser: Lisa Caldwell
Allegheny County Department of Human Services
Human Services Building
One Smithfield Street, Suite 400
Pittsburgh, PA 15222-2225

4. Recipient shall protect the disclosed information by using the same degree of care, but no less than a reasonable degree of care, to prevent the unauthorized use, dissemination or
publication of the information as the Recipient uses to protect its own proprietary information.

Recipient shall not copy or distribute the proprietary information disclosed under this Agreement to anyone except those of its employees reasonably necessary for purposes of carrying out the research project described in Clause 1.

5. Recipient shall have a duty to protect only that proprietary information which is (a) disclosed by the Discloser in writing and is marked as proprietary at the time of disclosure; or which is (b) disclosed by the Discloser in any other manner and is also summarized and designated as proprietary in a written memorandum delivered to the Recipient’s representative named in paragraph 3 above within two weeks of the disclosure.

6. This agreement imposes no obligation upon Recipient with respect to proprietary information which (a) was in the recipient’s possession before receipt from the Discloser; (b) is or becomes a matter of public knowledge through no fault of the Recipient; (c) is rightfully received by the Recipient from a third party without a duty of confidentiality; (d) is disclosed by the Discloser to a third party without a duty of confidentiality on the third party; (e) is independently developed by the Recipient; (f) is disclosed under operation of law provided that the Recipient has promptly notified the Discloser of such legal proceedings and upon the request of the latter, shall cooperate with the Discloser in contesting such disclosure; (g) is disclosed by the Recipient with the Discloser’s prior written approval.

7. Recipient acquires no intellectual property rights under this Agreement.

8. The parties do not intend that any agency or partnership relationship be created between them by this Agreement.

9. All additions or modifications to this Agreement must be made in writing and must be signed by both parties.

10. The Recipient shall not publish the data in any form without prior approval by the Discloser. Approval will be granted only after review, by the Discloser, of the document for publication.

11. This Agreement shall be effective for one year from the effective date hereof, provided, however, that either party upon thirty (30) days notice in writing may terminate this Agreement.

Upon termination or expiration of this Agreement, Recipient shall destroy or return, as directed by Discloser, all Data provided under this Agreement.

Notwithstanding termination or expiration of this Agreement, proprietary information shall be protected by the Recipient until such time as the Recipient is released from this
obligation by the Discloser. Any release must be in writing and signed by an authorized representative of the Discloser.

11. This Agreement is made under and shall be construed according to the laws of the Commonwealth of Pennsylvania.

By (Signature): [Signature]
Name: [Name]
Title: [Title]

By (Signature): [Signature]
Name: Lisa A. Caldwell
Title: Bureau Administrator
Allegheny County Department of Human Services
Office of Information Management