Factors That Predict the Decision to Place a Child

BY

GARDENIA HARRIS, MSW

JOHN POERTNER, DSW

Executive Summary

One of the most difficult child welfare tasks is making the decision to place a child into substitute care. Workers must balance the child's need for safety with needs for family and permanency. A child left at home may be abused or neglected, while a child placed into care may suffer other types of harm from family disruption.

This study explored some of the factors that contribute to the decision to place a child into substitute care. A literature review identified 30 factors said to influence the decision to place a child. However, the data used in this study, from the Illinois Department of Children and Family Services Integrated Database, made it possible to include only 11 variables. A related project is using case-record reading to add additional variables to study the decision to place a child into substitute care. This second study may provide insights not available through administrative data.

Of the variables identified in the literature, the following were available in the administrative database:

(a) child's age,

(b) child's race,

(c) geographic area (team, county, region),

(d) severity of injury as defined by the number of allegations in the most recent report and the most severe allegation in the most recent report,

(e) family structure (never married, married, divorced),

(f) initial reporter,

(g) caretaker characteristics (age, race),

(h) prior abuse or neglect complaint record (number of previous total allegations, number of previous indicated allegations),

(i) caseworker–client contacts (number of home visits, number of other caseworker contacts),

(j) child's gender, and

(k) caretaker and child relationship.

The database does not contain income data. Since this is so frequently identified in the literature as a strong predictor of the decision to place, census data were added to the analysis. The child's zip code provided a vehicle for including income data from the 1990 U.S. census, namely, information on the median household income and the percentage of households on public assistance for each zip code in Illinois. In addition, the number of Caucasians, African Americans, and poor people provided a basis for calculating the percentage of poor Caucasians and African Americans residing in each zip code.

The study population consisted of two groups of children who were new to the child welfare system in fiscal years 1996 and 1997. The first group contained children with an indicated report of child abuse or neglect who remained at home (intact family cases). The second group was children with an indicated report of abuse or neglect who were placed in foster care (child cases).

For children who were placed, only those cases that opened with a first placement in (a) foster home boarding care (FHB), (b) foster home private agency care (FHP), (c) foster home specialized care (FHS), or (d) home of relative care (HMR) were selected. Children in intact family cases were defined as those cases in which the family as a whole received services from the Illinois Department of Children and Family Services (IDCFS), with no children from that family in IDCFS custody at the time of the case opening. The resulting data set consisted of 4,147 children who were placed in foster care and 10,135 children who received services at home.

A random sample of cases was selected from each group for purposes of developing the placement decision model. This sample was selected to meet the criterion of 95% certainty that the estimated parameter was within 3% of the true value. This sample consisted of 842 children who were placed in foster care and 964 who received services in their home. Once the model was developed, it was tested on a sample that met the criterion of 99% certainty that the estimated parameter was within 2% of the true value. The test sample consisted of 2,044 children who were placed in foster care and 2,902 children who remained in their homes.

Forward conditional logistic regression analysis yielded a model that contained 12 predictor variables. This model classified 75.2% of the cases correctly. Eighty-two percent of the intact family cases were correctly classified, compared to 68% of the placement cases. When the model was tested with the second sample, 85% of the intact cases and 74% of the placement cases were correctly classified. Significant predictors of placement for both samples were:

* The number of home visits during the investigation.
* The number of previous indicated allegations.
* The child being an infant (less than 6 months of age).
* The number of contacts made during the investigation.
* The number of allegations in the most recent report.
* The number of previous indicated reports.
* The allegation of lack of supervision.
* The caretaker never being married.
* The child being a toddler (.5–3years of age).

The number of investigator visits to the home and the number of other investigator contacts are predictors of placement outcomes. One or more investigator's visits to the home decreases the probability of the child being placed in foster care. Four or more other contacts during the investigation increases the probability of placement in foster care. When investigators make 4 or more other contacts, a child is 3.3 times more likely to be placed in foster care than when the investigator makes 3 or fewer other contacts.

A child's allegation history is predictive of the placement decision. Children with a previous indicated allegation are more likely to be placed in foster care. The logistic regression model showed that if a child had a previous indicated allegation of abuse or neglect, the child is 1.3 times more likely to enter foster care. If the child has a previous indicated report, she is 2.9 times as likely to be placed into care.

The child's age is predictive of the placement decision. Infants (age 0–6 months) or toddlers (age .5–3 years) are more likely to be placed. An infant is 4.8 times more likely to be placed and a toddler is twice as likely to be placed.

The number of allegations in the most recent report and the type of allegation are also predictive of placement. If the report contains 3 or more allegations, the child is more likely to receive services in the home. Children whose most recent report contains 3 or more allegations are at a 92% decreased probability of being placed in foster care compared to children with reports that contained 1 or 2 allegations. However, if the most severe allegation is lack of supervision the probability of placement increases by 2.6 times. The last variable in the model is a never-married caretaker. If the caretaker was never married the child is 1.5 times more likely to be placed.

Categorical and regression tree (CART) was conducted as another way to gain insight into the decision to place using data available in the administrative database. This type of analysis is said to explore interactions between variables more effectively than logistic regression. It was hoped that this analysis would identify variables that interacted with the number of home visits to more fully explain the finding that one or more home visits decreased the probability of substitute care placement. The model that resulted from the CART analysis did not fit the data as well as the logistic regression and did not identify additional variables to help explain the home visits finding. However the model was more parsimonious in that it included fewer variables: the number of home visits, number of previous indicated allegations, number of other contacts during the investigation and the number of allegations in the most recent report.

This research identified several variables as predictive of the decision to place a child into foster care. These were characteristics of the:

* protective service investigation (number of home visits and other contacts),
* allegation history (number of previous indicated reports and allegations),
* child (age 0 to 3)
* current report (number of allegations and allegation type lack of supervision),
* caretaker (never married).

While the relationship of two of these predictive variables to the decision to place were not in the expected direction (home visits, and number of allegations in the most recent report), this set of variables represents a reasonable collection of concerns that can be thought of as related to the safety of the child.

The use of administrative data for this study limited the variables that could be included in the analysis as well as how variables identified in the literature review could be operationalized. Additional research is needed to more completely test the influence of variables identified in the literature. In addition, the ways workers think about these decisions is at least as important as child, family, and agency factors. The field of cognitive psychology has studied the decision-maker's thinking processes for many years and is beginning to produce some useful insights. While this type of research was beyond the scope of the current study, application of these research findings to child welfare decision-making is likely to produce additional and important insights.

Factors That Predict the Decision to Place a Child

One of the most difficult child welfare tasks is the decision to place a child into substitute care. Workers must balance the child's need for safety with needs for family and permanency. A child left at home may be abused or neglected, while a child placed into care may suffer other types of harm from family disruption.

This study explored the factors that contribute to the decision to place a child into substitute care. A literature review identified factors said to influence the decision to place a child. Data available from the Illinois Department of Children and Family Services Integrated Database were used to determine the factors that influence the placement decision. The IDCFS Integrated Database is adapted from the state child welfare agency's computerized administrative information systems used to track the children and households that it serves. The Chapin Hall Center at the University of Chicago obtains the administrative data, extracts pertinent variables, and creates a relational database by matching individual records across the information systems using probabilistic record linkage techniques.

Logistic regression was used to identify the variables that best predicted the decision to admit children into foster care or to maintain them in their homes. CART analysis was used to supplement the logistic regression analysis. CART analysis provides a second statistical procedure to identify those variables that predict the decision to place a child. Similarities and differences between the two modeling procedures provide additional insight into the decision to place a child.

Factors Identified in the Literature

Much of the research conducted on the decision to place children in foster care is of dubious quality. No experimental studies exist. In a review of the child welfare decision-making literature, Jones (1993) observed that this body of research is plagued by numerous shortcomings including (a) the regular use of small unrepresentative samples

drawn from one or two sites; (b) the reliance on retrospective reports from interviewees, which limited the usefulness of data; (c) the limited representation of the national child protective service population; (d) the use of secondary data in the form of agency records which created problems such as missing data and bias; and finally (e) the use of archival data with the accompanying problems of the reliability of abstractors and missing data in the case files. Jones (1993) observed that these limitations "affect the ability to draw definitive conclusions" (p. 242); thus "a clear interpretation of findings is often confused by the confounding of case characteristics" (p. 245).

A literature review was conducted to identify the independent variables to be used in this study. A total of 20 studies were identified from several sources: (a) a comprehensive literature review on decision-making (Jones, 1993), (b) the reference lists of journal articles, (c) Sociological Abstracts, and (d) discussions with knowledgeable child welfare researchers. Only studies conducted in the United States were reviewed. Studies with a sample size of fewer than 150 cases were excluded, resulting in studies that ranged from a low of 162 child protection service workers to a high of 208,000 children. The use of sample size as a criterion for exclusion resulted in a variety of studies with diverse methodologies and populations (Table 1). Nine of the studies were cross-sectional; six of the studies were longitudinal; one study incorporated case vignettes; and two studies relied on unknown methodologies. The most common data collection methods were case record review (6 studies) and interviews (5 studies). Three studies utilized administrative databases and two studies relied on other sources of secondary data. Other data collection strategies included an intake/decision form, case vignette/questionnaire, research database, and survey. In one study, the use of secondary data prohibited identification of the data collection methodology.

Metropolitan locations were overrepresented in this body of literature. The majority of the studies were conducted in the northeast and western regions of the United States. In addition to four national studies, only two of the studies examined midwestern states. Goerge, Wulczyn and Harden (1996) utilized data from California, Illinois, Michigan, New York, and Texas, and Segal and Schwartz (1985) identified their sample as coming from "a large mid-western city."

Table 1.
Summary of Studies Included in the Literature

Study	Type	Sample	Method	State
Barth et al., 1994	Longitudinal	8,748 children random	Administrative database	Metro California
Benedict et al., 1987	Longitudinal, First phase non-concurrent prospective study	689 children stratified random	Case record review	Metro Maryland
DHHS, 1997	Cross-sectional	2,109 families	Telephone interviews w/ caseworkers	National
English, 1997	Cross-sectional	200 CPS workers, random	Structured Interviews	Washington
Fanshel and Shinn, 1978	Longitudinal	624 children sequential quota sampling	Surveys supplemented by interviews with social workers	New York City
Goerge et al., 1996	Longitudinal, historical	208,000 children	Research database	CA, IL, MI, NY, TX
Groeneveld and Giovannoni, 1977	Secondary data	361 children	National Clearinghouse on CA/N database, administrative database	AZ, MT, NC, RI, TX
Jenkins and Diamond, 1985	Epidemiological	Random sample of 2,439 public welfare depts. Census data from 14 large cities	Figures on placement are related to census data Secondary data collected by Office of Civil Rights-survey	National
Jenkins and Norman, 1975	Longitudinal (first phase)	390 families	Case records, interviews	New York City

Table 1.
Summary of Studies Included in the Literature *(continued)*

Study	Type	Sample	Method	State
Katz et al., 1986	Cross-sectional, retrospective	185 children	Medical record review	Boston, MA
Lindsey, 1991, 1994	Unknown	9,597 children	Secondary data	National
McMurtry and Lie, 1992	Retrospective, inclusive of 6 calendar years, 2-year longitudinal	Stratified random sample of 775 foster children	Case records	Maricopa County, AZ
Mech, 1985	Unknown	8,779 children	Unknown	National
Phillips, et al., 1972	Cross-sectional	309 children	Intake and decision form, interviews, expert opinions	PA, MA, NY
Rosen, 1981	Case vignettes	162 CPS workers	Questionnaire and case summaries	NJ, PA
Runyan et al., 1982	Cross-sectional, retrospective	7,770 families	C/AN Central Registry Record Review	North Carolina
Schwab et al., 1994	Cross-sectional	2,905 families	CPS risk assessment instruments	Texas, 2 regions
Segal and Schwartz, 1985	Cross-sectional, comprising 6 years	424 children	Case files	Large midwestern city
Walker et al., 1991	Cross-sectional, retrospective	960 African American children	Case records	New York, Detroit, Miami, Houston, Seattle
Wolock, 1982	Cross-sectional	289 cases	Survey and case vignettes, case files, social indicator data	11 CPS offices in northern New Jersey

Decision-making factors identified in the literature can be divided into five categories: (a) safety–abuse and neglect, prior abuse and neglect complaint record, severity of injury, risk to the child, placement history, and problem intensification; (b) child characteristics-race, age, gender, emotional or behavioral problems, physical health problems; (c) parent characteristics-substance abuse, caretaker mental illness, caretaker physical illness, other parental characteristics, parenting ability, unwillingness to care for a child, and parental request for services; (d) family characteristics—socioeconomic status, family structure, family size, family dysfunction, and availability of social support; and (e) child welfare system characteristics—referral source, time of removal, resource availability, caseworker–client contacts, community conditions, geographic area, season, and child welfare policies.

Safety Factors

Abuse and Neglect. Physical abuse, sexual abuse, emotional abuse, and neglect were repeatedly shown to be major reasons that children were admitted into foster care (Barth, Courtney, Berrick, and Albert, 1994; Fanshel and Shinn, 1978; Jenkins and Norman, 1975; Mech, 1985; Walker, Zangrillo, and Smith, 1991). Researchers found that children referred for neglect (Jenkins and Norman, 1975) and teenagers referred for abuse and neglect (Lindsey, 1991) were more likely to be placed in foster care than children referred for behavior problems. In a similar vein, Department of Health and Human Services (1997) found that cases involving substantiated abuse and neglect were more likely to result in placement in foster care (51%) than cases involving no substantiated abuse or neglect (21%).

There was also evidence that abuse and neglect were associated with the receipt of services in the home. Department of Health and Human Services (1997) discovered that children whose cases were opened due to an abuse or neglect allegation were more likely to receive services in their homes (64%) than children whose cases were opened for other reasons (54%). The data indicated that children whose cases were opened for reasons other than abuse or neglect tended to be older and their parents more often

insisted on their removal. Thus, these children were more likely to be placed in foster care (46%) than children whose cases were opened for abuse and neglect (36%).

Similarly, Phillips, Haring, and Shyne (1972) found that abuse or neglect were noted as the precipitating factor in decisions involving the receipt of services in the child's own home more often than in decisions related to placement (48% versus 34%). Phillips and his colleagues discovered that placement cases were more likely to receive grossly inadequate care in the areas of feeding, supervision and guidance, warmth and affection, protection from abuse, and concern regarding schooling. However, the children who were placed were not less advantaged than the children who received services in their own home in terms of attention to medical needs, concern for personal hygiene, and sleeping arrangements and supervision. Finally, Segal and Schwartz (1985) reported that for children in a short-term emergency treatment facility, the occurrence of physical or sexual abuse was the weakest predictor of placement.

The sole study that examined whether the type of abuse was predictive of separation outcomes concluded that the type of abuse did impact the likelihood of placement. Katz, Hampton, Newberger, Bowles, and Synder (1986) found that children with non-physical injuries were more likely to be removed from their homes than children with physical injuries. The authors speculated that non-physical injuries such as failure-to-thrive and neglect were seen as evidence of chronic problems rather than a single mishap.

Prior Child Abuse Complaint/Record. A history of injury was associated with the choice of interventions (Rosen, 1981). Katz et al. (1986) discovered that after controlling for other independent variables, a history of a previous abuse report was a significant determinant of placement outside of the home. Katz and his colleagues reported that children with a history of a previous accident were less likely to be sent home with services and instead, were more likely to be removed from their home or sent home without services compared to their counterparts with no history of previous accident. In a similar vein, English, Brummel, and Marshall (1997) found that CPS workers' decisions to place a child in foster care were positively influenced by a parental history of abuse and neglect as a child.

Severity of Injury. Injury to the child was consistently related to decisions to place the child in foster care. Runyan, Gould, Trost, and Loda (1982) found that the severity of the incident was a factor in placement decisions. The seriousness of the abuse or neglect incident, as measured by whether medical care (Groeneveld and Giovannoni, 1977) or hospitalization (Runyan et al., 1982) were required, increased the risk of placement. Lindsey (1991) also discovered that children who needed emergency room care were most likely to be placed in foster care, irrespective of the reasons for referral. In addition, Schwab, Baumann, and Gober (1994) found that for cases of confirmed sexual abuse, children were more likely to be removed from their homes if they needed medical care or had sustained a serious injury.

At the same time, contradictory evidence suggested the severity of injury was unrelated to the decision to place children in care. Several authors found a lack of correlation between greater evidence of abuse and the degree of intervention (Katz et al., 1986; Rosen, 1981). Further, Schwab et al. (1994) found that for cases of confirmed medical neglect, the presence of a facial or head injury was related to the child not being removed from the home. Likewise, Katz et al. (1986) reported that the presence of a physical injury decreased the likelihood of a child being removed from the home. Rosen (1981) speculated that the lack of correlation between the severity of abuse and the decision to place a child in care was related to workers' hesitation to remove a child from the home.

Risk to the Child. As anticipated, the literature indicated that a child's risk of further abuse was an important element in the decision to remove a child from his or her home. Interview data gathered from CPS workers in Washington state revealed that the protection of children and the occurrence of dangerous acts were factors in the decision to place children in foster care (English, 1997). Schwab et al. (1994) found that for abuse cases, children were more likely to be removed from their homes if they were currently experiencing maltreatment and the caretaker had shown aggression and anger toward the child. For cases of neglectful supervision, the presence of the perpetrator was more prevalent in cases where children were not removed from their homes. Surprisingly, for

cases of confirmed medical neglect, the perpetrator having no access to the child was related to a higher incidence of removal from the home.

Placement History. Phillips et al. (1972) reported that regardless of household composition, significantly more of the children who were placed in foster care had been receiving the major part of their care from persons other than parents or other relatives. A significantly higher proportion of children who required placement were already out of the home at the time of the placement decision was made. Only 8% of the children whose "ideal" case plans included the receipt of services in their own home were out of the home at the time the placement decision was made. In contrast, 31% of the children in placement were residing outside of the home at the time the placement decision was made. For this same sample, placement children were more likely to be "temporarily away" from their homes and their families were more likely to have other children already in placement. This data appeared to suggest that workers face reduced internal and external resistance when placing a child who was already out of the home or who had a history of placement.

Segal and Schwartz (1985) reported a similar finding. For children in a short-term treatment facility, the most important variable in predicting a child's discharge status was the setting from which the child was admitted. Children discharged to a substitute care setting tended to be most closely associated with admission from a non-family setting. Segal and Schwartz interpreted this finding as evidence that children were likely to be returned to the same environment from which they were admitted, with apparently little regard for addressing the problem that initially prompted their placement. For this sample, the amount of time spent in treatment was also a significant predictor of discharge setting. Children discharged to a substitute care setting tended to have spent more time in treatment.

Problem Intensification. Phillips et al. (1972) found that families often received services for problems that had been occurring for some time. Many families had previously come to the agency's attention for similar problems that had previously not been deemed severe enough to warrant services. Phillips and his colleagues discovered

that children in placement were more likely to have problems that were classified as an intensification of an old problem than children receiving services in their own homes. In contrast, children receiving services in their homes were significantly more likely to be seen as having a chronic problem with little recent change.

Child Characteristics

Race. The majority of studies that examined race and ethnicity found that race and ethnicity exerted a significant effect on the decision to place children in foster care. For example, DHHS (1997) reported that nationally, the majority of Caucasian (72%) and Hispanic (60%) children received in-home services, but the majority of African American children (56%) were placed in foster care. Similarly, Groeneveld and Giovannoni (1977) found that neglected non-Caucasian children were more likely to be removed from their homes than neglected Caucasian were. Phillips et al. (1972) reported that although the race of the mother did not impact the placement decision, the race of the father did. Children from homes with an African American father present were far more likely to be placed in care. However, children from households with a Caucasian father present were significantly more likely to receive services in their homes.

The results of other studies further indicated that race impacted the placement decision, albeit in a more complex way. Although Benedict, White, and Stallings (1987) found that similar proportions of African American and Caucasian children were placed in care for abuse, neglect, or abandonment, the reason for placement varied by race. Non-maltreated African American children were more likely to be placed in foster care primarily because of parental illness or death. In contrast, non-maltreated Caucasian children were more likely to be placed in foster care because of housing, financial, or family problems. Furthermore, the type of placement varied by race. A larger proportion of Caucasian children was placed in agency foster homes. In contrast, African American children were placed more often with relatives, friends, or in group care.

Lindsey (1994) also found that the reason for placement varied by race. He found that for dependency cases, African American and Hispanic children were twice as likely

to be placed in foster care than Caucasian children were. Further, African American children were at a higher risk of placement than Caucasian or Hispanic children when placement was due to environmental factors. However, when parental condition was a major reason for placement, African American (0.89) and Hispanic (0.72) children had lower odds of being placed than Caucasian (1.00) children did. In cases of neglect, African American children were placed as often as Caucasian children were. In comparison, Hispanic children were placed less often (0.60) than Caucasian children were. Finally, Lindsey found that placement rates did not vary by race in cases that involved abuse, alcohol, and drugs.

Echoing the findings of Benedict et al. (1987), Lindsey (1994) discovered that although children of color were disproportionately represented in foster care, when children who received services were used as the base population there was only a minimal association between race and placement. Caucasian and African American children were placed equally often. Hispanic children had a slightly lower chance of being placed than Caucasian children did.

Conversely, other studies indicated that African American status was negatively associated with the decision to place children in care. Segal and Schwartz (1985) found that although Caucasian children in a short-term emergency treatment facility tended to be discharged to a substitute care setting, African American children were returned to their biological family more often. These authors speculated that this finding could reflect the shortage of substitute care alternatives available for African American children. Finally, Katz et al. (1986) and Runyan et al. (1982) concluded that race was not a significant factor in the placement decision.

Age. Several studies showed that age was a pivotal factor in the decision to place a child in care (Lindsey, 1991; Phillips et al., 1972; Segal and Schwartz, 1985). Several researchers found that younger children were more likely to be removed from their homes. Phillips et al. (1972) found that caseworkers considered placement to be an ideal plan for children under 5 years of age more often than for older children. DHHS (1997) found that children placed in foster care entered the child welfare system at the median age of 5, but children who received in-home services entered the child welfare system at

the median age of 6. This age differential was accounted for primarily by the fact that more children who entered the child welfare system at less than 1 year of age (23%) were placed in foster care. In contrast, only 12% of the children who received in-home services entered the child welfare system at this early age. Similarly, Goerge et al. (1996) reported that children under 5 years old were twice as likely to enter foster care than older children were. The researchers noted that the disproportionate increase in the admission of very young children contributed heavily to rising entry rates in California, Illinois, Michigan, New York, and Texas. Further, by 1989 children under 1 year of age were 3 times more likely to enter foster care than children who were from 1 to 2 years of age.

In contrast, other studies indicated that older children were more likely to be placed in care. Katz et al. (1986) found that children under 6 were more likely to be sent home than placed in care. Segal and Schwartz (1985) noted that children under 12 who were discharged from a short-term emergency facility were returned to their biological family more often, whereas older children were discharged to a substitute care facility more often. Lindsey (1991) also discovered that the role of placement increased with age, with older children being placed more often. Lindsey reported a higher rate of placement for elementary school children than for preschool children, with the majority of the older children being placed. However, age interacted with the referral reason. For example, young children referred for abuse were placed in foster care more often than older children referred for the same reason. In contrast, older adolescents referred for abuse and neglect received services in their homes more frequently than other children did. Lindsey considered this finding to be disturbing because it suggested that abused adolescents might not be protected.

Gender. Only one study examined the effect of gender on separation outcomes. Lindsey (1994) concluded that gender exerted only a limited influence on separation outcomes.

Emotional or Behavioral Problems. Children's emotional and behavioral problems were frequently cited as reasons for placement in foster care (Mech, 1985). Unusual behavior or unusual characteristics of a child (Jenkins and Norman, 1975;

Rosen, 1981) were related to judgments regarding either the choice of interventions or the decision to place children in care. DHHS (1997) found that 52% of children with a mental health problem were placed in foster care, compared to only 32% of children with no mental health problems. Similarly, Jenkins and Norman (1975) and Phillips et al. (1972) found that children in placement often exhibited overt indications of an emotional disturbance or a severe emotional disturbance. These children were often diagnosed as emotionally disturbed by a mental health professional or they had induced their parents to seek help through foster care placement.

Phillips et al. (1972) found that children who were placed in care did not differ from those who received services in their homes in regard to physical disabilities, learning difficulties, probation status, stealing, destroying property, and vandalism. Children in placement were more likely to exhibit behaviors that could be difficult for parents, teachers, and other associates including truancy, running away, and resisting parental control (stealing from parents, chronic lying, temper tantrums, and resistance of parental control). A comparison of items that were significant versus non-significant in determining placement revealed that the items that reflected a child's overt conflict with parents or the outside community were most likely to be associated with placement. Likewise, Walker et al. (1991) cited running away and truancy as grounds for placing children in out-of-home care. Walker and her colleagues found that problems such as learning difficulties or enuresis (chronic bed-wetting) were not as likely to predict placement compared to problems that reflected acting-out behavior such as behavioral problems in school or running away from home.

Physical Health Problems. A disability or a handicap was associated with placement in foster care (Barth, Courtney, Berrick, and Albert, 1994; DHHS, 1997). DHHS found that children with a disability (46%) had a higher rate of placement in foster care than children with no disability (29%). Correspondingly, Barth et al. (1994) found that 1.6% of the children placed in foster care in California were placed there due to disability or handicap. In fact, in California, 63% of children with a physical health problem were placed in foster care, compared to only 35% of children without a physical health problem.

Parental Characteristics

Substance Abuse. Many authors reported that parental substance abuse problems put children at increased risk of placement (English, 1997; Jenkins and Norman, 1975; Runyan et al., 1982; Walker et al., 1991). Barth et al. (1994) maintained that drug abuse by a parent or guardian was a major reason for out-of-home placement because of its association with child abuse and neglect and drug-related arrests. DHHS (1997) noted that children whose caretakers had a substance abuse problem were twice as likely to be in foster care than children whose caretakers did not have a substance abuse problem (54% vs. 23%, respectively).

Walker et al. (1991) discovered that in parental drug abuse cases, neglect was the primary reason for placement for a group of African American children who resided in New York City, Miami, Detroit, Houston, and Seattle. In contrast, for cases that did not involve parental drug abuse, physical abuse was the primary reason for placement. In addition, children whose parents did not abuse drugs were more likely to have emotional, behavioral, and other problems that contributed to their placement than children whose parents abused drugs. Further, malnourishment, poor hygiene, unmet physical and medical needs, lack of child supervision, and uncertain return of the parent were significantly more common among parents in New York who abused drugs than parents who did not.

Caretaker Mental Illness. Jenkins and Norman (1975), Rosen (1981), and Mech (1985) found that an emotional disturbance in the parent was significantly related to the choice of interventions. More specifically, the emotional problems of the caretaking parent (Fanshel and Shinn, 1978; Walker et al., 1991) increased the chances of placement in foster care. DHHS (1997) found that 55% of children whose caretakers had a mental health problem were in foster care, compared to only 28% of children whose caretakers did not have a mental health problem. Phillips et al. (1972) found that the mothers and fathers of children in placement were more likely to be diagnosed with a mental illness than the parents of children who received services in their homes. In addition, the mental

illness was more likely to be chronic. Phillips and his colleagues reported that 31% of the mothers of children in placement (for whom data were available) had a diagnosed mental illness that seriously interfered with parental functioning. In contrast, only 11% of the mothers of children who received services in their own home had been diagnosed with a serious mental illness. Furthermore, the mothers of children in placement were judged to be chronically and seriously mentally ill more often than the mothers of children who received services in their own homes.

Fanshel and Shinn (1978) observed that 60% of foster care cases involved actual hospitalization and the remainder involved severe emotional disturbance without consequent institutionalization. Jenkins and Norman (1975) reported that the majority of placement cases resulting from parental mental illness involved the hospitalization of the mother in a psychiatric facility. Hospitalization often followed an incident that indicated that the mother was a danger to herself or her children. In cases where the mother was not hospitalized, there was frequently a clear, recorded indication of emotional disturbances and bizarre behavior.

Caretaker Physical Illness. The physical illness of the care-giving parent (Fanshel and Shinn, 1978; Jenkins and Norman, 1975) was cited as a reason for placement in foster care. The death of the caregiving parent was also related to placement (Fanshel and Shinn, 1978).

Parental Characteristics. Workers judged the mothers and fathers of children in placement to have a significantly higher number of negative traits (Phillips et al., 1972). Phillips et al. (1972) uncovered no difference in the age, race, religion, physical health, or employment status of the mothers of the children who received services in their own home and the mothers of children who were placed in foster care. However, the authors found that caseworkers judged the mothers of children in placement more harshly than they judged the mothers of children who received in-home services. More of the mothers of children who were placed in care were judged to have "little or no concern" about their children and "difficulty in holding a job" than the mothers of children who remained at home. Similarly, caseworkers judged more mothers of the children who received

placement to be "suspicious or distrustful of others" and withdrawn or depressed. However, the mothers of children in placement were considered more likely to desire change, to recognize their part in the problem, and to be more cooperative and active in pursuing worker suggestions. These mothers were also judged to have a lower ability to verbalize their feelings.

Compared to the fathers of non-placement children, the fathers of placement children were thought to set limits less often and to "lack concern" for their children more often. The fathers of children in placement were rated significantly higher on a myriad of negative traits compared to the fathers of children who received in-home services. These variables included (a) lack of warmth and affection, (b) difficulty holding a job, (c) extreme laxness in discipline, (d) grossly deviant social attitudes, (e) poor money management skills, (f) feelings of being picked on by the community, (g) suspiciousness or mistrustfulness, (h) withdrawal or depression, and (i) the appearance of being emotionally disturbed.

Schwab et al. (1994) found that in cases of physical abuse, the removal of children was related to a poor prognosis for change. The authors speculated that factors such as parents' lack of motivation and aggressiveness could signal that intervention in family functioning would be unsuccessful. Katz et al. (1986) discovered that removal from the home was more likely when mothers were suspected of being involved in the maltreatment. A similar trend that did not reach statistical significance was also noted for fathers. The authors conceded that the small sample size could have contributed to the lack of statistical significance.

Parenting Ability. The DHHS (1997), Runyan et al. (1982), and Phillips et al. (1972) found that workers' negative perceptions of caretakers' parenting skills were factors in the decision to place children outside of the home. DHHS (1997) found that children whose caretakers were judged to have problems with their parenting skills were more likely to be placed in foster care (43%) than children of parents deemed to have adequate parenting skills (22%). Runyan et al. (1982) noted that parental perceptions of the appropriateness of physical punishment put a child at risk for placement.

Phillips et al. (1972) discovered that seven factors related to parenting ability differentiated placement cases from those in which services were provided in the home: (a) use of overly severe punishment, (b) failure to set limits for children, (c) erratic handling of children, (d) lack of warmth and affection with children, (e) extreme laxness in discipline, (f) impulsiveness, and (g) poor money management skills.

Unwillingness to Care for a Child. Abandonment or desertion by a parent (Fanshel and Shinn, 1978; Mech, 1985; Runyan et al., 1982) were cited as major reasons for the placement of children in foster care. Jenkins and Norman (1975) reported that in their sample, maternal abandonment of children without alternate child care was the major reason for placement in 2% of the children. In addition, parental unwillingness or inability to care for a child was cited as a reason for placement by several researchers (Fanshel and Shinn, 1978; Mech, 1985; Walker et al., 1991). Jenkins and Norman (1975) identified the inability or unwillingness of single mothers of newborns to assume care of their children at birth as a reason for placement in long-term care for 6% of their sample. Further, in 8% of these cases, a former caretaker could not or would not continue to care for the child. Removal from the home was also related to the uncertain return of the parent (Walker et al., 1991).

Parental Request for Services. Children also entered foster care when their parents voluntarily requested that the children do so (Walker et al., 1991). Barth et al. (1994) reported that voluntary placement was a reason for placement for 3.1% of the foster care population in California.

Family Characteristics

Socioeconomic Status. Although Runyan et al. (1982) found that income, education, and occupation (except the military) were not significant factors in the decision to remove children from their homes, most studies indicated that income was associated with placement in foster care. Several studies showed that a disproportionate

number of children in foster care came from low-income families, particularly families that received public assistance (Barth et al., 1994; Phillips et al., 1972; Walker et al., 1991). Barth et al. (1994) observed that close to 2 out of 3 children in foster care in California came from AFDC eligible families. Similarly, Katz et al. (1986) reported that in cases of physical injury, Medicaid-eligible families were more likely to have their children removed than families that were more affluent. However, in cases of non-physical injury, Medicaid-eligible families were less likely to have their children removed than wealthier families. Katz et al. (1986) maintained that this finding indicated that physical injuries tended to be characterized as abuse in poor families and as accidents in more affluent families. Further, the fact that affluent families were more likely to lose custody of their children in cases of non-physical injury suggested that families who appeared to neglect their children despite adequate resources were judged more harshly. Barth et al. (1994) stressed that changes in the proportion of families that received welfare could affect the number of abuse and neglect reports, which in turn would impact the number of children placed in foster care.

In fact, Lindsey's (1994, 1991) research led him to conclude that income adequacy was the most critical factor in the decision to remove children of all ages from their homes. Lindsey (1994) found that in his sample, an unstable income was the highest predictor of removal. Parents who were either self-supporting or receiving public assistance were more likely to retain their children than parents with incomes from other sources. Notably, parents who received government support were even less likely to have their children removed than parents who earned enough money to support their families. Children from families that were neither self-supporting nor recipients of government assistance were 120 times more likely to be placed in foster care than children from self-supporting families. Lindsey speculated that the income derived from sources such as family, friends, and alimony was less stable and less predictable than the income derived from the government or self-support. Lindsey further noted that this finding supported the notion that programs that provided direct income to families would effectively reduce the need for placement.

In addition, Lindsey (1994) found that part-time employment increased the odds of removal from the home compared to unemployment or not being in the labor force,

regardless of family composition. He conjectured that the income derived from part-time employment was either insufficient to reduce the likelihood of a referral or was inadequate to enable the family to provide the level of care that reduced the odds of removal.

When income was controlled for, the source of the referral, the reason for referral, and emergency cases were more likely to result in foster care placement. Lindsey (1994) maintained that although income security appeared to be a major determinant for removing a child, it was usually not a determinant in returning the child. Jenkins and Norman (1975) also observed that children had been returned to homes although the chronic conditions that precipitated their placement had not been remedied, and in some instances had deteriorated.

Phillips et al. (1972) discovered that the fathers of children in placement were more likely to be unemployed and that the fathers of children who received services in their homes were more likely to be employed regularly on a full-time basis. The authors concluded that these differences could not be attributed to differences in fathers' physical health because the groups were alike in that respect.

Several researchers discovered that the children of employed parents were less likely to be admitted into care. DHHS (1997) found that children who lived with an unemployed caretaker or partner were more likely to be placed in foster care (40%) than children who lived with an employed caretaker or partner (25%). In addition, children who lived in households that received government support were more likely to be placed in foster care (36%) than children who lived in households that earned wages (23%).

The living conditions of the biological family also affected placement decisions. Phillips et al. (1972) discovered that caseworkers judged living conditions to be adequate for 54% of the non-placement children compared to only 38% of the placement children. The authors noted that the gross weekly incomes of the families of placement children were lower than the gross weekly incomes of families whose children received services in their homes.

Inadequate housing and homelessness were also significant factors in placement decisions (Walker et al., 1991). The DHHS (1997) found that children from homes with

housing problems were more likely to be placed in foster care than children from homes without housing problems (46% vs. 27%, respectively).

DHHS (1997) discovered that children who were eligible for Title IV-E were more likely to be placed in foster care than children who were ineligible (52% vs. 25%). However, Title IV-E eligibility status was not viewed as a cause of their placement. Children eligible for Title IV-E eligibility were as likely to be placed in foster care as they were to receive in-home services (52% vs. 48%, respectively).

Family Structure. Barth et al. (1994) discovered that the absence of the primary caretaker or caretaker incapacity were criteria for making placement decisions. The authors noted that close to 4 out of 5 children placed in foster care in California in 1990 came from single-parent families. These authors concluded that changes in the proportion of female-headed families could affect the number of abuse or neglect reports, and subsequently the number of children who entered care.

In a similar vein, Schwab et al. (1994) found that in cases of confirmed neglect, the decision to remove a child from the home was related to the absence of a caregiver due to arrest or the absence of another caregiver. In addition, for cases of physical neglect, children left with another caregiver who was unable to care for them were less likely to be removed from the family.

Phillips et al. (1972) found that more children who received services in their own home had mothers who were married and living with their husbands. Thus, a higher proportion of the parents of children in placement was identified as separated. In contrast, DHHS (1997) found that children who lived in single-headed households were less likely to be placed in foster care (33%) than children residing in two-parent households (41%) were. Furthermore, Groeneveld and Giovannoni (1977) discovered that neither the presence of both parents in the family nor other adults in the house were related to case outcomes. Similarly, Lindsey (1994) found that a child from a single-parent family was generally no more likely to be placed in care than a child from a two-parent family. However, when dependency and substance abuse were reasons for referral, single-parent families were most subject to having their children removed. Single-parent families faced odds of 5.69 (dependency) and 3.19 (substance abuse)

compared to 2.21 and 0.90 for all families. Thus, dependency and substance abuse placed single-parent families at a greater risk of having their children removed. The other reasons for referral were associated with only a slightly greater chance of placement when single-parent families were involved. Lindsey also found that placement was 99.3% certain when no parent was present. Finally, Lindsey discovered that when the family consisted solely of the biological or adoptive father, the child was placed 1.80 times more often than when the family consisted solely of the mother. Lindsey speculated that this finding either reflected a bias against fathers or fathers' unwillingness to take responsibility for the child as often as the mother did.

Family Size. Groeneveld and Giovannoni (1977) discovered that as the number of children increased, the probability of removal for abuse and neglect decreased. The authors speculated that this was due to the difficulty of finding foster homes for larger sibling groups and the reluctance to split such families. Similarly, Phillips et al. (1972) found that children who were allowed to receive services in their homes were more likely to have larger families. They were also more likely to be part of families that needed services for a larger number of children in the family. Finally, the number of victims of abuse played no significant role in experts' placement decisions.

Family Dysfunction. Some studies concluded that marital conflict (Walker et al., 1991) and family violence (Jenkins and Norman, 1975) contributed to separation outcomes. However, Schwab et al. (1994) noted that in cases of confirmed emotional abuse, the presence of spousal or partner abuse was inversely related to removal from the home. This finding may indicate that the child was not seen as being the main target of the abuse.

Parent–child conflict was also related to the decision to separate children from their families (Mech, 1985). Similarly, Schwab et al. (1994) noted that in cases of confirmed sexual abuse, the existence of negative social relationships within the family was related to the decision to remove children from the home. Further, Jenkins and Norman (1975) reported that the serious incapacity of the caregiver due to criminal activity and mental retardation was grounds for placement.

Family stress also significantly affected case outcomes (Groeneveld and Giovannoni, 1977). Similarly, environmental stress was related to the choice of interventions (Rosen, 1981). Katz et al. (1986) found that a high level of stress increased the likelihood that a child would be sent home with services in cases of physical injury. However, a high level of stress increased the likelihood of removal in cases of non-physical injury. The DHHS (1997) found that children from families with three or more total problems entered foster care at a higher rate than children from families with fewer problems (45% vs. 30%, respectively).

Availability of Social Support. Phillips et al. (1972) reported that significantly fewer placement cases have anyone other than the social service agency, including friends and neighbors, to whom they could turn for help. In addition, more placement cases (24%) than own-home service cases (10%) were judged to have fewer friends and neighbors whom they could contact.

Child Welfare System Variables

Referral Source. There was convincing evidence that children referred from different sources were at varying risks of placement (Runyan et al., 1982). Several authors uncovered evidence that indicated that legal authorities such as the police and the courts had a startlingly powerful influence over the placement decision. Groeneveld and Giovannoni (1977) noted that children were removed from the home at the time of the complaint more often when law enforcement officials had investigated a substantiated case (28.8% of cases) than when other agencies had investigated a substantiated case (7.3%). Lindsey (1991) also reported that for early adolescents, a legal referral increased the likelihood of being placed in foster care. Lindsey noted that many status offenders were referred to the child welfare system by the juvenile justice system.

Likewise, Runyan et al. (1982) noted that cases referred by the courts or the police were at a 2 to 4 times higher for risk of removal, even after adjusting for the type of maltreatment. According to Runyan and his colleagues, this suggested that law enforcement's amplified influence was not based on the increased severity of cases they

handled. Instead, the authors speculated that this finding was evidence of either the greater input that law enforcement had over the placement decision or a greater tendency for law enforcement to "rescue" children.

Groeneveld and Giovannoni (1977) observed that cases reported by private individuals were more likely to result in removal of the child from the home. They maintained that this finding indicated that the less severe cases reported by individuals were screened out earlier, indicating stricter screening of the cases in the substantiation pool that were referred by individuals.

Lindsey (1991) found that an emergency referral exerted an independent influence that increased the likelihood of placement in foster care. Lindsey observed that this was true for all age groups, except older adolescents. Lindsey expressed concern that older adolescents in emergency situations might not be protected by the child welfare system. Lindsey was also alarmed that so many children entered foster care by way of an emergency referral.

Time of Removal. Groeneveld and Giovannoni (1977) observed that the removal of a child prior to the disposition of the case had the strongest effect on outcome for both abuse and neglect cases. The researchers considered this variable to reflect case processing.

Resource Availability. Phillips et al. (1972) reported that the availability of resources to implement a decision limited caseworkers' ability to pursue their ideal intervention strategies. They noted that an ideal plan for placement, as judged by the caseworker, was impractical for 3% of the sample due to parental resistance to the available resources or the unavailability of the desired resources. Interestingly, the child's family received services in their home in every instance where implementation of an ideal case plan was impractical.

Caseworker–Client Contacts. Phillips et al. (1972) discovered that caseworkers had significantly more in-person contacts with parents in cases where children were placed in care. Caseworkers had fewer contacts with children who received services in

their homes. In situations where children were placed, caseworkers evidenced more contacts with relatives and with other caregiving adults, and fewer contacts with other agencies, courts, neighbors, and the children of concern.

Community Conditions. Barth et al. (1994) maintained that a state's economic conditions impacted the number of children that entered the child welfare system. Poor labor market conditions, as indicated by increased use of welfare, were likely to alter the number of children entering the child welfare system.

Geographic Area. The geographic area in which a child resided (Runyan et al., 1982) and the county in which the case was handled (Groeneveld and Giovannoni, 1977) significantly impacted case outcomes. Ruynan et al. (1982) attributed these differences to a variety of factors: (a) the influence of the judicial system, which varied by county; (b) county differences in treatment preferences; (c) the financial resources available to provide services; and (d) the variance of social service and agency cultures within the state.

The DHHS (1997) found that children who resided in unsafe neighborhoods (47%) were more likely to be placed in foster care than children who lived in safe neighborhoods (27%). In addition, children from larger urban centers were more likely to be placed in foster care than children from rural areas. McMurtry and Lie (1992) suggested that the racial composition of a community might affect placement outcomes. They referred to a study by Jenkins and Diamond (1985) that examined the visibility hypothesis. According to the visibility hypothesis, the increased visibility of African American children who resided in predominantly Caucasian areas propelled them into care at high rates than other children. In examining this hypothesis, Jenkins and Diamond found that African American children generally stayed in foster care longer than Caucasian children did. However, the differences in length of stay disappeared in communities where African American children comprised a higher proportion of the population. The authors speculated that a higher proportion of African Americans in the population corresponded to a higher percentage of African American caseworkers, which might have resulted in more effective foster care services.

Wolock (1982) found that caseworkers' judgments of abuse varied according to the average severity of the caseload handled in the district offices. Wolock observed an almost perfect inverse correlation between the mean severity of the abuse (as measured by actual and potential harm to the child) in districts and workers' judgments of the severity of the case vignettes. District offices with more severe maltreatment caseloads judged case vignettes as less severe, and offices with less severe maltreatment caseloads judged the same vignettes as more severe. Staff characteristics did not vary significantly by district; thus they were ruled out as a reason for the different judgments. The results of Wolock's study supported the notion that typical or average cases in a district office's caseload served as a standard or reference point for judging the severity of cases. However, this finding holds only to the extent that case vignettes adequately reflected the way decisions were made.

Wolock (1982) further commented that district offices with less severe caseloads seemed to adopt more stringent criteria for making judgments than offices with more severe caseloads such that similar situations might be treated differently depending on the region. Characteristics of the caseload as an aggregate (i.e., mean severity of maltreatment caseloads), in addition to individual case characteristics, appeared to be a crucial element in determining judgments regarding the severity of a case and the level of intervention required. Families that resided in more advantaged areas could be given greater attention. Such families would probably receive more help with housing; child care; and financial, legal, medical, and other problems than families in disadvantaged areas. The use of less stringent criteria in more advantaged areas might result in more attention being paid to problems before they reach the crisis stage. Early detection could provide greater protection to more advantaged children before they are injured. If public child welfare is the only source of help for poor families and their needs were judged as less severe, poor families might be deprived of resources or services designed to alleviate their problems.

Season. Barth et al. (1994) maintained that the number of births was a highly seasonal variable and substantial fluctuations in the number of births could greatly affect the number of child abuse and neglect reports finalized during a month. Barth and his

colleagues reported that in California, a monthly increase of 1,000 births resulted in an increase of about 864 emergency response dispositions (a petition for ongoing judicial supervision if a child's safety is in jeopardy). Barth and his colleagues considered this data to suggest that an 86% increase in the number of newborns in the population resulted in another child being reported for child welfare abuse and neglect. Stated another way, for each increase in 100 newborns in the population, there was an increase of about 86 child abuse and neglect reports (p. 43). The authors acknowledged that there could be a substantial error in these birth coefficients. However, they also offered several possible explanations for this surprising result. Barth et al. (1994) suggested that the arrival of a newborn could trigger an event for other children in the family. Assuming two children per family, with both children reported to the investigative agency, this data suggested that a 40% increase in the number of newborns would result in the receipt of some child welfare service. Alternatively, these authors noted that some other variables unaccounted for in their model might also fluctuate in a similar fashion to births. Thus, births could be a proxy for young families with a greater risk of child abuse. In addition, the rise in additional births in the population might lead to problems in other families whose children were referred to the system.

Child Welfare Policies. Barth et al. (1994) stressed that child welfare policies and practices were responsible for much of what transpired in the child welfare system. Policies that emphasized permanency planning, the priority of relative foster care placement, changes in reporting practices, and alterations in the level of resources allocated for services had monumental effects on the number of children served by the child welfare system.

Summary

Table 2 lists the factors identified in the literature as affecting the placement decision. According to the literature, the bulk of the factors fell into four main categories: (a) safety factors; (b) child-related factors such as age, race, and emotional or behavior problems; (c) caretaker- and family-related factors such as mental illness,

substance abuse, family conflict, and poverty; and (d) characteristics of the child welfare system such as referral source, area of jurisdiction, and policies. However, the evidence is correlational in nature; it suggests that a relationship between the variables exists. At the same time, correlational evidence prohibits the determination of the causal nature of the relationship between the variables, as well as an explanation of how the relationship came about. An additional shortcoming of this body of literature relates to its overall failure to examine the nature of how these variables interact with one another. Thus, it is unclear whether these variables act independently of one another or combine to exert the observed effect. For example, does socioeconomic status act independent of single-parent status and race, or do these variables only produce the observed effects in conjunction with one another? Previous researchers have observed that race, class, and family structure are so interrelated that untangling them poses a monumental challenge.

Only 7 of the 30 factors listed below measure community or organizational inputs. It is suggested here that these variables play a much greater part in decision-making that the literature indicated. The fact that the majority of studies failed to examine these variables presents the possibility that such effects would have been found had they been measured. Their relatively modest influence on decision-making as indicated by the literature probably reflects researchers' failure to study them.

Table 2.
Frequency of Independent Variable Citations in the Literature

Variable	Results indicate an effect on the placement decision	Results indicate no effect on the placement decision
Socioeconomic status	8	1
Abuse and neglect	8	1
Family dysfunction	8	1
Caretaker mental illness	7	0
Substance abuse	6	0
Child's age	6	0
Child's emotional and behavioral problems	6	0
Race	6	2
Unwillingness to care for child	5	0
Geographic area	5	0
Family structure	5	2
Referral source	4	0
Severity of injury	4	3
Parenting ability	3	0
Parental characteristics	3	0
Prior A/N complaint record	3	0
Parent request for services	2	0
Placement history	2	0
Family size	2	0
Caretaker physical illness	2	0
Child's physical health problems	2	0
Risk to the child	2	1

Table 2.
Frequency of Independent Variable Citations in the Literature *(continued)*

Variable	Results indicate an effect on the placement decision	Results indicate no effect on the placement decision
Level of social support	1	0
Problem intensification	1	0
Time of removal	1	0
Caseworker–client contacts	1	0
Child welfare policies	1	0
Community-level conditions	1	0
Season	1	0
Gender	0	1

This research was conducted over more than 20 years. It is certainly possible that decision-making in child welfare has changed over this time frame. Most notably, the passage of the Adoption Assistance and Child Welfare Act of 1980 may have marked a significant change in child welfare decision-making. The Act's emphasis on permanency planning resulted in a significant decline in the number of children in foster care: The number of children in foster care fell from 500,000 in 1977 to 251,000 by 1983. The swift removal of children from foster care, increased focus on reunification, and an emphasis on family preservation services which sought to maintain children in their homes (Karger and Stoesz, 1998) probably impacted the foster care decision-making process. Although it is too soon to identify the effect, the Safe Families and Adoption Assistance Act of 1998 is also likely to have a significant impact on child welfare decision-making.

In addition to the issue of time, other factors may explain the contradictory results obtained for almost all of the variables discussed. The use of longitudinal versus cross-sectional designs would likely lead to different results. The methodologies employed included interviews, hypothetical case vignettes, surveys, computer tracking systems, and so on. The variation in approaches could have affected the outcomes obtained due to the strengths and weaknesses inherent in each methodology. For example, although

providing an excellent mechanism for the control of the variables examined, case vignettes might not reflect real world practice because caseworkers generally have more information to consider than the variables included in the vignettes. On the other hand, secondary data sources such as computer tracking systems and case-records have limited flexibility in terms of specification of predictor variables. Data gathered for other purposes may not precisely fit the purposes of the researcher. In addition, secondary data may not allow for the examination of certain important family, worker, and environmental variables.

The lack of the use of random sampling may also explain some of the discrepancies in the results. It would be expected that a proportion of the samples drawn would differ significantly from the population they were purported to represent in important ways. The samples used probably differed in terms of the degree of bias that affected the conclusions. The samples also differed in size. They were comprised of persons with different proportions of characteristics that could have affected the results. Varying compositions in terms of ethnicity, reason for referral, or socioeconomic status are likely yield different results. In addition, some researchers relied solely on subjects who were in the first substitute care placement, but others did not make this distinction. Furthermore, these studies spanned the entire country. Some samples used national data; others focused on diverse states such as New York, New Jersey, California, Illinois, and Texas; others were more localized. Therefore, the results obtained for one study may pertain to specific regions of the country, but not to other parts of the country. Also, the use of urban versus rural locations most likely impacted the results obtained.

Moreover, the statistical methods employed by the researchers varied greatly. Some statistics, especially those employed in later studies, may be more sensitive in detecting the differential effects of variables. Also, none of the models that were derived explained all of the dependent variable's variance. The percentage of the variance explained ranged from 20% to 80%, which means that even in the most accurate models, a substantial portion of the variance in placement decisions was left unexplained. The operationalization of the variables also varied between studies. Different definitions of poverty, family dysfunction, socioeconomic status, etc. would logically lead to variations in findings. Some studies did not examine certain influential variables at all. For

example, studies that did not examine race or socioeconomic status provided no opportunity to find that these variables superseded others in importance in determining placement outcomes. Notably, many studies failed to examine organizational and community variables, providing no means to measure their effect.

METHODOLOGY

This study employed a retrospective cross-sectional design using data obtained from IDCFS Integrated Database maintained by the Chapin Hall Center for Children at the University of Chicago. The independent variables were selected by reviewing child welfare decision-making literature regarding the decision to place children in foster care. English (1997) noted that the factors that influence child welfare decision-making varied according to the decision. Therefore, only the literature concerning the decision to place children in foster care was evaluated. Furthermore, because this project was concerned with caseworkers' actual decision-making, only empirical studies (as opposed to theoretical works) were reviewed.

Children with an "indicated" (founded) child and neglect abuse report who received in-home services (intact family cases) and children with an "indicated" abuse and neglect report who were placed in foster care (child cases) were examined in this study. These groups of children were compared to determine factors that differentiated children with indicated child abuse reports who were allowed to remain in their homes from those who were placed in foster care.

Data were analyzed using forward conditional logistic regression and CART analysis. Logistic regression analysis was used because the dependent variable was dichotomous. The model obtained by logistic regression predicted the probability that a certain child would be placed in care based on other variables in the model.

CART analysis was utilized to uncover the predictive structure of the data. CART analysis provides an understanding of the variables and the interactions between variables that explain the placement decision by determining whether an object is in one class or the other. This is accomplished by repeatedly splitting the data into subsets, or classes. Once the best split for the entire data set is found, the procedure searches for the

next best split in each of the descendant nodes. This process occurs until no more good splits are found.

Study Population

Two groups of children were chosen. The first group was those children who were placed after an indicated report of abuse or neglect, or child cases. Only those cases that opened with a first placement in (a) foster home boarding care (FHB), (b) foster home private agency care (FHP), (c) foster home specialized care (FHS), or (d) home of relative care (HMR) were selected. Children with an indicated report of abuse or neglect in an "intact family" case, made up the second group defined as those cases in which the family as a whole received services from DCFS, and had no children from that family in DCFS custody at the time of the case opening. The intact portion of the sample served as a comparison group.

Only those children less than 18 years of age at the time of the case opening were selected. Second, the sample was limited to those cases that represented the child's first case opening in Children and Youth Centered Information System (CYCIS). Third, only cases opened in fiscal years 1996 and 1997 were selected. Restriction of data collection to this period helps ensure that the results more accurately reflect current DCFS practices.

A report "associated with a case opening" was defined as an indicated report made between 60 days prior to the case opening date and up to 10 days after the case opening date. The parameter of 60 days prior to the case opening date was selected because DCFS regulations stipulate that a child abuse investigation must be completed within 60 days of a child abuse and neglect report. The 10 days post–case opening parameter allowed for paperwork delays on the part of caseworkers. For both child and family cases, where there were multiple children, one child was randomly selected from each family to ensure that the observations were independent.

The resulting data set consisted of 4,147 children who were placed into care and 10,135 children in "intact family" cases. A random sample from these groups was drawn for the purpose of model development. A second sample was drawn in order to test the model.

Sample Size. Random samples were selected to meet the criterion of 95% certainty that the estimated parameter was within 3% of the true value. This resulted in a sample of 1,806 cases to develop the model: 964 children from intact cases and 842 children from placement cases. The criterion for selection of the sample to be used for model testing was increased to 99% certainty that the estimated parameter was within 2% of the true mean, resulting in a sample of 4,946 cases consisting of 2,902 children from intact cases and 2,044 children from child cases.

Variable Selection. The dependent variable in this study was whether the child was admitted into substitute care or remained at home. The independent variables in this study were factors identified in the literature as impacting the decision to admit children into foster care that were also available in the database.

Of the variables identified in the literature, the following were available in the administrative database:

(a) child's age,

(b) child's race,

(c) geographic area (team, county, region),

(d) severity of injury as defined by the number of allegations in the most recent report and the most severe allegation in the most recent report,

(e) family structure (never married, married, divorced),

(f) initial reporter,

(g) caretaker characteristics (age, race),

(h) prior abuse or neglect complaint record (number of previous total allegations, number of previous indicated allegations),

(i) caseworker–client contacts (number of home visits, number of other caseworker contacts),

(j) child gender, and

(k) caretaker and child relationship.

Although the database did not contain income data, the child's zip code provided a vehicle for obtaining income data from the 1990 U.S. census, namely, information on the median household income and the percentage of households on public assistance for each zip code in Illinois. In addition, the number of Caucasians, African Americans, and poor people residing in each zip code area provided a basis for calculating the percentage of poor Caucasians and African Americans residing in each zip code. Thus, data on the median household income, percentage of households on public assistance, and the percentage of poor Caucasians and poor African Americans residing in each area was incorporated into the data file.

Independent Variables Used In This Analysis

The following variables, which were identified through the literature review as influencing the decision to place a child, were also available in the administrative database and were used in this study.

Gender. Child and caretaker gender was identified as female and male.

Age. Child age was classified into six categories. The frequency distribution of the data revealed that 25.1% of the children in the sample were less than 6 months of age. Thus, children less than 6 months old were placed in one category. The remaining age categories were divided into 3-year increments that reflected categories typically used by DCFS for reporting purposes. The categories were as follows: (a) infant (0–6 months); (b) toddler (6.1 months–2.99 years); (c) 3 (3– 5.99 years); (d) 6 (6–8.99 years); (e) 9 (9–11.99 years), (f) 12 (12–14.99 years); and (g) 15 (15–17.99 years).

Race. Child and caretaker race were categorized as follows (a) White, (b) Black, (c) Hispanic (Hispanic American, Hispanic Cuban, Hispanic Mexican, Hispanic Puerto Rican, and Hispanic Spanish), (d) other (Native American, Asian, other race), and (e) missing (not reported and unknown).

Family Structure. Family structure was identified as (a) never married, (b) divorced (separated, divorced, widowed), and (c) married.

Regions. The assigned sub-regions in the data base were coded into the following four regions: (a) Northern (Rockford 1A and Aurora 2A); (b) Central (Springfield 3A, Peoria 1B, and Champaign 3B); (c) Southern (Marian 5A and East St. Louis 4A); and (d) Cook County (Cook North 6B, Cook County Central 6C, Cook County South 6D, and Chicago 2B). All Cook County regions were coded into a single category. Department reorganization during the 2-year period of this study prohibited the use of Cook County sub-regions.

Caretaker–Child Relationship. The relationship of the caretaker and the child was categorized as natural parent and other relative (aunt, uncle, grandparent, sibling, stepparent, other relative, and relative home).

Referral Source. The referral source initial reporter was of the child abuse or neglect. The mandated reporter category consisted of professionals who work with children in the course of their professional duties. The six groups of mandated reporters included (a) medical personnel; (b) school personnel; (c) state agency, social service, and mental health personnel; (d) law enforcement personnel; (e) coroner or medical examiner personnel; and (f) child care personnel.

Investigator/Caseworker Contacts. The number of home visits and the number of other contacts were originally continuous variables. However, the distribution of this variable suggested transforming them into dichotomous variables. Therefore the number of home visits was categorized into a dichotomous variable with the values of 0 home visits and 1 or more home visits. The number of other investigator contacts was similarly coded into a dichotomous variable with the values of 0 to 3 contacts, or 4 or more contacts.

Child Abuse and Neglect Complaint Record. A child's prior abuse and complaint record was operationalized as the number of total allegations and the number of indicated (founded) allegations before the case opening. In addition, the number of total indicated reports associated with each child was examined.

The total number of previous indicated allegations was categorized as either no previous indicated allegation or 1 or more indicated allegations. The number of previous total allegations was categorized as either no previous allegation or 1 or more previous allegations.

Severity of Most Recent Report. The number of allegations and the type of allegation in the report that was most closely associated with the child's case opening were used as measures of severity. The frequency distribution suggested that the number of allegations be coded into a dichotomous variable with the values of 0 to 2 allegations, and 3 or more allegations.

The severity of the allegations in the most recent report was calculated using the Bilaver-Testa Severity Index. The index, developed jointly by DCFS and the Chapin Hall Center for Children, is frequently used for outcome reporting purposes. The index was developed by grouping similar allegations into a single category and then assigning a number that indicates the relative degree of severity, from 1 to 8. The index in order of severity is (1) sexual abuse (sexually transmitted disease, sexual penetration, sexual exploitation, sexual molestation); (2) physical abuse (death; brain damage/skull fracture; subdural hematoma; internal injuries; burns/scalding; poison/noxious substance; wounds; malnutrition; bone fractures; excessive corporal punishment; cuts, bruises, and welts; human bites; sprains/dislocations); (3) substance-exposed infants (substance misuse); (4) emotional abuse (tying/close confinement, torture, mental injury); (5) lack of supervision (inadequate supervision, abandonment, lock-out); (6) environmental neglect (inadequate food, shelter, and clothing; environmental neglect); (7) other neglect (lack of supervision, medical neglect, educational neglect, failure to thrive, other neglect, medical neglect of disabled infants); and (8) substantial risk of harm (substantial risk of physical injury).

The scale was used to calculate the severity of the most serious allegation in the most recent report. For purposes of model development, the Bilavar-Testa index did not

proved adequate. To improve the interpretability of the model, the decision was made to examine each category of severity as an independent variable. Thus, the following types of allegations were examined in this study: (a) substantial risk of harm, (b) other neglect, (c) environmental neglect, (d) lack of supervision, (e) substance-exposed infants, (f) physical abuse, and (g) sexual abuse. Emotional abuse was alleged to be the most serious allegation for only 10 children in the sample; therefore, emotional abuse was not included in this study.

Poverty. The four measures of poverty chosen from the U.S. census data included median household income, percentage of households on public assistance, and percentage of African American and Caucasian poor residents. These factors were tested for significance individually and as a group. None of the variables was statistically significant. A factor analysis of the variables revealed that three of the variables comprised one factor. Therefore, these three were turned into one factor and that factor served as the measure of poverty in the study. The variables that comprised the poverty factor were percentage of households on public assistance, percentage of poor African Americans, and percentage of poor Caucasians residing in each zip code area.

Data Analysis

Data were analyzed using forward logistic regression and CART analysis. Logistic regression analysis was used because the dependent variable was dichotomous: only two values were possible (0, 1). The logistic regression model predicts whether an event happened or not. For the purposes of this study, logistic regression analysis expressed whether a child was placed into foster care or not. Logistic regression allowed the use of both categorical and continuous independent variables.

Classification and regression tree analysis was used to uncover the predictive structure of the data. The SPSS AnswerTree software program was used to perform the CART analysis. CART analysis provided an understanding of the variables and the interactions between variables that drove the phenomenon by determining whether an object was in one class or the other. The software repeatedly splits the data into subsets,

or classes. Once the best split for the entire data set is found, the computer searches for the next best split in each of the descendant nodes.

Findings

This study employed a retrospective cross-sectional design using administrative data. The decision-making model was developed using logistic regression and random samples from populations of new intact (n=10,135) and placement cases (n=4,147) during fiscal years 1996 and 1997. The logistic regression model was then tested with a second random sample. CART analysis was also used to gain additional insight into the interactions between the variables.

The data for this study were obtained from IDCFS Integrated Database maintained by the Chapin Hall Center for Children at the University of Chicago. The major research question concerned the identification of factors that contributed to the decision to place children in foster care. The independent variables for this study were selected by reviewing empirical literature regarding the foster care placement decision. The variables identified in the literature that were available in the database included the following:

* child characteristics (age, gender, race),
* caregiver characteristics (age, gender, race),
* family structure (never married, married, divorced),
* the caregiver and child relationship (biological parent, relative),
* previous allegation history (the number of previous total allegations, the number of previous indicated allegations),
* the severity of the most recent allegation (the number of allegations in the most recent report, the type of allegation identified as most severe in the most recent report),

* case processing variables (initial reporter, the number of investigator home visits, the number of other investigator contacts), and
* DCFS region.

The administrative database did not contain income data. However, the child's zip code provided a vehicle to link U.S. census data to each child. The percentage of poor African Americans and poor Caucasians residing in each zip code, as well as the percentage of households on public assistance in each zip code, were obtained from the census data.

Study Population

The study population consisted of two groups of children. The first group was children with an indicated child abuse or neglect report who remained at home (intact family cases). The second group was children with a substantiated abuse and neglect report who were placed in foster care (child cases). This study population was identified from the Integrated Administrative Database. First, only those children less than 18 years of age at the time of the case opening were selected. Second, the sample was limited to those cases that represented the child's first case opening in CYCIS. Third, only cases opened in fiscal years 1996 and 1997 were selected.

For children who were placed, only those cases that opened with a first placement in (a) foster home boarding care (FHB), (b) foster home private agency care (FHP), (c) foster home specialized care (FHS), or (d) home of relative care (HMR) were selected. The second type of case was an "intact family" case, defined as those cases in which the family as a whole received services from IDCFS, and had no children from that family in IDCFS custody at the time of the case opening. The resulting data set consisted of 4,147 children who were placed in foster care and 10,135 children who received services in the home.

Sample

A random sample of cases was selected from each group for purposes of developing the placement decision model. This sample was selected to meet the criterion

of 95% certainty that the estimated parameter was within 3% of the true value. Consequently a random sample of 1,806 cases was drawn for the purposes of model development. This sample consisted of 842 children who were placed in foster care and 964 who received services in their home.

Once the model was developed it was tested on a sample that met the criterion of 99% certainty that the estimated parameter was within 2% of the true value. A random sample of 4,946 cases was used: 2,044 children who were placed in foster care and 2,902 children who remained in their homes.

Demographic Profiles of Children and Caregivers

Demographic characteristics of children and caregivers for the placement cases were compared to those in intact family cases. For children, age, gender, race, family structure, and poverty status were examined. For caregivers, age, gender, and race were examined.

Child's Age. For the purposes of analysis, the children were divided into the following age categories: (a) infants (0–6 months); (b) toddler (6.1 months – 2.99 years); (c) 3 (3–5.99 years); (d) 6 (6–8.99 years); (e) 9 (9–11.99 years); (f) 12 (12–14.99 years); and (g) 15 (15–17.99 years). Chi-square analysis reveals that there is an association between the age of the child and placement in foster care (X^2=51.372, df=6, p=.00) (Table 3).

The largest differences between the groups were for the youngest and oldest children. For those children who were placed in foster care, 32% were 6 months of age or younger, compared to 19% of children who remained at home. Only 21.3% of the children who were placed in foster care were 9 years of age or older, compared to 32.3% of the children who received services at home.

Table 3.
Children in Placement and Intact Family Cases (by age)

Age in years[a]	Placement		Intact		Total	
	n	%	n	%	n	%
0–.5	270	32.1	184	19.1	454	25.1
.51–2.99	168	20.0	180	18.7	348	19.3
3–5.99	128	15.2	176	18.3	304	16.8
6–8.99	97	11.5	145	15.0	242	13.4
9–11.99	67	8.0	129	13.4	196	10.9
12–14.99	63	8.0	91	13.4	154	10.9
15–17.99	45	5.3	53	5.5	98	5.4
Total	838		958		1,796	

[a] X2=51.37, df=6, p=.00.

Child's Gender. The groups were essentially equivalent in terms of gender. For all cases, 50.1% of the children were female and 49.9% were male. Half (421) of the children who were admitted to foster care were female and half (421) were male. Similarly, 50.1% (483) of the children who remained at home were female and 49.9% (481) were male.

Child's Race. There were differences between the two groups in terms of race (X^2=51.17, df=4, p=.00) (Table 4). A slightly higher percentage of the children who were placed in foster care (53.7%) were African American compared to the children who received services in their homes (45.7%). A slightly lower percentage (38%) of the children who were placed in foster care were Caucasian compared to the children who received services in their homes (42%). Hispanic children comprised a very small proportion of the sample. Only 47 (5.6%) of the children who were placed in foster care were of Hispanic origin. Similarly, only 83 (8.6%) of the children who received services in their homes were of Hispanic origin.

Table 4.
Children in Placement and Intact Family Cases (by race)

Child's race[a]	Placement		Intact		Total	
	n	%	n	%	n	%
White	320	38.0	405	42.0	725	40.1
Black	452	53.7	441	45.7	893	49.4
Hispanic	47	5.6	83	8.6	130	7.2
Other	16	1.9	28	2.9	44	2.4
Missing	7	.8	7	.7	14	.8
Total	842		964		1,806	

[aX] X2=51.171, df=4, p=.00.

Family Structure. There were differences between the groups in terms of family structure (X^2=26.15, df=4, p=.00) (Table 5). A higher percentage of placement children came from families in which the parents were never married (46.3%), compared to 36.2% of the children who received services in their homes. Single-parent families were more prevalent in the placement group. Approximately 55% (46.3 never married and 8.6 divorced) of the placement children came from single-parent households, compared to 47% (36.2% never married and 10.5% divorced) of the children who remained in their homes.

Table 5.
Children in Placement and Intact Family Cases (by family structure)

Family type[a]	Placement		Intact		Total	
	n	%	n	%	n	%
Never married	390	46.3	349	36.2	739	40.9
Divorced	72	8.6	101	10.5	173	9.6
Married	122	14.5	189	19.6	311	17.2
Missing	254	30.2	325	33.7	579	32.3
Total	842		964		1,806	

[aX2] =26.154, df=4, p=.00

Poverty. Since the database does not contain income data, the poverty measures used in this study were obtained from the 1990 U.S. census. The census data contained information on the percentage of households on public assistance in each zip code area and figures for the number of African American, Caucasian, and poor people residing in the zip code area. This information provided a basis for calculating the proportion of poor African Americans and poor Caucasians residing in each area.

The mean poverty measures were comparable for the two groups of children. The mean percentage of Caucasian children from poor zip code areas who were placed in foster care was 12.6% and the mean percentage who remained at home was 12.7%. T-tests revealed that this difference was not significant (t=.35, p=.726). The mean percentage of African American children who came from poor zip code areas who entered foster care was 30.6% and the mean percentage who remained at home was 31.6%. T-tests revealed that this difference was not significant (t=.93, p=.35).

The two groups of children did not differ significantly (t=.58, p=57) in terms of the mean percentage of households that were on public assistance in their zip code area. The mean percentage of households on public assistance for the children who entered foster care was 13.2% and the mean percentage for children who received services in their own homes was 13.5%.

Regions. Table 6 indicates an association between the region and the decision to place (X^2=21.37, df=4, p=.00). A slightly larger percentage (46.4%) of the children who remained at home resided in Cook County compared to the percentage of children who were placed in foster care (42.4%). Twenty percent of the children who were placed in foster care resided in the Northern region; 26.5% resided in the Central region; and 9.5% resided in the Southern region. In comparison, 15.8% of the children who remained in their homes resided in the Northern region; 21.7% resided in the Central region; and 14.5% resided in the Southern region.

Table 6.
Children in Placement and Intact Family Cases (by department region)

Region[a]	Placement		Intact		Total	
	n	%	n	%	n	%
Cook	357	42.4	447	46.4	804	44.5
Northern	172	20.4	152	15.8	324	17.9
Central	223	26.5	209	21.7	432	23.9
Southern	80	9.5	140	14.5	220	12.2
Total	842		964		1,806	

[a] X^2 =21.37, df=4, p=.00

Caregiver's Gender. Chi-square analysis reveals an association between the gender of the caregiver and placement in foster care (X^2=12.94, df=1, p=.00). A larger percentage (78.3%) of the caregivers of children in placement were female compared to the percentage of caregivers of the children who remained at home (70.9%).

Caregiver's Race. Table 7 reveals that caregiver's race differs between the two groups (X^2=25.08, df=5, p=.00). A larger percentage of the caregivers of the children in placement were African American (52.6%) compared to the percentage (45.3%) of caregivers of the children who remained in the home. Forty percent of the caregivers of the children in placement were Caucasian compared to 43.8% of the caregivers of children who remained in their homes. A slightly larger percentage of the caregivers of children who remained at home were Hispanic (8.7%) compared to the percentage (5.6%) of caregivers of the children who were placed in foster care.

Table 7.
Caregivers of Children in Placement and Intact (by race)

Caregiver's race	Placement		Intact		Total	
	n	%	n	%	n	%
White	342	40.6	422	43.8	764	42.3
Black	443	52.6	437	45.3	880	48.7
Hispanic	47	5.6	84	8.7	131	7.3
Other	4	1.5	4	1.5	15	.8
Missing	6	.7	7	.7	13	.7
Total	842		964		1,806	

[a] X^2 =25.08, df=5, p=.00.

Caregiver's Age. T-tests revealed that the mean ages of the caregivers of the two groups of children were not significantly different (t=1.12, p=.26). The mean age of the caregivers of the children who were placed in foster care was 30.3 years and the mean age of the caregivers of the children who remained in their homes was 30.7 years.

Caregiver's Relationship to the Child. No differences between the two groups in terms of the caregiver's relationship to the child (X^2=5.87, df=3, p=.12) were found. Approximately 88% of the caregivers of the children who were placed in foster care were the children's biological parents. Similarly, 84% of the caregivers of the children who remained at home were the children's biological parents. Approximately 6% (5.9%) of the caregivers of the placement children were relatives, and 8.4% of the caregivers of the children who remained at home were relatives. Relatives were defined as aunts, uncles, grandparents, siblings, stepparents, and " relative home" caregivers.

Table 8.
Caregiver's of Children in Placement and Intact (by relationship to the child)

Relationship	Placement		Intact		Total	
	n	%	n	%	n	%
Biological parent	739	87.8	810	84.0	1,549	85.8
Relative	50	5.9	81	8.4	131	7.3
Parent substitute	36	4.3	46	4.8	82	4.5
Other	27	2.0	17	2.8	44	2.4
Total	842		964		1,806	

[a] $X2$ =5.87, df=3, p=.12

Allegation History

Three variables were created to measure a child's allegation history: the number of previous indicated allegations, the number of total allegations, and the number of indicated reports associated with each child prior to the case opening.

Total Number of Previous Allegations. The total number of previous allegations ranged from 0 to 13. Since this is a highly skewed distribution, this variable was categorized as 0 and 1 or more allegations. Nearly 66% of the children in the sample had no previous allegation. There was an association between the existence of a previous allegation and the decision to place (X^2=-7.86, df=1,804, p=.00) (Table 9). Almost 75% of the children who remained at home had no previous allegation, yet only 55% of the children who were placed in foster care had no previous allegation. In contrast, 44.7% of the children who entered foster care had one or more previous allegations, but only 25.3% of the children who remained at home had one or more previous allegations.

Number of Previous Indicated Allegations. The number of previous indicated allegations ranged from 0 to 11. Since this is a highly skewed distribution, this was categorized as 0 and 1 or more allegations. The number of previous indicated allegations

and the decision to place were associated (X^2=-7.86, df=1,804, p=.00) (Table 9). Eighty-three percent of the children who received services in their home had no previous substantiated allegation. However, only 63.2% of the children who were placed in foster care had no previous substantiated allegation.

Number of Previous Indicated Reports. Nearly 66% of the children in the sample had no previous substantiated report. This variable was also categorized as 0 previous indicated reports and 1 or more indicated reports. Chi-square analysis suggests an association between the existence of a previous indicated report and placement in care (X^2=73.74, df=1, p=.00) (Table 9). Nearly 75% of the children who remained at home did not have a previous indicated report, compared to only 55.5% of the children in placement.

Table 9.
Chi-square Analysis of Allegations

	Placement (n=842)		Intact (n=964)		Chi-square statistic
	n	%	n	%	
Number of previous total allegations					
0	466	55.3	720	74.7	X^2=74.600,
1 or more	376	44.7	244	25.3	df=1, p=.00
Number of previous indicated allegations					
0	532	63.2	800	83	X^2=91.067,
1 or more	310	36.8	164	17	df=1, p=.00
Number of previous indicated reports					
0	467	55.5	720	74.7	X^2=73.744,
1 or more	375	44.5	244	25.3	df=1, p =.00

Severity of the Most Recent Report

Two variables were created to serve as indicators of the severity of the report most closely associated with the child's case opening. The first indicator was the number of allegations in the report. The second indicator of severity was the type of allegation identified as most severe in the most recent report.

Number of Allegations. The first indicator of the severity of the report that was most closely associated with the child's case opening was the number of allegations in the most recent report. The number of allegations in the most recent report was recoded into a dichotomous variable for data analysis purposes (1 or 2 allegations, or 3 or more allegations). Table 10 shows that children who received services in their home had a smaller number of allegations associated with the most recent report (X^2=23.42, df=1, p=.00) compared to children who entered foster care. Approximately 75% of the most recent reports of the children placed in foster care contained 1 or 2 allegations, with 25% containing 3 or more. In comparison, 65% of the most recent reports of the children who remained at home contained 1 or 2 allegations, with 35.1% containing 3 or more.

Table 10.
Number of Allegations in the Most Recent Report

	Placement (n=842)		Intact (n=964)		Chi-square Statistic
	n	%	n	%	
Number of allegations in most recent report					
1–2	635	75.4	626	64.5	X^2=23.418,
3 or more	207	24.6	338	35.1	df=1, p=.00

Most Severe Allegation. The severity of the allegation was determined by using the Testa-Bilavar Severity Index. To construct this variable, the allegations in the

database were grouped into eight categories. The categories, listed in the order of severity, are

* sexual abuse,
* physical abuse,
* substance-exposed infants,
* emotional abuse,
* lack of supervision,
* environmental neglect,
* other neglect, and
* substantial risk of harm.

Sexual abuse was recorded as the most severe allegation for 6.5% of the children in the sample (Table 11). Physical abuse was the most severe allegation for 14.4% of the children, and substance-exposed infant was the most severe allegation for 14.9% of the children. Emotional abuse was the most severe allegation for 6% of the children; lack of supervision for 25.9% of the children; environmental neglect for 9% of the children; other neglect for 3.8% of the children; and substantial risk of harm for 24.6% of the children.

For children who remained at home, the most severe allegations were more likely to be sexual abuse, physical abuse, environmental neglect, and other neglect. Nearly 9% of the case openings of the children who remained at home were associated with a sexual abuse allegation, compared to 3.8% of the case openings of children who were placed in foster care. Eighteen percent of the case openings of children who remained in their home were associated with physical abuse, although only 10.2% of the case openings of the children who were placed in foster care were. The case openings of children who remained at home were also more likely to be associated with the allegations of environmental neglect (11.2% vs. 6.5%) and other neglect (4.9% vs. 2.5%).

In contrast, the case openings of the children who were placed in foster care were more likely to be associated with the lack of supervision and substantial risk of harm.

Thirty percent of the case openings of the children who were placed in foster care were associated with the allegation of a lack of supervision, compared to only 22% of the cases of children who remained at home. In addition, the case openings of children placed in foster care were more likely to be associated with an allegation of a substantial risk of harm (30.8% vs. 19.3%).

The allegation of a substance-exposed infant was equally likely to be associated with the case openings of both groups of children. Fifteen percent of the case openings of the children who remained in their home were associated with an allegation of a substance-exposed infant, compared to 14.7% of the cases of children who were placed in foster care.

Table 11.
Type of Allegation Identified as Most Serious in the Most Recent Report

Allegation type	Placement		At home		Total	
	n	%	n	%	n	%
Substantial risk of harm	259	30.8	186	19.3	445	24.6
Other neglect	21	2.5	47	4.9	68	3.8
Environmental neglect	55	6.5	108	11.2	163	9.0
Lack of supervision	256	30.4	211	21.9	467	25.9
Emotional abuse	5	.6	5	.5	10	.6
Substance-exposed infant	124	14.7	145	15.0	269	14.9
Physical abuse	86	10.2	174	18.0	260	14.4
Sexual abuse	32	3.8	85	8.8	117	6.5
Total	838		961		1,799	

[a] X^2=90.93, df=7, p=.00

Child Welfare System Variables

Three variables were constructed: the person making the initial report, the number home visits made by the investigator, and the number of other contacts made during the process of investigation.

The Initial Reporter. Mandatory reporters are professionals who potentially work with children in the course of their professional duties. In Illinois, medical personnel, school personnel, stage agency personnel, mental health personnel, law enforcement personnel, child care personnel, coroners, and medical examiners are legally required to report cases of suspected abuse and neglect. The overwhelming majority of the children (76.1%) were initially reported by mandatory reporters. More specifically, 30.2% of the mandatory reporters were medical personnel; 20% were law enforcement personnel; 10.4% were state agency or mental health personnel; 9.2% were school personnel; 6.2% were DCFS personnel; and .9% were child care personnel. Family and friends made up the second largest category of reporters. Fifteen percent of the cases were reported by family and friends.

A larger percentage of the children who entered foster care were initially reported by mandatory reporters (80.3%) compared to the children who remained at home (72.4%) (Table 12). Slightly more of the children who remained in their homes were initially reported by family and friends (17.6%) compared to the children who were placed in foster care (12.8%). Finally, a larger proportion of the children who were placed in foster care were initially reported by law enforcement personnel (33.4%) compared to the children who received services in the home (27.5%). Chi-square analysis suggests a significant relationship between the type of reporter and the placement decision (X^2=82.51, df=8, p=.00).

Table 12.
Comparison of Initial Reporters

Reporter type	Placement		Intact		Total	
	n	%	n	%	n	%
Medical	281	33.4	265	27.5	546	30.2
Law enforcement	165	19.6	197	20.4	362	20.0
School personnel	45	5.3	122	12.7	167	9.2
Family and friends	108	12.8	170	17.6	278	15.4
State agency and mental health	102	12.1	85	8.8	187	10.4
Anonymous	38	4.5	68	7.1	106	5.9
DCFS	83	9.9	29	3.0	112	6.2
Child care	6	.7	10	1.0	16	.9
Other	13	1.5	18	1.9	31	1.7
Total	841		964		1,805	

[a]X^2=82.51, df=8, p=.00

Investigator Home Visits. The database also contained information on the total number of home visits made during the abuse or neglect investigation. This variable was categorized as 0 home visits and 1 or more. A difference between the two groups in terms of the number of home visits (X^2=139.11, df=1, p=.00) was discovered. Investigators did not visit the homes of almost 36% of the children who entered foster care, compared to only 12% the homes of children who were not placed.

Other Investigator Contacts. The administrative database also contained information on the total number of other caseworker contacts made during the investigation. This variable was categorized as 0 to 3 contacts and 4 or more contacts. Examples of other contacts include communication with friends, neighbors, relatives, or other professionals working with the family. During the abuse and neglect investigation, investigators made more other contacts when the child was placed in foster care than when the child remained at home (X^2=90.602, df=1, p=.00). Investigators made 0 to 3 contacts in 78% of the cases that resulted in the receipt of services in the homes

compared to 58% of cases where the child was placed. Investigators made 4 or more contacts in 43% of the placement cases, compared to only 22% of the cases that resulted in the receipt of services in the home.

Table 13.
Comparison of Investigator Home Visits and Other Contacts

	Placement (n=842)		Home (n=964)		Chi-square Statistic
	n	%	n	%	
Investigator home visits					
0	302	35.9	119	12.3	X^2=139.11,
1 or more	540	64.1	845	87.7	df=1, p=.00
Other investigator contracts					
0–3	484	57.5	755	78.3	X^2=90.60,
4 or more	358	42.5	209	21.7	df=1, p=.00

MODEL DEVELOPMENT

The model building process focused on seeking the most parsimonious collection of variables that differentiated children who were placed in foster care from those who remained at home. The initial stage of model building followed the strategy suggested by Dattalo (1994). Dattalo recommended that the relationship between prospective independent variables and the dependent variable be examined prior to the logistic regression analysis. He recommended the use of an alpha level of .15 as a screening criterion to ensure that important variables were identified. Each independent variable was entered into the logistic regression analysis singly to determine if it was related to the dependent variable. The independent variables that were not related to the dependent variable at the .15 significance level were excluded from further analysis. Table 14

presents the significance level for the variables that were included in the logistic regression equation.

Table 14.
Relationship Between Independent Variables and the Decision to Place

Variable	Significance
Child's age	
0–6 months	.00
.5–3 years	.00
3–6 years	.08
6–9 years	.03
9–12 years	.00
12–15 years	.00
Child's race	
White	.08
Black	.00
Hispanic	.01
Caretaker's gender	
Female	.00
Caretaker's race	
Black	.00
Hispanic	.01
Parent's martial status	
Never married	.00
Caregiver's relationship	
Parent	.02
Relative	.04
Number of previous indicated reports	.00
Number of previous indicated allegations	.00
Number of previous total allegations	.00
Number of allegations in most recent report	.00

Table 14.
Relationship Between Independent Variables and the Decision to Place *(continued)*

Variable	Significance
Most severe allegations in most recent report	
Sex abuse	.00
Physical abuse	.00
Lack of supervision	.00
Environmental neglect	.00
Risk of harm	.00
Other neglect	.01
Reporter	
Mandatory	.00
Medical	.01
Family/friends	.00
Number of home visits	.00
Number of other contacts	.01
Region	
Northern	.01
Southern	.00
Central	.02
Cook County	.09

Model Development

Initially, hierarchical logistic regression was used to identify predictors of placement in foster care versus predictors of the receipt of services in the home. In this procedure, the variables were entered in separate blocks according to the frequency in which they appeared in the literature. However, hierarchical regression did not result in a model that was either parsimonious or interpretable. Therefore, forward stepwise logistic regression was utilized to build a model.

The model was built using the SPSS forward conditional logistic regression default setting. The SPSS default setting specifies a .05 probability for stepwise entry

and a .10 probability for stepwise removal. In addition, a .5 classification cut-off is established and a maximum of 20 iterations is performed. Norusis (1997) describes the forward stepwise regression procedure in the following manner:

> Initially the model contained only the constant. At each successive step, the variable with the smallest significance level for the score statistic, provided it was less than the chosen cutoff value, 0.05, was entered in the model. All of the variables that were entered in the forward stepwise block were examined to determine whether they met the removal criteria. If no variable met removal criteria, the next eligible variable was entered into the model. However, if a variable was selected for removal and it resulted in a model that had already been considered, variable selection stopped. Otherwise, the model was estimated without the deleted variable and the variables were again examined for removal. This continued until no more variables were eligible for removal. The variables were again examined for entry into the model. The process continued until either a previously considered model was encountered or no variables met entry or removal criteria. (p. 53)

Forward conditional logistic regression analysis yielded a model that contained 15 predictor variables. However, 3 of the variables contributed very little to the ability of the model to accurately classify the children. The principle of parsimony, a minimal number of variables in the final model, is an important criterion in determining the quality of a statistical procedure's performance. Thus the model (Table 15) consisted of the 12 variables with the most predictive power. As a group, the variables classify 75.2% of the cases correctly. Eighty-two percent of the intact family cases were correctly classified compared to 68% of the placement cases.

Table 15.
Logistic Model

Variable	B	S. E.	Sig	R	Exp (B)
Home visits	-1.04	.14	.00	-.15	.35
Number of previous indicated allegations	.28	.05	.00	.10	1.32
Infant	1.33	.15	.00	.17	3.77
Number of contacts	.97	.13	.00	.15	2.65
Number of allegations in the most recent report	-0.89	.15	.00	-.12	.41
Number of previous indicated reports	1.13	.17	.00	.13	3.09
Lack of supervision	.96	.14	.00	.13	2.62
Risk of harm	.71	.14	.00	.10	2.04
Never married	.45	.11	.00	.07	1.56
Toddler (age .5–3 years)	.44	.15	.00	.05	1.56
Nine (9–12 years)	-.58	.20	.00	-.05	.56
Reporter—family and friends	-.45	.16	.01	-.05	.64

The number of investigator visits to the home and the number of other investigator contacts are complex predictors of placement outcomes. One or more investigator's visits to the home decrease the probability of the child being placed in foster care by 65%. Four or more other contacts during the investigation increases the probability of placement in foster care. Indeed, when investigators make 4 or more other contacts, a child is 2.7 times more likely to be placed in foster care than when the investigator makes 3 or fewer other contacts.

A child's allegation history is predictive of the placement decision. Children with a previous indicated allegation are more likely to be placed in foster care. The logistic regression model showed that if a child had a previous substantiated allegation of abuse or neglect, the child is 1.3 times more likely to enter foster care. If the child has a previous indicated report they are twice as likely to be placed into care.

The child's age is predictive of the placement decision. If the child is an infant or toddler, she is more likely to be placed. An infant is 3.8 times more likely to be placed

and a toddler is 1.6 times more likely to be placed. However, if the child is 9 to 12 years of age, he is about half as likely to be placed.

The number of allegations in the most recent report and the type of allegation are also predictive of placement. If the report contains 3 or more allegations, the child is more likely to receive services in the home. In fact, these children are at a 60% decreased probability of being placed in foster care compared to children with reports that contained 1 or 2 allegations. However, if the most severe allegation is lack of supervision or risk of harm, the probability of placement increases. In the case of lack of supervision the probability of placement increases by 2.6 times while it doubles if the allegation is risk of harm.

The last two variables in the model are a never-married caretaker and the reporter being a family member or a friend. If the caretaker was never married, the child is 50% more likely to be placed. If the reporter was a family member or a friend, the child is 40% less likely to be placed.

Interaction Effects. The model was examined for interaction effects, which occur when independent variables have separate effects, as well as combined effects on the dependent variable (Vogt, 1993). "An interaction effect was suspected if the addition of a multiplicative interaction term was associated with coefficient changes in other predictor variables" (Dattalo, 1994, p. 133).

This model has 66 possible interaction terms. Rather than consider all of the interactions, only those involving the home visit variable were examined. Whereas most of the variables in the model seemed to predict the decision to place in a reasonable manner, the home visit variable did not. It is not immediately obvious that more home visits are linked to the child remaining at home. Therefore, the 11 interactions between home visits and the other variables were computed and examined.

In examining the impact of the interaction terms, all variables in the preliminary model were entered together using the enter mode. Next, the interaction terms were entered using forward conditional logistic regression. Three of the interaction terms met the criteria to be included in the model. That is, they had a significant relationship to the dependent variable. However none of them increased the predictive ability of the model.

The three that were included were the interaction of home visits with the child being an infant, the number of previous indicated allegations, and the number of other contacts made during the investigation.

Model Test

To test the preliminary model, a random sample of 4,946 children was drawn. The sample contained 2,044 children who were placed in foster care, and 2,902 children who received services in their home. The sample was selected to meet the criterion of 99% certainty that the estimated parameter was within 2% of the true value. The variables in the model were entered in the logistic regression using the SPSS enter mode.

Table 16 presents the coefficients for the test sample. The model fit the test sample well. When applied to the test sample, the model classified 80.6% of the cases correctly. It correctly predicted 85% of the intact cases and 74% of the placement cases. For the first four variables in the model, little difference between the two samples exist. A difference in the results for the number of allegations in the most recent report was found. For the first sample, this variable reduced the probability of placement by nearly 60%; this changed to a 92% reduction for the second sample. The next difference found was for the allegation of risk of harm. For the first sample, when this was the most severe allegation, a substantial increase in the probability of placement occurred. For the second sample, this variable was no longer a significant predictor. Finally, the last two variables to be included in the model when it was being developed were not significant for the test sample.

Table 16.
Logistic Regression Models Test Results

Variable	B	S. E.	Sig	R	Exp (B)
Home visit	-0.91	.10	.00	-.11	.40
Number of previous indicated allegations	.26	.03	.00	.09	1.30
Infant	1.58	.11	.00	.17	4.85
Number of contacts	1.19	.09	.00	.16	3.28
Number of allegations in the most recent report	-2.50	.08	.00	-.37	.08
Number of previous indicated reports	1.06	.11	.00	.12	2.88
Lack of supervision	.48	.09	.00	.06	1.62
Risk of harm	.19	.10	.06	.02	1.21
Never married	.44	.08	.00	.07	1.55
Child age .5–3 years	.68	.10	.00	.08	1.97
Child age 9–12 years	-.04	.13	.75	.00	.96
Reporter – family and friends	-.16	.11	.14	-.01	.86

Categorical and Regression Tree (CART) Analysis

CART analysis has several advantages over logistic regression analysis. "First, the rules generated by classification tress search for predictors that involve interactions between the independent variables. In contrast, the rules generated by logistic regression do not explore interactions unless they are specified" (Wells and Anderson, 1992, p. 25). Thus, CART identifies interactions between variables more successfully than logistic regression analysis does.

Secondly, according to Wells and Anderson (1992),

> Classification rules based on logistic regression may not be worthwhile as classification rules, since predictors are selected based on their statistical significance (whether the regression coefficients are likely to be nonzero), rather than on their predictive ability. It is quite possible that a predictor in a logistic regression model can be highly significant but of little use in prediction. This is

> because knowledge that a coefficient is nonzero is not necessarily the same as saying that it makes a difference that is large enough to consider when we predict. (p. 30)

Furthermore, Wells and Anderson (1992) note that a .02 increase in the probability of an event occurring may still entail very few people experiencing that occurrence. They argue that "strong predictors of a phenomenon are required in order for a classification tree to be beneficial" (p. 30).

Classification Tree Growing Procedure. The decision tree was created using SPSS AnswerTree, a software package that generates classification rules from existing data and displays them in the form of a decision tree, or a chart that illustrate the decision rules. Trees begin with a root node that contains all observations; as the tree branches, the data are divided into mutually exclusive subsets (SPSS, 1998).

Wells and Anderson (1992) note that

> Classification trees are grown in two steps: growing and pruning. During the growth stage, the data is investigated for all possible splits of variables to identify the split that best predicts the dependent variable. This procedure is repeated at each stage of growth. Pruning is the second stage of the development of a classification tree. Pruning refers to the reduction of the size of the tree and the complexity of the decision rule. Pruning is accomplished by withholding a portion of the observation while the tree is growing. The withheld portion of the data is then used to check the predictive power of the tree. A failure to find substantial predictive power of the current size tree results in the tree being pruned and re-evaluated. Trees that are not pruned tend to be extremely large and overoptimistic about their ability to predict. This risk of over-prediction is minimized by pruning the tree from below, reducing the size of the tree, and the complexity of the decision rule. (p. 29–30)

The SPSS default settings used to grow the tree established the maximum tree depth as five, the minimum number of cases to be included in the parent node as 100, and the minimum number to be included in the child node as 50. The resulting model classified 85% of the intact family cases correctly and 58% of the placement cases. The risk estimate generated by CART—the percentage of misclassified cases—was 27%. In contrast, the first logistic model correctly classified 82% of the intact cases and 68% of the placement cases. The logistic model appears to be a better fit with the data.

However, the CART analysis helps us understand some of the results of the logistic model. Both models indicated that the number of home visits predicts placement, but in a way that is not easily understood. The logistic probabilities indicated that more home visits decreased the probability of placement. In the logistic analysis, interactions were explored between variables and none were found, but it is not always easy to understand or interpret interaction terms in logistic regression. The CART model (Figure 1) like the logistic model showed that the number of home visits is the first variable to enter the classification scheme and that 119 cases with no home visits were intact cases and 302 were placement cases—12% of the intact cases and 36% of the placement cases. The procedure, which is said to handle interactions between variables particularly well, could not identify any other variable in the analysis to further categorize these cases. This analysis did not produce further insight into the number of home visits finding from the logistic regression. One possible explanation for the fact that more placement cases had no home visits is that the abuse was of a nature that required immediate placement to keep the child safe. However, severity of abuse is not measured by variables in this study.

For those cases where one or more home visits were made during the investigation, the next variable that categorizes the cases is the number of previous indicated allegations. For those cases with one or more previous indicated allegation, the next variable in the model is the number of allegations in the report under investigation. For those cases with no previous allegations, the next variable is the number of other contacts made during the investigation. This model found that 62% (602) of the intact cases and 25% (214) of the placement cases were correctly classified by the variables: 1 or more home visits, no previous allegations of abuse or neglect, and 0 to 3 other contacts during the investigation. For another 26% (222) of the placement cases, the set of predictive variables is 1 or more home visits and 1 or more previous indicated allegations of abuse or neglect.

Discussion

Child welfare can be envisioned as a set of decision points from the initial report of suspected abuse or neglect to case closing. Relatively little is known about the factors

that influence or explain these decision points. This report seeks to add to the understanding of child welfare decision-making by examining the decision to place a child into substitute care when there is an indicated report of abuse or neglect.

The findings of this study are based upon analysis of administrative data. Consequently, the variables included in this study were limited to those available in the database. The literature review identified 30 variables associated with the decision to place a child into substitute care. Using administrative data we were able to include 11 variables in this study. Another related study is using case record reading to add to the variables available to study the decision to place a child into substitute care. This study may provide additional insights not available through administrative data.

The use of administrative data also limits the operational definitions of the variables to what can be constructed from the data. For example, in this case attempts to construct an index of severity of abuse were not successful. It is possible that the study's results regarding home visits are related to the severity of abuse. However, without a good measure of severity this study could not identify if this was the case.

The decision to place a child into substitute care or leave him/her at home is difficult and contains many risks. How workers think about these decisions is at least as important as child, family, and agency factors. The field of cognitive psychology has studied the decision-maker's thinking processes for many years and is beginning to produce some useful insights. While this type of research was beyond the scope of the current study, application of these research findings to child welfare decision-making is likely to produce additional and important insights.

Conclusion

The initial model developed through logistic regression identified 12 variables that predicted the decision to place a child into substitute care. This model accurately predicted 82% of the intact family cases and 68% of the placement cases. When this model was tested with a second sample of cases, the 12 variables accurately predicted 85% of the intact cases and 74% of the placement cases. However, three variables were

no longer significant predictors: the allegation of risk of harm, the child being 9–12 years of age, and the reporter being a family member or friend.

Categorical and regression tree analysis was also used because it is said to be particularly effective in examining interactions between categorical variables. The resulting model identified five variables that correctly classified 85% of the intact family cases and 58% of the placement cases. This model provided additional insight into the relationships between variables that was not available through the logistic regression analysis. The logistic model indicated that the number of home visits had an inverse relationship to placement: In those cases with 1 or more home visits during the investigation, children were less likely to be placed into substitute care. The categorical and regression tree analysis also identified the number of home visits to be the first variable in predicting placement. This analysis indicated that 12% of those children who remained in intact families had no home visits during the investigation while 36% of the children placed into substitute care had no home visits. This analysis did not identity additional variables to further classify those children who had no home visits. In other words, CART analysis was unable to identify other variables in the study that interacted with the number of home visits to further classify these cases.

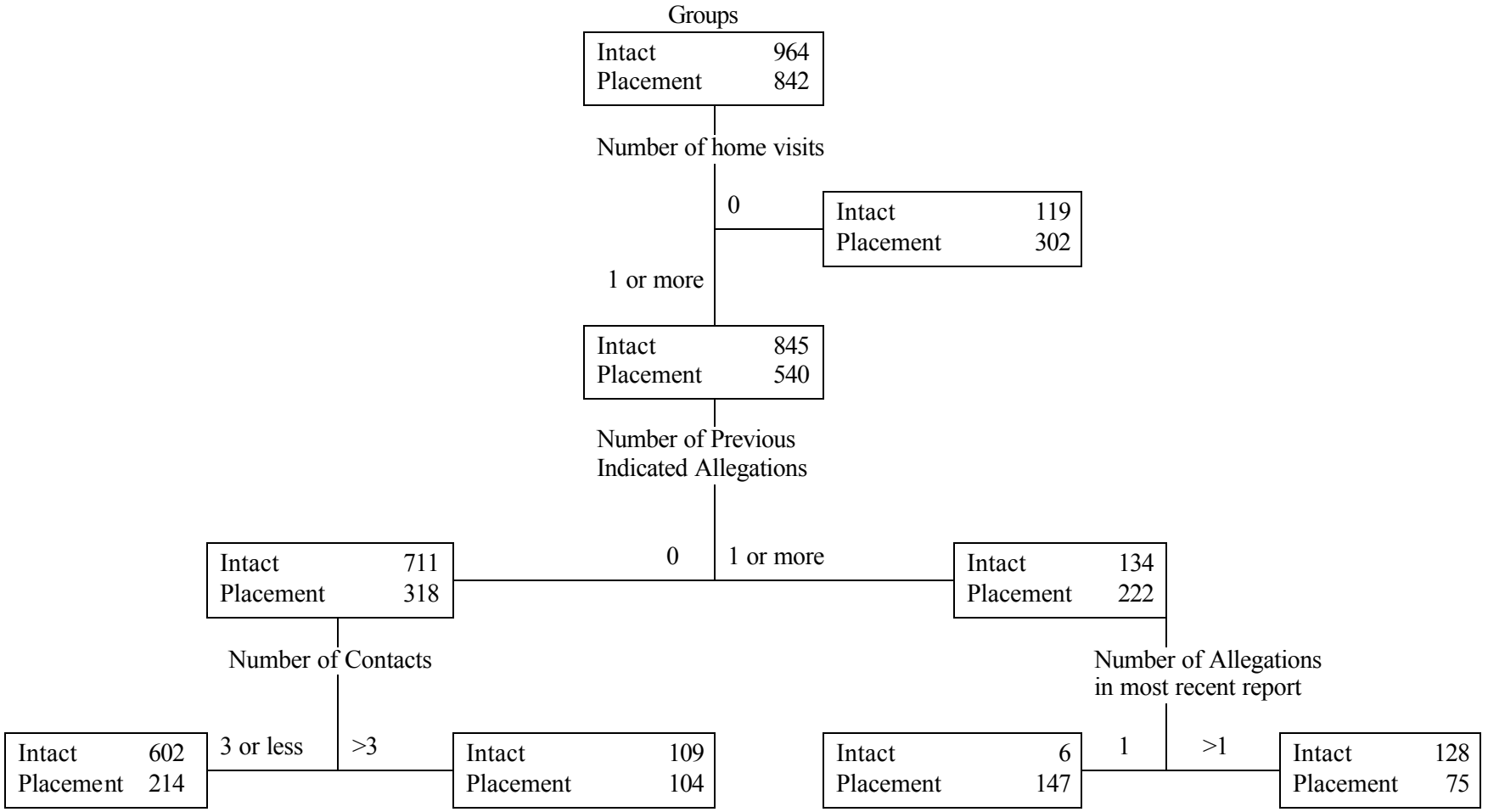
All of the models shared the following four variables:

* the number of home visits,
* the number of other contacts,
* the number of previous substantiated allegations, and
* the child being an infant.

Additional research is needed to develop a more complete picture of the decision to place a child into substitute care. The inclusion of child, family, and system variables not available in this study will add to the understanding of this decision. In addition, the inclusion of variables related to the cognitive processes of the decision-maker will shed light on this important decision.

Figure 1

Categorical and Regression Tree Analysis of the Decision to Place



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