Longitudinal Analysis of Repeated Child Abuse Reporting and Victimization: Multistate Analysis of Associated Factors

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Most child subjects of maltreatment reports to child protective services (CPS) are involved just once, whereas other children experience repeated investigations and victimizations. This study examines individual, maltreatment, and service-related factors associated with maltreatment rereporting and substantiated rereporting in a multistate context. Case-level National Child Abuse and Neglect Data System data (505,621 children) were analyzed. Within 24 months, 22% of children were rereported, and 7% were rereported with substantiation. Younger and White and mixed race children, those with disabilities, and those whose caregivers abused alcohol were more likely to be rereported and rereported and substantiated. Service provision, including foster care placement, was associated with increased likelihood of subsequent events. When CPS agency performance is assessed using measures of reentry, separate measures may be necessary for children who receive services, so that improvements in safety can be appropriately recognized. Rentry into CPS is a complex interaction of risks to children and systemic factors tied to the intervention they receive.

Keywords: *rereporting; recurrence; longitudinal; child maltreatment; NCANDS*

Children come to the attention of the state or local child protective services (CPS) agency based on referrals from the public alleging child abuse or neglect. It is the responsibility of the CPS agency to decide what, if any, response should be made to ensure the safety of the children. During the investigation, decisions regarding dispositions and services are made. Most children who are the subject of a referral are involved with CPS just once over the course of their lives (Fluke, Shusterman, Hollinshead, & Yuan, 2005). Other children are referred more than once, and their referrals result in repeated investigations or assessments (rereported). Some of these children are also found to have been subsequently victimized. These two phenomena, rereports and substantiated rereports, are the subjects of this article.

Reengagement of CPS within families is seen as an important indicator in assessing the performance of CPS agencies, and improvements of such indicators over time is a focus of considerable policy attention

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(*Federal Register*, 2006). Rereporting may suggest that the CPS agency staff missed something or were unable to effectively intervene to avoid a subsequent report. When a rereport is substantiated, accountability concerns may be greater because the agency was aware of the risk but did not prevent subsequent harm.

This article presents an analysis of 2 years of follow-up data of children initially reported to state CPS agencies based on National Child Abuse and Neglect Data system (NCANDS) data from eight states. This multistate approach complements the existing literature on rereporting that is primarily composed of studies within single states or localities. This analysis excludes investigations of children prior to the initial index report and examines some factors that have not previously been explored for their influence on repeated CPS engagements, such as intervening report events.

Previous Research

The existing literature on a child or family's repeated contacts with CPS agencies reflects little consensus on which events should be examined to best understand the phenomenon. Most studies appear to have focused on either rereporting (Baird, 1988; Baird & Wagner, 2000, English, Marshall, Coghlin, Brummel & Orme, 2002; Ferleger, Glenwick, Gains, & Green, 1988; Hamilton & Browne, 1999; Marshall & English, 1999) or recurrence (Baumann, Law, Sheets, Reid, & Graham, 2005; DePanfilis & Zuravin, 1999a; Fluke, Yuan & Edwards, 1999; Fryer & Miyoshi, 1994; Fuller & Wells, 2003; Fuller, Wells, & Cotton, 2001; W. Johnson, 1994; W. Johnson & L'Esperance, 1984; Levy, Markovic, Chaudhry, Ahart, & Torres, 1995; Littell, 1997; Palusci, 2002; Wood, 1997). A smaller number of studies have focused on those children who have been identified as victims following any subsequent report (i.e., rereported with substantiation; e.g., Fluke, Edwards, Bussey, Wells, & Johnson, 2001). An increasing number of studies have explored or compared factors associated with both rereports and substantiated rereports as part of the same comparative analysis. However, to date, all such efforts have focused on data from a single state, province, or country (Drake, Jonson-Reid, Way, & Chung, 2003; English, Marshall, Brummel, & Orme, 1999; Jonson-Reid, Drake, Chung, & Way, 2003; Sundell & Vinnerljung, 2004; Way, Chung, Jonson-Reid, & Drake, 2001).

The comparison of types of repeated CPS interventions should be considered in the context of an emerging view that distinctions between unsubstantiated and substantiated child maltreatment dispositions may not be meaningful (Drake, 1996; English et al., 2002). For example, recent research on long-term outcomes notes that for children reported between the ages of 4 and 8, no differences were observed in behavioral and developmental outcomes on the basis of maltreatment disposition (Hussey et al., 2005). In other situations, the choice of a specific event may be made because of the nature of a specific intervention being evaluated in the context of its intervention logic model or theory of change. For example, in studies of the Illinois Child Endangerment Risk Assessment Protocol (Fluke et al., 2001; Fuller et al., 2001), the focus of the intervention was to reduce the rate of children with substantiated rereports.

Common themes have emerged from much of the research conducted to date regarding factors that influence the risk of both rereporting and recurrence. Prior history of involvement with CPS is among the most notable factors predicting repeated CPS contact (Baird, 1988; English et al., 1999; Fluke et al., 1999; Fuller et al., 2001; Hamilton & Browne, 1999; Littell, 1997; U.S. Department of Health and Human Services [USDHHS], 2004). Involvement of younger children (Drake et al., 2003; Fluke et al., 1999; Fryer & Miyoshi, 1994; Marshall & English, 1999), the presence of a child with a disability or medical problems (Hamilton & Browne, 1999; Marshall & English, 1999; Palusci, 2002), and cases involving neglect or multiple maltreatment have also been associated with higher risk of repeated contact with the child welfare system (DePanfilis & Zuravin, 1999a; Drake et al., 2003; Fluke et al., 1999; Fryer & Miyoshi, 1994; Hamilton & Browne, 1999; Marshall & English, 1999; USDHHS, 2004). Female victims of sexual abuse have been found to be more likely to be rereported for the same type of maltreatment, and older children in general are more likely to be rereported for physical abuse (Jonson-Reid et al., 2003). Other factors associated with repeated CPS contact include caregiver abuse of drugs or alcohol and the presence of domestic violence in the home (Baird, 1988; DePanfilis & Zuravin, 1999b; English, Wingard, Marshall, Orme, & Orme, 2000; Hamilton & Browne, 1999; Palusci, 2002) and a family's lack of access to social supports (DePanfilis & Zuravin, 1999b; English et al., 1999), low income status, or living in a lower-income neighborhood (Drake et al., 2003; Levy et al., 1995; Way et al., 2001).

Comparisons of Factors Affecting Rereporting and Recurrence

Research contrasting rereporting and recurrence is limited, so the relative importance of some risk factors for predicting each outcome is generally not

known. One study (Drake et al., 2003) found that similar risk factors, such as low income of the child's neighborhood, predict the likelihood of both a rereport and a substantiated rereport. Another study (Fluke et al., 2005) indicates that there are differences in the risk of rereporting compared to recurrence depending on the report source and the presence of a child disability.

A somewhat broader array of factors has been examined for research focusing on recurrence. For example, state administrative data on child abuse have consistently indicated that African American children are less likely to experience recurrence compared to White children (USDHHS, 2004). There is also evidence that the factors that best predict recurrence may change over the life of a case (Fuller et al., 2001; Jonson-Reid et al., 2003). For example, longitudinal analysis has suggested that maltreatment type reporting and the response of the CPS system may change with the age of the child or with the number of times that a child was referred to the agency (Jonson-Reid et al., 2003).

The Impact of Service Provision

Many studies have found that the provision of services was associated with an increased likelihood of recurrence. Children who received services may have been more likely to be rereported because they were in more frequent contact with professional reporters while they received services, they were the subjects of heightened awareness of the community, the services were not effective, or they were intrinsically at greater risk (Fluke et al., 1999; J. Johnson, 2000; Sundell & Vinnerljung, 2004; USDHHS, 2004).

One study found that service provision following a substantiated report was associated with a reduced likelihood of rereporting and substantiated rereporting, particularly for cases involving neglect (Drake et al., 2003). Another study found that children who were removed but remained in foster care for fewer than 3 months were more likely to be rereported, or repeatedly found to be victims of maltreatment and returned to foster care, than were children who were removed and stayed in foster care for longer periods of time (Jonson-Reid, 2003). Furthermore, the provision of in-home services following foster care did not appear linked to a reduction in the likelihood of revictimization. Other specific services or methods of service provision, such as family compliance with the service plan, attendance at services, or service quantity, may reduce the likelihood of recurrence (see DePanfilis & Zuravin, 2002; English, Marshall, Brummel, & Coghlin, 1998; J. Johnson, 2000; Lutzker & Rice, 1987). A study examining long-term recurrence (Fluke et al., 2005) found that foster care provision at the initial report was associated with a lower risk of recurrence. In contrast, provision of foster care was found to be associated with increased risk of recurrence within 6 months (USDHHS, 2004).

The frequent association of services with rereporting in the literature raises the question of whether repeated reports of maltreatment result from an increase in the intrinsic risk among certain families that contribute to both service provision and rereports or whether families are subject to greater surveillance in the community when they receive services and are therefore more likely to be rereported. Two studies of subsequent events (Barth, Gibbons, & Guo, 2006; Chaffin & Bard, 2006) were conducted to assess bias in the populations receiving services and to address concerns about using rereporting to evaluate intervention effectiveness. In a study of recurrence among families receiving substance abuse treatment, Barth et al. (2006) found, using propensity score matching to control for selection bias, that the treatment population had higher rates of recurrence than did the matched nontreatment group. In their examination of rereporting and surveillance bias among child welfare families receiving services, Chaffin and Bard (2006) examined surveillance as defined by CPS reports made by service providers (direct) or other professionals (indirect) and found that surveillance reports were a very small fraction of all subsequent reports. They concluded that surveillance has only a small impact on rereporting, most often during the time of service provision. Thus, although one study (Barth et al., 2006) discounted intrinsic risk, the other (Chaffin & Bard, 2006) concluded that surveillance does not contribute much to the overall risk of reporting, and both studies found that service provision was associated with higher levels of reporting.

Research Questions

This study focuses on describing and modeling the relative risk of factors associated with rereporting and substantiated rereporting using the NCANDS data. Primary questions of this research are, overall, what proportion of children with reports of maltreatment experience a rereport, or a substantiated rereport, of maltreatment during the following 2 years? Second, what factors are associated with a child who is rereported or with a rereported child who is found to be substantiated? Third, to what extent is the provision of services associated with either of these subsequent events?

METHOD

This discussion of method describes the process used for data construction of a multiyear, multistate longitudinal NCANDS data set that spans the follow-up period of calendar years 2001 and 2002 but utilizing data beginning with calendar year 1998. It also describes the analytic procedures used to refine the data set and develop the study findings.

NCANDS case-level data consist of CPS investigation events at the child level. These data are submitted on a voluntary basis in a common record format to the federal government by state CPS agencies. Only reports that received an investigation or assessment response from the agency are included. Each record in the data file, called a report–child pair, represents a child within a report that receives an investigation or assessment. For each investigation, CPS makes a disposition decision, which involves determining whether or not a child has experienced or is at risk of maltreatment.

The following terminology is used to describe key events constructed from the data:

- *Referral:* Notification made to an agency of suspected child maltreatment resulting in a decision to investigate, assess, or screen out the referral;
- *Report:* A referral that has been accepted for investigation or assessment;
- *Initial report:* The first investigation or assessment within an observation period that occurs for a specific child who has not been the subject of a prior investigation or assessment;
- *Victim:* A child determined by the agency to have been maltreated, having at least one maltreatment type coded as substantiated, indicated, or alternative response victim;
- *Rereport:* The second, third, or subsequent report that alleges a child has been maltreated and that receives an investigation or assessment by the CPS agency regardless of the disposition (also called *reinvestigation*);
- *Substantiated rereport:* The second, third, or subsequent report in which a child has been determined a victim, regardless of the disposition for the initial report; and
- *Recurrence:* The second, third, or subsequent time that a child has been found to be a victim of maltreatment following a prior determination that a child was victimized (also called *revictimization* or *repeated maltreatment*).

Compiling a data set consisting of multiple years of data involved two stages—evaluating the quality of state submissions and using the data from states that met the analytic requirements to develop a single database.

Selection of States

States were considered for inclusion in the analysis if they had submitted case-level data to the NCANDS for calendar years 1998 to 2002. Tests were made to determine if the child identifier data were of adequate integrity for the entire period 1998 to 2002. Although the data included in the analyses were confined to children with a first report date during the 2001 or 2002 data submission, data from the 3 previous years were used to confirm that these were first reports and that these children had not been reported any time from the beginning of 1998 through 2000. Based on previous analysis of NCANDS data (Fluke et al., 2005), it is estimated that fewer than 5% of the children included in the analysis would have been reported prior to 1998. States were also excluded because of missing data on such variables as caretaker substance abuse and caretaker alcohol abuse. Eight states met data-quality criteria and were included in the analyses.

The population and reporting characteristics in these eight states was comparable to the national population on a range of demographic characteristics, including age, race distribution, and poverty level (see Table 1). The sample does differ from the national population in the percentage of Hispanic children; however, Texas is included in this group of states and has a high Hispanic population. The findings in this study should not be construed as representative of all reporting states or the entire nation, as there are many differences tied to CPS policy that cannot be represented with the relatively small number of states.

Data and Variable Construction

A single file of unique children that included all the data submitted for the calendar years 1998 to 2002 was created for each state. Children with a first report occurring between January 1, 2001, and December 31, 2002, were selected. The data from multiple reports involving the same child ID were combined to develop variables that indicated whether the child experienced one or more subsequent reports or substantiated reports. These variables were constructed to support the use of event history analysis procedures. This step also combined reports made within the same 24-hour period because these were considered to be reports of the same incident, consistent with the protocol set by the U.S. federal government in establishing national standards for recurrence (USDHHS, 2004). The data from all eight states were combined into a single file. This data set included information from 505,621 unique children.

TABLE 1: Demographic and Reporting Characteristics in Eight States in the Data Set Compared to National Data 2002

Demographic Indicators		*All States*	*Eight States*
Total population		285,230,516	36,277,599
% of U.S. population		100	13
Population younger than 18: Total (%)		26	27
Families	Percentage of total population living in family settings	80	82
	Married-couple family, with own children younger than 18 (percentage of families)	9	8
	Families with female householder, no husband present, with own children younger than 18 (percentage of families)	3	4
Average child poverty rate (%)		16.7	15.8
Race	White (not Hispanic), percentage of total population	68	65
	Black or African American (not Hispanic), percentage of total population	12	9
	American Indian and Alaska Native (not Hispanic), percentage of total population	1	1
	Asian or Pacific Islander (not Hispanic), percentage of total population	4	2
	Other or multiple race (not Hispanic), percentage of total population	2	1
	Hispanic or Latino, percentage of total population	14	21
Sex	Male, percentage of total population	49	49
	Female, percentage of total population	51	51
Child abuse and neglect	Rate of children investigated per 1,000 children in population	43.8	45.9
	Rate of victims of child maltreatment per 1,000 children in population	12.3	10.8

Factor Variables

Definitions of factor variables were as follows:

- *Source of initial report:* A variable included in the NCANDS record reflecting the category of the person who notified a CPS agency of alleged child maltreatment. Parents, friends, neighbors, and victims were combined into a single category of nonprofessionals.
- *Child age at initial report:* The child's age at the time of report was grouped into eight age categories.
- *Child sex:* Children were reported as male or female.
- *Child race and ethnicity:* Mutually exclusive categories (American Indian or Alaska Native, Asian, Black or African American, Pacific Islander, White, Unable to Determine), and multiple race and Hispanic, reflected a primary self-identified category by the individual or one identified for a child by the parent.
- *Child with indication of disability:* A child was considered to have a disability if at least one of the following risk factors was identified: child with mental retardation, child with emotional disturbance, child with visual impairment, child with learning disability, child with physical disability, child with behavioral problems, or child with some other medical problem.
- *Caretaker abuse of alcohol:* Compulsive use of alcohol, not of a temporary nature, by the person responsible for the care and supervision of a child.
- *Caretaker abuse of drugs:* Compulsive use of drugs, not of a temporary nature, by the person responsible for the care and supervision of a child.
- *Postinvestigation services provided:* Any one of a list of services, including family preservation, family support, and foster care, was provided. Postinvestigation services are entered into the child's record if they were provided or arranged by the CPS agency, social services agency, or the child welfare agency for the child or family as a result of needs discovered during the course of an investigation and delivered within the first 90 days after the disposition of the report.
- *Child placement in foster care:* The child's initial placement away from his or her parents or guardians within 90 days of after the disposition of the report and made under the auspices of the state Title IV-A or IV-E agency for placement, care, or supervision of the child.
- *Child's initial investigation victimization status:* This variable was based on the disposition of the initial report.
- *Intervening nonvictim report prior to subsequent victimization:* This variable reflects the presence of at least one nonvictim report between the initial report and a report with a victim determination. It is applicable only for substantiated rereports.

Categories of Events

The data analysis focused on two categories of events related to children. These included all

TABLE 2: Cumulative Percentage of Children With Subsequent Reports by Category of Event

	Rereported		*Substantiated Rereport*	
Months After First Report	*Absolute (%)*	*Cumulative (%)*	*Absolute (%)*	*Cumulative (%)*
0 to 5	9.80	9.80	2.77	2.77
6 to 11	5.95	15.75	1.95	4.72
12 to 17	3.76	19.51	1.30	6.02
18 to 23	2.13	21.64	0.90	6.92

NOTE: $n = 505{,}621$.

children in the data set, regardless of the disposition of their first investigation. The subsequent event categories were rereports (a subsequent investigation was conducted) and substantiated rereports (the subsequent investigation resulted in a disposition of victim).

Analytic Techniques

The study variables were designed to make use of event history analyses, also known as survival analysis techniques. Such techniques are used when the objective of the study is to examine the time until participants experience subsequent events. Survival analysis adjusts for the bias associated with estimating hazards, especially with differing lengths of observation periods or censoring. Findings regarding time to rereport events were obtained descriptively using a survival analysis technique called life tables. Cox regression, or proportional hazards, a form of multivariate survival analysis (Hosmer & Lemeshow, 1999), was used to arrive at findings regarding factors that are associated with rereporting. States were treated as covariates in the models to act as a control for state-level variation. All variables were incorporated into the Cox regression models simultaneously, and a backwards stepwise elimination procedure was applied to identify variables that could be excluded. For the Cox regression analyses, some cases were excluded if data were missing for certain factors, resulting in a data set of 495,892 children.

Additional tests were performed to assess the possibility that results reported here were affected by the inclusion of children reported together, possibly violating assumptions of independent observations. Results for a subset of single randomly selected children from groups of children in the same report were not different in any meaningful way from the full sample of children.

FINDINGS

Data from a 24-month period were examined to determine if any child had a repeat event. Both initial and subsequent investigations could have resulted in the child being determined by CPS to have been a victim of maltreatment.

Rates and Timing of Rereports and Substantiated Rereports

To obtain the various estimates reported in this section of the findings, life table analysis was used to analyze the time to the first subsequent investigation after an initial investigation. Table 2 shows the distribution of subsequent investigations for both rereporting and substantiated rereporting in 6-month time intervals over 2 years. Of all children reported, 22% were rereported, and 7% were rereported and substantiated, within 24 months.

Table 2 shows that subsequent events, both rereports and substantiated rereports, are much more likely to occur soon after the initial report. For example, 16% of children were rereported within the first 12 months, but 6% more were rereported after an additional year. Similarly, 5% of children received substantiated rereports in the first 12 months, but after 1 year 2% more children were added.

Factors Associated With Rereports and Substantiated Rereports

Table 3 provides data concerning the cumulative 24-month percentage of initial rereports and substantiated rereports derived from life tables analyses. Also provided are log rank statistics for tests of significance for each factor. With some exceptions noted in the table and the narrative that follows, all factors indicate statistically significant differences across categories.

Initial reports by law enforcement personnel were associated with the lowest cumulative percentage of rereports (19.11%), whereas reports by educational personnel had the lowest cumulative percentage of substantiated rereports (6.01%). In contrast, reports by day care and foster care providers were associated with the greatest level of rereporting (23.10%), and reports by social and mental health providers, along with unknown sources, were associated with the largest rate of substantiated rereporting.

Table 3 presents the results for the cumulative percentage in 24 months or bivariate analysis of rereporting and substantiated rereporting. Analyses for rereporting and substantiated rereporting used the same set of reported children and the same independent variables. The one exception is that intervening nonvictim reports was added as an independent variable for the analysis of substantiated rereports.

TABLE 3: Life Table and Cox Regression—Factors Associated With Rereporting and Substantiated Rereport (Simultaneous Entry of Variables)

		Rereport				*Substantiated Rereport*			
		Cumulative Percentage (24 Months)	*Risk Ratio*[a]	*Risk Ratio 95% CI*		*Cumulative Percentage (24 Months)*	*Risk Ratio*[a]	*Risk Ratio 95% CI*	
Variable	*Factor Category*			*Lower*	*Upper*			*Lower*	*Upper*
Source of initial report	(Social and mental health services)	21.58****	1			7.55****	1		
	Medical personnel	19.93	0.87****	0.83	0.91	6.76	0.81****	0.74	0.88
	Law enforcement or legal personnel	19.11	0.88****	0.84	0.91	6.73	0.89****	0.83	0.95
	Education personnel	19.50	1.03	0.99	1.08	6.01	1.00	0.93	1.08
	Day care and foster care providers	21.97	1.00	0.92	1.09	6.47	0.87**	0.75	1.02
	Nonprofessional and other	23.10	1.14****	1.10	1.18	7.03	1.05**	0.99	1.11
	Unknown	22.72	1.06	0.99	1.14	7.55	1.05	0.93	1.19
Child age at initial report	(Infants)	26.74****	1			10.10****	1		
	1	26.20	1.00	0.96	1.04	9.01	0.95*	0.89	1.02
	2 to 4	23.84	0.91****	0.88	0.94	7.33	0.79****	0.75	0.84
	5 to 7	21.69	0.81****	0.79	0.84	6.66	0.71****	0.67	0.75
	8 to 10	20.16	0.73****	0.70	0.75	6.19	0.63****	0.59	0.68
	11 to 13	20.04	0.70****	0.67	0.72	6.33	0.61****	0.57	0.65
	14 to 18	14.72	0.51****	0.49	0.53	4.20	0.41****	0.38	0.44
	Older than 18	3.91	0.15****	0.07	0.34	2.78	0.16****	0.04	0.70
	Unknown	9.64	0.26****	0.21	0.30	1.47	0.16****	0.10	0.25
Child sex	(Female)	22.08***	1			7.13***	1		
	Male	21.54	0.95****	0.93	0.96	6.83	0.93****	0.90	0.96
Child race and ethnicity	(White only)	24.23****	1			7.82****	1		
	American Indian and Alaskan Native only	29.69	1.05	0.99	1.11	11.24	1.18****	1.07	1.29
	Asian and Pacific Islander only	13.90	0.60****	0.52	0.69	4.67	0.69****	0.54	0.88
	African American only	20.49	0.84****	0.81	0.86	6.86	0.90****	0.85	0.95
	Hispanic	18.92	0.87****	0.84	0.89	5.87	0.88****	0.84	0.92
	Other and multiple race, non-Hispanic	30.03	1.28****	1.19	1.37	10.88	1.37****	1.22	1.54
	Unable to determine and missing	14.49	0.58****	0.55	0.60	3.47	0.46****	0.42	0.50
Child with indication of disability	(No)	21.55****	1			6.82****	1		
	Yes	26.84	1.47****	1.38	1.57	12.31	1.53****	1.38	1.69
Caretaker abuse of alcohol	(No)	21.65*	1			6.84****	1		
	Yes	21.47	1.12****	1.05	1.20	10.33	1.22****	1.10	1.35
Caretaker abuse of drugs	(No)	21.60*				6.82****	1		
	Yes	23.40				10.82	1.07*	0.97	1.18
Child's initial investigation victimization status	(Nonvictim)	20.90****	1			6.14****	1		
	Victim	22.09	1.07****	1.03	1.10	9.67	1.64****	1.55	1.74
Postinvestigation services provided	(No)	20.30****	1			5.62****	1		
	Yes	25.00	1.35****	1.31	1.39	10.12	1.74****	1.65	1.84
Child placement in foster care	(No)	21.40****	1			6.58****	1		
	Yes	27.32	2.19****	2.03	2.36	14.91	4.24****	3.84	4.68
Interaction of victimization and postinvestigation services	(No)	21.39****	1			6.40****	1		
	Yes (child victim and services provided)	23.62	0.94**	0.90	0.99	11.09	0.84****	0.78	0.92
Interaction of victimization and placement in foster care	(No)	21.60***	1			6.76****	1		
	Yes (child victim and placed)	23.04	0.36****	0.33	0.39	11.55	0.20****	0.18	0.23
Intervening nonvictim report prior to subsequent victimization	(No)					6.14****	1		
	Yes (child rereported previously)					10.81	1.24****	1.19	1.3

NOTE: CI = confidence interval.

a. N = 495,892

Life table (across factors, applied to reference category) *$p < .10$. **$p < .05$. ***$p < .01$. ****$p < .001$.

Cox regression (difference from reference category) *$p < .10$. **$p < .05$. ***$p < .01$. ****$p < .001$.

Table 3 also includes the Cox regression model risk ratio results for rereports and substantiated rereports. Cox regression, or proportional hazards, was used to determine whether the factors pertaining to children and their initial reports were associated with subsequent reports in a multivariate context. For the proportional hazards, conservative thresholds for rejecting the null hypothesis were implemented, such that the probability of incorrect rejection of each variable was less than .001.

From Table 3, the reference for the source of report category is social and mental health services providers, with 21.58% of children being rereported and 7.55% in substantiated rereports. Children in reports made by medical and law enforcement sources had a slightly lower likelihood of experiencing a rereport or a substantiated rereport than did children whose initial report was made by a social or mental health services provider in terms of both cumulative proportions and relative risk. In contrast, reports by nonprofessional and other sources were tied to an increased risk of rereporting compared to reports by social and mental health services providers (1.14 times greater risk). However, nonprofessional sources were not associated with increased substantiated rereporting, even though the risk trended in the same direction.

In considering child demographics, the cumulative percentages for both categories of rereporting declined as children age. For rereports, the range was from 26.74% for infants to 3.91% for children older than 18 and, correspondingly, for substantiated rereports was from 10.10% for infants to 2.78% for children older than 18. In general, older children had decreased risk of both rereports and substantiated rereports. No distinction was observed between infants and children who were 1 year old. Across rereports and substantiated rereports, male children had somewhat lower cumulative percentages (21.54% and 6.83%) compared to female children (22.08% and 7.13%). Female children were at greater risk for experiencing both rereports and substantiated rereports.

For child race and ethnicity, rereports among children of other and multiple races had the greatest cumulative percentages (30.03%) and Asian and Pacific Islanders had the lowest (13.90%). For substantiated rereports, American Indian and Alaskan Natives were associated with the highest cumulative percentage (11.24%), and children for whom agencies were unable to determine race or in which race was missing had the lowest cumulative percentage (3.47%). African American and Hispanic children both had lower cumulative percentages of rereporting and substantiated rereporting compared with White children. In the Cox regression model, White children were at a higher risk for rereports and substantiated rereports compared with African American, Asian or Pacific Islander, and Hispanic children. However, children of other or multiple race were identified as at higher risk than White children for both rereporting (1.3 times the risk) and substantiated rereporting (1.4 times the risk). White children were at the same risk as Native Americans and Alaska Natives for rereporting but at lower risk for substantiated rereporting.

Children with an indication of disabilities had higher cumulative percentages for both rereporting and substantiated rereporting (26.84% and 12.31%) compared to other children. For substantiated rereporting, the cumulative percentage is almost twice as large as the overall rate (from Table 2) of 6.92%. Similarly, for the regression model, children with disabilities had about a 1.5 times greater risk for experiencing both a rereport and a substantiated rereport than did children without disabilities.

According to the log rank test, the factors involving caretaker abuse of alcohol and caretaker abuse of drugs were not statistically different from overall rereporting ($p < .757$, $p < .236$). However, both of the caretaker substance abuse factors were associated with higher rates of substantiated rereporting (10.33% and 10.82%). Interestingly, for the Cox regression, children caretakers who abused alcohol were at greater risk for rereporting (1.12 times the risk) in contrast to the bivariate comparison. For substantiated rereporting, the risk was greater for children whose caretakers abused alcohol (1.22 times the risk). Consistent with the bivariate results, the presence of drug abuse among the child's caretakers was not associated with a statistical increase or decrease of risk for rereporting; therefore, this variable was excluded from the model. However, for substantiated rereporting, caretaker drug abuse did contribute to the overall model, even though the risk was only marginally elevated. This set of findings may also reflect a limitation of the data in that assessment data regarding alcohol and drug abuse may not be routinely collected unless the family is being referred for services.

Turning to CPS intervention, 22.09% of children who were classified as victims during the index investigation were rereported in 24 months, and 9.67% of children were rereported with substantiation in 24 months. Among victims, the risk of substantiated rereporting was considerably larger (1.64 times the risk) than was the risk for rereporting (1.07).

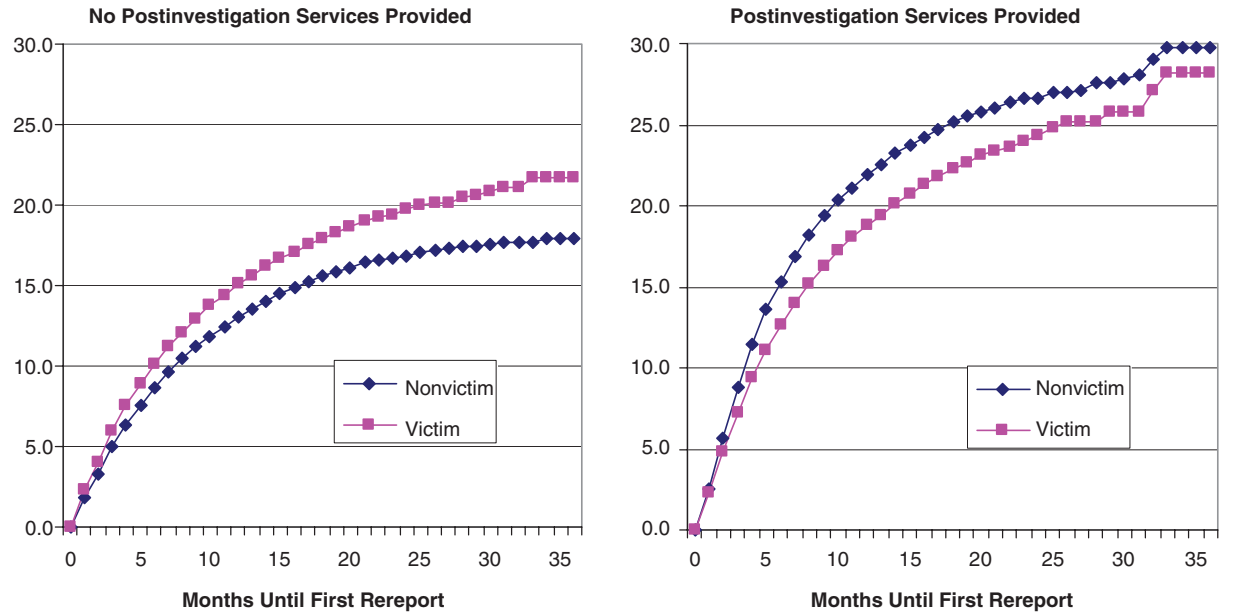

Figure 1: Interaction of Victimization With Postinvestigation Services

For children who were provided postinvestigation services, 25.00% were rereported and 10.12% were rereported with substantiation. Children placed in foster care during or after an investigation were associated with a cumulative percentage of rereports of 27.32% and were associated with a cumulative percentage of substantiated rereports of 14.91%. For the Cox regression, the initial receipt of both in-home or family services and foster care services associated with the initial investigation was associated with an elevated risk for rereporting and especially substantiated rereporting. In particular, children who received foster care services appeared to experience twice the risk for rereporting and quadruple the risk for substantiated rereporting compared to children who were not placed in foster care.

For interactions between victimization during the index investigation and postinvestigation services and foster care, the cumulative percentages, although still different for rereporting, are more consistent with those of children who did not experience the interaction. For example, children classified as victims and who received postinvestigation services had a cumulative percentage of rereports of 23.62%, compared to other children (21.39%). Similarly, for children classified as victims who were placed in foster care, the cumulative percentage rereporting was 23.04%, compared to 21.60% for other children. In contrast, for children with substantiated rereports, the discrepancies were much greater. Children who were classified as victims and received postinvestigation services had a cumulative percentage of substantiated rereports of 11.09%, compared to 6.40% for other children. Likewise, for children classified as victims who were placed in foster care, 11.55% experienced substantiated rereports, compared to 6.76% for other children. Cox regression results also support the finding of an interaction between the victimization status of the child during the first report and the provision of services including foster care for both rereporting and substantiated rereporting. In interpreting the interaction effect, it is important to keep in mind that the main effect of service provision is still present in the models and was associated with an elevated risk, meaning that all children who receive services were at greater risk for recurrence. Figure 1 illustrates this interaction by displaying two survival distributions graphs for rereporting, one for children who received post investigation services and one for those who did not. First, comparing the two graphs, the overall proportion of rereporting for children not receiving services was less than for children who receive services. This is consistent with the finding above that service provision elevates risk for rereporting. Second, for children who did not receive services, a greater proportion of victims than nonvictims were rereported. However, when victims received services, fewer were rereported compared to nonvictims, who received services.

Finally, for children with substantiated rereports, it was possible to determine if there was an intervening

rereport in which the child was not classified as a victim. Substantiated rereporting includes the possibility of intervening rereport events in which children were not found to be victims. The bivariate proportions and proportional hazards model for children with substantiated rereports indicate that those who also had at least one intervening nonvictim report were at increased risk compared to those who did not have any intervening reports.

DISCUSSION

The overall rates of rereporting found in this analysis are similar to those found in other studies of repeat maltreatment and repeated contacts with CPS agencies (DePanfilis & Zuravin, 1999a; Drake et al., 2003; Marshall & English, 1999). During a 2-year period, 22% of children in this data sample who had been reported to the CPS system were rereported. Among all children who were reported initially, 7% were victimized in a subsequent report, which is consistent with previous research (Drake et al., 2003; Marshall & English, 1999) indicating that when children experienced subsequent reports of abuse or neglect, fewer children were identified as victims than as nonvictims. Among all children who were rereported, close to 30% were found to be victims following a subsequent report. This is consistent with national statistics showing that approximately 27% of children reported for alleged maltreatment to CPS are identified as victims when investigated (USDHHS, 2005).

Reports by medical and law enforcement personnel, which were associated with a lower risk for both rereporting and substantiated rereporting, may receive a different level of attention from CPS agencies, leading to interventions that reduce the likelihood of future involvement. Results from other analyses of NCANDS initial report dispositions (USDHHS, 2004, 2005) indicate that although reports by medical personnel are more likely to result in a finding of victimization than are those by social service personnel, reports by law enforcement are less likely to result in a finding of victimization. However, regardless of determination of victimization, this initial involvement by medical and law enforcement personnel may lead CPS to intervene earlier and more effectively.

This study identifies characteristics of children who were at risk for rereporting and substantiated rereporting. Similar to the findings of Fryer and Miyoshi (1994), young female children were found to be at a somewhat elevated risk for rereporting compared to males. Child disability and caretaker alcohol abuse increased the risk further, as other studies have found (DePanfilis & Zuravin, 1999b; Hamilton & Browne, 1999; Marshall & English, 1999; Palusci, 2002). Compared with all reported children, children who were initially victimized were at higher risk for both rereporting and substantiated rereporting, consistent with the findings of Drake et al. (2003). Although it can be argued that disposition or victimization as used here is not a meaningful distinction (Drake, 1996; Drake et al., 2003; Hussey et al., 2005), it does appear that children who are determined to be substantiated initially are consistently among those with a greater likelihood of returning to the CPS system. NCANDS data have shown that victim children and their families are twice as often recipients of services compared to nonvictims (USHHS, 2005). Thus, whether the increased relative risk of rereporting is indicative of the presence of some form of intrinsic risk that is manifested by the child's victim disposition or whether it is because of the intervention process remains an important question.

Examination of services data further illustrates the dynamics of the intervention system that are tied to relative risk. In this analysis, the provision of services contributed to the relative risk for rereporting as well, especially the provision of placement services. This relationship is persistent in several analyses of NCANDS data (USDHHS, 2003, 2004, 2005) and in other studies (DePanfilis & Zuravin, 1999a; Fluke et al., 1999). However, all of these studies analyzed recurrence, or repeat victimization. Thus, the persistence of service provision as a factor among rereported children and rereported children with victimization in this study suggests that like victimization at the initial report, it is a highly consistent feature associated with repeat involvement by CPS regardless of victimization status.

Interestingly, although elevated risk associated with services is a common finding among studies of recurrence, results for analyses of rereporting are not consistent. A study by Drake et al. (2003) analyzed rereporting using data from Missouri and found that the provision of services was not associated with an increased risk of rereporting. Although a bivariate analysis revealed a relationship indicating greater risk, once placed in the multivariate proportional hazards model, provision of services did not contribute as a main effect. However, service provision was found to be part of an interaction effect, with the initial victim disposition suggesting that victims who received services were at lower risk

for rereporting compared to victims who did not. This interaction was interpreted by the authors as lending evidence to the role of services in preventing future reports.

In the current analysis, the interaction of initial victimization and postinvestigation services and placement was consistent with the prior research by Drake et al. (2003). However, unlike those findings, the main effects of receipt of postinvestigation and placement services also made their own independent contribution to the model. Other research suggests that a variety of factors may play a role in the relationship between service provision and rereporting. Although an extensive analysis of this issue has not been conducted, results from the DePanfilis and Zuravin (2002) study showed that families following through with recommended services noted in their service plans experienced a rate of recurrence that was one third lower than the recurrence rate for those who did not comply. Similar trends were noted in a study by Ferleger et al. (1988). Moreover, a family's inability to use agency resources has been associated with higher rates of recurrence (W. Johnson & L'Esperance, 1984; Marks & McDonald, 1989). Thus, it is plausible that another factor affecting the relationship between service provision and increased likelihood of rereporting is the degree of family compliance with the case plan.

It is not known whether children who did receive services would be at even greater risk if no services were provided. The results of the interaction analysis in this study indicated that the provision of services may be associated with protective effects for victims. Thus, victims who received services had a lower risk of rereporting and substantiated rereporting compared to children who were initially identified as victims and who did not receive services. On the other hand, nonvictims who received services had a greater degree of risk compared to nonvictims who did not receive services. This suggests that providing services to victims may be associated with a reduction in their overall risk for repeated victimization. Despite such a possibility, children who receive services were found to be at higher risk for rereporting and substantiated rereporting overall.

Finally, the presence of intervening rereports may indicate the presence of chronic maltreatment within a family or even escalating patterns of maltreatment. Prior research on recurrence has found that the likelihood of a subsequent victimization event increases with each prior victimization (DePanfilis & Zuravin, 1999a; English et al., 1999; Fluke et al., 1999). So even though the presence of the increased risk tied to intervening rereport events was not unexpected, the finding from this study indicates that the presence of any intervening rereport is indicative of greater risk of eventual victimization.

Study Limitations and Strengths

As with any analysis utilizing administrative data, what can be addressed is limited by both what data are collected and the accuracy of the data. For example, until 2000, data regarding the maltreatment type alleged in unsubstantiated reports were not submitted to NCANDS. Unfortunately, among the eight states used in the analyses, the 2001 submission did not include full reporting of maltreatment allegations for all children in unsubstantiated reports. Thus, an analysis of the relative importance of maltreatment type in assessing the risk of rereporting and substantiated rereporting was not possible. Another related limitation is the collection of alleged perpetrator data only for children associated with substantiated or indicated investigations. This prevents an examination of the perpetrator's relationship to child and its impact on subsequent reporting for both victims and nonvictims. Of particular interest would be foster parent perpetrators among those children who are placed. Furthermore, although receipt of services was analyzed, data regarding related issues such as assessment, referral and refusal of services, compliance with case plan, length of services, number of services, and other factors that might aid in explaining rereporting patterns were unavailable.

The data analyzed represent a sizable number of cases, but generalizations of the findings to the national level are not recommended. Furthermore, differences in state definitions, operational policies, resources, and other practices may mean that these findings may not match those of studies conducted in individual states. For example, because the data from Missouri were not included, the apparent lack of a main effect associated with services in the study by Drake et al. (2003) may be because of a pattern of service use in Missouri that is not consistent with the data from the states included here. However, the degree to which these findings replicate those noted in other studies suggests that the factors identified should be considered when fashioning plans for intervention and prevention of subsequent maltreatment.

Policy Implications

Elevated risk for repeated CPS intervention associated with the provision of services including foster care is especially perplexing. It has been hypothesized that this relationship is because of either the

intrinsic elevated risk associated with children and families who receive postinvestigation services or because of increased levels of CPS and community surveillance that go along with the receipt of services (Fluke et al., 1999). In this context, intrinsic risk refers to a theoretical construct of risk that is based on features of the child or the child's environment. Other indicators of intrinsic risk may include maltreatment severity, slowed development, injury, poor school performance, and low physical and mental health functioning. Access to one or more valid risk constructs other than rereporting or recurrence would be helpful in determining the impact of intrinsic risk. Surveillance is also a construct that incorporates the frequency, observational quality, and persistence of CPS staff contact with children and their families. The limited amount of prior research related to the surveillance effect (cf. Barth et al., 2006; Chaffin & Bard, 2006) is also suggestive of possible directions to address this concern, but so far all results, including the ones found here, indicate a very complex set of underlying factors.

The presence of child disability or caretakers who abuse alcohol was shown to independently contribute to the risk of rereporting. Taken together, these variables could be viewed as proxies for intrinsic risk indicators. For this analysis, like services, they independently contribute to relative risk. If intrinsic risk were the overriding factor predicting repeated CPS intervention compared to surveillance, one might expect that the presence of these factors would diminish the role of services in the proportional hazard models. Because when tested this was not the case, either the variables were not an adequate specification of intrinsic risk or the possibility of surveillance cannot be ruled out.

Why risk would be elevated for children who, according to CPS records, receive foster care services is especially perplexing because aside from the relatively rare event of maltreatment while in care, children are protected from further harm while in care. These increased risks for placed children may be related to the length of time that children spend in foster care placements, particularly if the placements are very short term (cf. Jonson-Reid, 2003). Unfortunately, NCANDS does not include information about how long the child was placed, so it was not known whether the subsequent maltreatment actually occurred after the placement.

This study has not resolved whether intrinsic risk or surveillance has primacy regarding the likelihood of subsequent report events; this is an area that remains important for further research. Ultimately, effective CPS intervention depends on identifying and implementing effective service models that can be shown to prevent future harm, even if a child has high intrinsic risk. For now, because measures of rereporting are used to assess agency performance over time, it may be important to include separate measures of children who receive services to discern possible safety improvements in postinvestigation intervention.

NOTE

1. The eight states are Connecticut, Delaware, Kentucky, Montana, Oklahoma, Texas, Utah, and Vermont.

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