

**Illinois Child Endangerment Risk Assessment Protocol (CERAP):
Impact on Short-Term Recurrence Rates – Year Three**

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Illinois Child Endangerment Risk Assessment Protocol Evaluation: Impact on Short-term Recurrence Rates – Year Three

This report is a revised version of the March 26, 1998 report which contains additional data on safety from CANTS records dated 12/1/97 through 11/30/98, as well as data on safety through 120 days from the initial report.

The report analyzes the impact of the implementation of the Child Endangerment Risk Assessment Protocol (CERAP) on the safety of children investigated for child abuse and neglect. CERAP development was initiated in 1994 as a response to concerns about the immediate safety of children in a home being investigated for abuse or neglect. It consists of a focused system for assessing safety using empirically-based factors found to correlate with the risk of abuse and/or neglect and documenting a safety plan for each child in the house. Investigative workers have been provided intensive training with the protocol and must pass a certification test based on mastery of the protocol.

Safety is assessed using data from the statewide Child Abuse and Neglect Tracking System (CANTS) database, and is defined in terms of the recurrence of an indicated maltreatment within 60 days of an initial report. The current analysis builds upon the results of last year's report, which found a significant reduction in short-term recurrence following the CERAP safety protocol implementation. Several alternative explanations for the reduction were assessed. One way to promote safety for children is to take them into protective custody and place them outside the home. However, the reduction found in the first year follow-up was not attributable to an increase in the use of protective custody. In addition, the first year's work tested the possibility that the reduction could have been due to policy changes, also implemented in the time period when CERAP began. One involved substance-affected infants; the other involved risk of harm/inadequate supervision while in the care of a relative. Neither policy change was proven to be related to the reduction in recurrence. Each of these alternative explanations for the reduction seen in recurrence is tested again with the new data available this year.

The first section presents frequency counts of children involved in child abuse and neglect reports, and the second section presents a statistical analysis of changes in short-term maltreatment recurrence rates over the three years after implementation of CERAP.

SECTION ONE: COMPARISON OF SERVICE VOLUMES

Services are described in this study by four indicators: total children reported, children with an allegation, children indicated, and children taken into protective custody. Table I shows the following four counts for the year before implementation of CERAP and the two years post-implementation. The counts are based on the latest extract of data from the CANTS database, which has a total of 679,732 records for the four years. Since implementation of CERAP occurred December 1, 1995, the years being compared differ slightly from a calendar year. The pre-implementation year includes all reports from 12/1/94 through 11/30/95, the first year post-implementation includes 12/1/95 through 11/30/96, the second year post-implementation includes 12/1/96 through 11/30/97, and the third year post-implementation includes 12/1/97 through 11/30/98.

1. Total Children Reported: This is the number of children who are identified in investigated reports of alleged abuse. There are some reports of alleged abuse of children, such as calls to the hot line, which do not meet the criteria of suspected maltreatment and are not included in the CANTS data. Each time a child appears in an investigated report, he or she is included in the count, so individual children may be counted more than once if they are identified in more than one report. The number of children identified in reports of alleged maltreatment represents the total number of children included on the CANTS database for each year.

2. Children with an Allegation: The second count is the number of children reported for whom there was an alleged maltreatment. Each time a child appears in a report and is alleged to have suffered maltreatment, he or she is included in the count. This count excludes children who may have been named in a report (such as siblings or relatives) but were not alleged victims of maltreatment. For all three years, the percentage of children with an alleged maltreatment compared to the total reported ranges from 71 to 72 percent.

3. Children Indicated: The third count is the number of children reported for whom at least one alleged maltreatment event was found to be “indicated” (substantiated). These children are considered to be the victims of maltreatment. A child may be reported, investigated and substantiated more than once. Initial indicated maltreatments for a child and recurrent indicated maltreatment for a child are considered as separate events and thus a child with recurring, substantiated maltreatments will be counted more than once. Each event is considered as an indicated maltreatment for a reported child and thus is included in the count.

4. Protective Custody Taken: The fourth count is the number of children taken into protective custody. Once a report of maltreatment is substantiated, some children are removed from their homes and taken into protective custody by the Division of Child

Protection (DCP), police, or a physician. Since a child may have been included in more than one report, he or she may have been taken into protective custody more than one time, and each instance of protective custody is included in the count.

TABLE I. FOUR-YEAR TRENDS IN CHILDREN REPORTED

	1995 <u>(12/94-11/95)</u>	1996 <u>(12/95-11/96)</u>	1997 <u>(12/96-11/97)</u>	1998 <u>(12/97-11/98)</u>
1. Total Children Reported	185,445	173,498	162,537	158,252
2. Children with an Allegation	133,861	124,207	115,541	111,163
3. Children Indicated	49,786	42,297	38,303	35,918
4. Protective Custody Taken	8,171	7,044	6,077	7,031

Most counts show an overall reduction in service volume from the prior year (except the count of children with protective custody in 1998):

- * a 6% decrease in the number of children reported in 1996 and 1997 and a 2.6% decrease in 1998
- * a 7% decrease in the number of children with an allegation of in 1996 and 1997 and a 3.8% decrease in 1998
- * a 15% decrease in the number of children with an indicated allegation in 1996, a 9% decrease in 1997, and a 6% decrease in 1998
- * a 14% decrease in the number of children taken into protective custody in 1996 and 1997, and a 16% increase in 1998

However, when the numbers of children with indicated allegations are considered as a *proportion* of the children with allegations, the changes over time are smaller. These percentages are shown in Table II.

TABLE II. PERCENTAGE CHANGE -- ALL REPORTS

	1995	1996	1997	1998
% Children Indicated of Children Reported	26.8%	24.4%	23.6%	22.7%
% Children Indicated of Children with Allegations	37.2%	34.1%	33.2%	32.3%
% Children with Protective Custody of Children Indicated	16.4%	16.7%	15.9%	19.6%

Changes in these proportions over the three years are:

- * An 8% decrease in the proportion of children with indicated allegations to children with allegations in 1996, a 3% decrease in 1997, and a 3% decrease in 1998
- * A 2% increase in the proportion of children taken into protective custody to children with indicated allegations in 1996, a 5% decrease in 1997, and a .23% increase in 1998

In previous years, with only two or three years of comparison data, A Mann-Whitney U Test was used to compare year-to-year changes in the number of children with indicated allegations and the proportion of children with indicated allegations taken into protective custody. With the fourth year of data showing an increase in protective custody over the prior year while there was no significant change in the number of children with indicated allegations for those years, a different statistic was used. One-way Analysis of Variance addresses all four data years simultaneously. As a result, some of the comparisons that appeared as a significant difference in pairwise year-to-year comparisons, were shown not to be significant in the four-year context. Over all four years, both the number of indicated reports ($F=16.1$, $p < .001$) and the proportion of protective custody cases ($F=3.8$, $p < .05$) show significant difference. The pattern of differences was assessed using post-hoc comparisons with the Scheffe test. Now that there is a multi-year data set, more sophisticated analyses will be developed of these trends as a time series.

For the number of children with indicated allegations, there was a significant decrease from 1995 to 1996. The decrease from 1996 to 1997 was not significant, though the decrease from 1995 to 1997 was significant. The decrease from 1997 to 1998 was not significant, though the decreases from 1995 to 1998 and 1996 to 1998 were significant. For the proportion of children with indicated allegations taken into protective custody, the only significant differences found are the increases from 1997 to 1998, and from 1995 to 1998. All other year-to-year changes are non-significant.

The increased use of protective custody in 1998 may reflect the more serious nature of the cases being reported, as the number of reports continues to drop each year, or it may reflect other systemic changes outside the scope of this study to examine. Further analysis is in progress concerning protective custody use and patterns. This may contribute to an understanding of this changing trend

Tables III and IV present the same basic counts and percentages of children reported, indicated and taken into protective custody, but only for the first report received on each child in the time period 12/1/94 through 11/30/95. This table thus represents not a count of all reports for all children, but only the first report per child in this time period. These first reports include all initial investigations of a household (which are defined as a Sequence A report in the CANTS database), as well as subsequent investigations, as long as they are the first for a child within this time period. The total number of children represented in first reports is 476,768 for the four-year period.

TABLE III. THREE-YEAR TRENDS IN FIRST REPORTS IN TIME PERIOD

	1995	1996	1997	1998
1. Total Children Reported	141,347	112,932	100,237	93,543
2. Children with an Allegation	100,476	79,589	69,967	64,753
3. Children Indicated	35,623	25,542	21,622	19,309
4. Protective Custody Taken	5,275	3,837	3,158	3,468

As with the overall reporting rates, counts of first reports received have decreased (with the exception of protective custody in 1998) showing:

- * a 20% decrease in the number of children reported in 1996, an 11% decrease in 1997, and a 7% decrease in 1998
- * a 21% decrease in the number of children with an allegation of maltreatment in 1996, a 12% decrease in 1997, and a 7% decrease in 1998
- * a 28% decrease in the number of children with an indicated allegation in 1996, a 15% decrease in 1997, and an 11% decrease in 1998
- * a 27% decrease in the number of children taken into protective custody in 1996, an 18% decrease in 1997, and a 10% increase in 1998

TABLE IV. PERCENTAGE CHANGE IN FIRST REPORTS

	1995	1996	1997	1998
% Children Indicated of Children Reported	25.2%	22.6%	21.6%	20.6%
% Children Indicated of Children with Allegations	35.4%	32.1%	30.9%	29.8%
% Children with Protective Custody of Children Indicated	14.8%	15.0%	14.6%	18.0%

The changes in the proportions for first reports in the time period show:

- * A 9% decrease in proportion of children with indicated allegations to children with allegations in 1996, and 4% decreases in 1997 and 1998
- * A 1% increase in the proportion of children taken into protective custody to children with indicated allegations in 1996, and a 3% decrease in 1997 and a 23% increase in 1998

Finally, for all reports that represent both a first report received within the time period, and a Sequence A initial report for a household, Tables V and VI show the same four service volumes and percentage changes:

TABLE V. THREE-YEAR TRENDS IN SEQUENCE A REPORTS

	1995	1996	1997	1998
1. Total Children Reported	107,445	93,048	86,483	82,013
2. Children with an Allegation	76,022	65,461	60,177	56,597
3. Children Indicated	23,908	19,076	17,017	15,434
4. Protective Custody Taken	2,801	2,176	1,894	1,955

The changes in counts for Sequence A reports show:

- * a 13% decrease in the number of children reported in 1996, a 7% decrease in 1997, and a 5% decrease in 1998
- * a 14% decrease in the number of children with an allegation of maltreatment in 1996, an 8% decrease in 1997, and a 6% decrease in 1998
- * a 20% decrease in the number of children with an indicated allegation in 1996, an 11% decrease in 1997, and a 9% decrease in 1998
- * a 22% decrease in the number of children taken into protective custody in 1996, a 13% decrease in 1997, and a 3% increase in 1998

TABLE VI. PERCENTAGE CHANGE IN SEQUENCE A REPORTS

	1995	1996	1997	1998
% Children Indicated of Children Reported	22.3%	20.5%	19.7%	18.8%
% Children Indicated of Children with Allegations	31.5%	29.1%	28.3%	27.2%
% Children with Protective Custody of Children Indicated	11.7%	11.4%	11.1%	12.7%

The changes in the proportions for Sequence A reports show:

- * An 8% decrease in proportion of children with indicated allegations to children with allegations in 1996, a 3% decrease in 1997, and a 4% decrease in 1998
- * A 3% decrease in the proportion of children taken into protective custody to children with indicated allegations in 1996 and 1997, and a 14% increase in 1998

One-way Analysis of Variance tests show that while the decreases over the four years in number of children in Sequence A reports with indicated allegations is significant ($F=23.7$, $p < .001$), the differences in proportion of children with indicated allegations who are taken into protective custody are not significant ($F=.553$, $p = .649$).

For the number of children with indicated allegations, there was a significant decrease from 1995 to 1996. The decrease from 1996 to 1997 was not significant, though the decrease from 1995 to 1997 was significant. The decrease from 1997 to 1998 was not significant, though the decreases from 1995 to 1996 and 1996 to 1998 were significant.

SECTION TWO: RECURRENCE ANALYSIS

Short-term recurrence rates continue to decrease over the three years following implementation of the Safety Protocol. Table VII presents the recurrence rates based on the 476,768 cases which are first reports in the time period.

TABLE VII. 60 DAY RECURRENCE – FIRST REPORTS in TIME PERIOD				
	Total	Number Recurrent*	Crude Rate	% Reduction From prior year
1995	141,347	3,851	2.7%	
1996	112,932	2,290	2.0%	25.9%
1997	100,237	1,790	1.8%	10.0%
1998	93,543	1,542	1.6%	11.1%

*The number recurrent is of children with an indicated report occurring within 60 days of their first report in the time period.

The data set of first reports was further refined by selecting only the Sequence A reports and only the cases not taken into protective custody. This file, called Sequence A Non-Protective Custody Reports, and containing 387,186 child reports for the four years, is the basis of the recurrence analysis. Since the CERAP protocol targets children’s safety in initial investigations, and since cases with more than one investigation start from a point of higher recurrence rates, by definition, Sequence A cases remaining in their home provide the clearest picture of the impact of the CERAP implementation.

Table VIII presents the recurrence rates based on the 387,186 cases in the Sequence A non-Protective Custody Reports file.

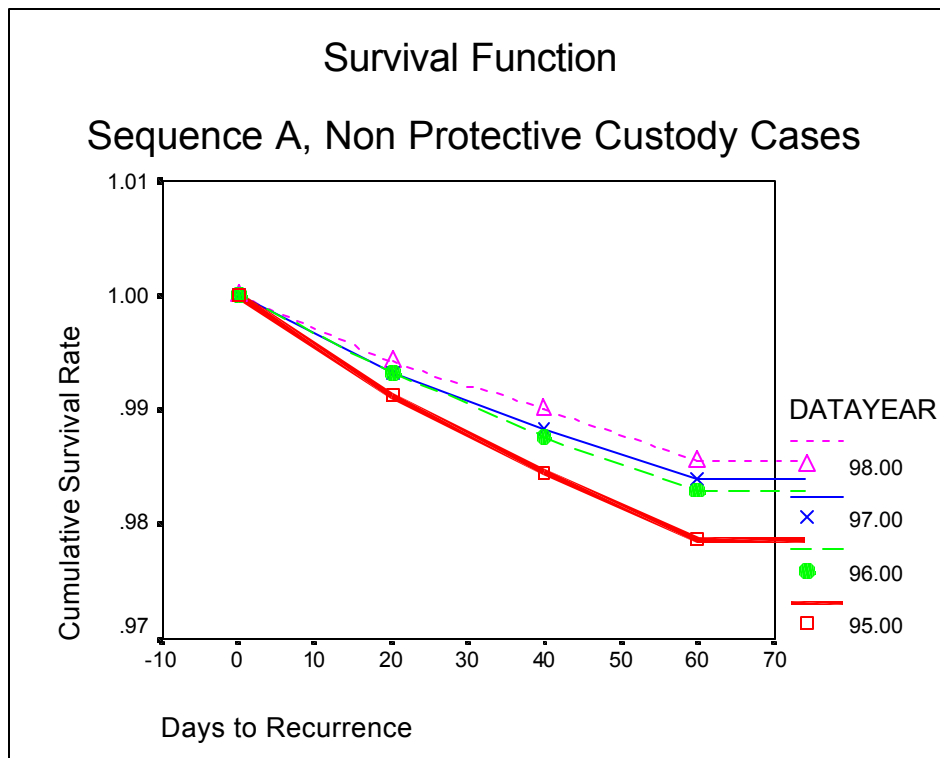
TABLE VIII. 60 DAY RECURRENCE – SEQUENCE A, NON-PROTECTIVE CUSTODY

	Total	Number Recurrent	Crude Rate	% Reduction From prior year
1995	104,231	2,240	2.1%	
1996	90,870	1,561	1.7%	19.0%
1997	84,587	1,348	1.6%	5.9%
1998	80,058	1,164	1.5%	6.3%

These data reflect small changes from the same statistics reported last year for the 1997 recurrence rates. In both tables, the numbers of cases recurring within 60 days for cases reported in 1997 are higher than the figures for that same year from last year's. This is due to the use of a more recent data extract with possible recurrent events in the first 60 days following the end of the previous year's extract.

The reduction in the recurrence rate for the first year of CERAP implementation remains 19.0%, but the difference between Year One post-CERAP and Year Two is now 5.9% rather than 11.8%. **The overall reduction from pre-implementation to the end of the second year is now 23.8% and to the end of the third year post-implementation is 28.6%.**

The data from the four years are also compared using survival analysis, a time-series procedure that provides a continuous view of the likelihood of recurrence of a defined problem within a defined period of observation. In this case the defined problem is an indicated maltreatment and the period of observation is 60 days. The following graph plots the survival curves (proportion of children not recurring) and provides a visual representation of the way recurrence rates have dropped over the four years.



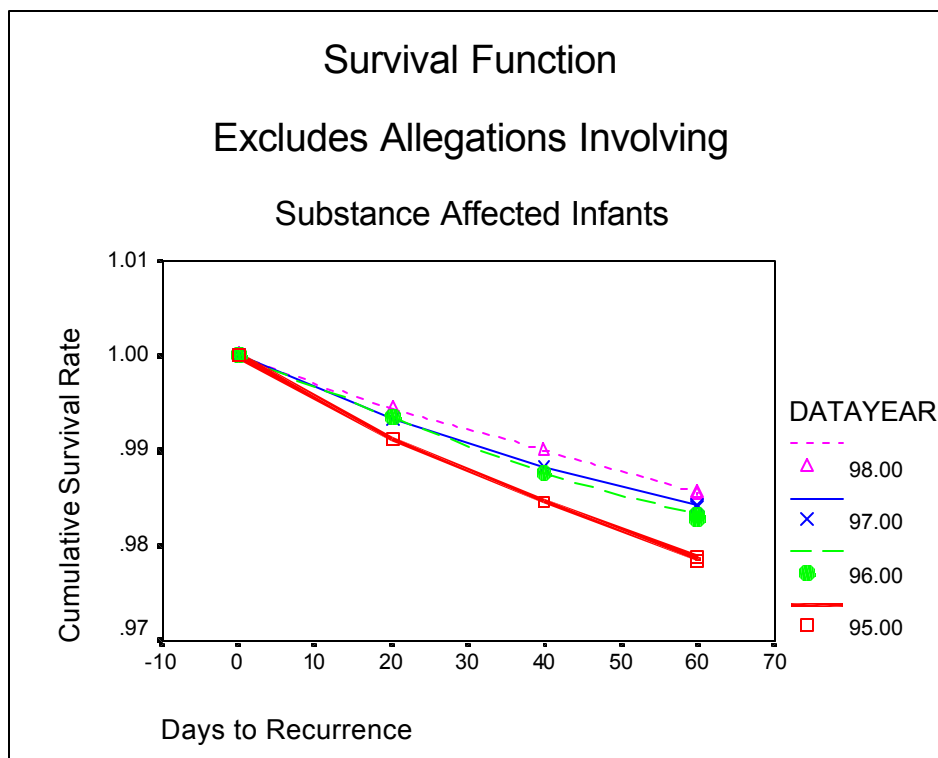
The reductions in recurrence rates from 1995 to 1996 are statistically significant at the .001 level, and the reductions from 1996 to 1997 and from 1997 to 1998 at the .05 level, using the results of the Kaplan-Meier Survival analysis:

Statistic Used	1995-1996 change, statistical significance	1996-1997 change, statistical significance	1997-1998 change, statistical significance
Log Rank	.0000	.0428	.0204
Breslow	.0000	.0438	.0199
Tarone-Ware	.0000	.0433	.0202

To confirm last year’s finding that the reduction in short-term recurrence was not explained by policy changes involving substance-abuse affected infants or cases which had only allegations of risk of harm/inadequate supervision with a relative as caregiver, a separate analysis was done controlling for each of those possible causes. That analysis revealed very little change in recurrence rates from the primary analysis on Sequence A, Non-Protective Custody cases. These results are shown in Table IX, which excludes substance-affected infants, and in Table X, which excludes allegations of risk of harm/inadequate supervision only with relative caregivers. While the absolute numbers in Table IX change, the percentage reductions from 1995 to 1996 and from 1996 to 1997 do not. The recurrence rate for 1998 when substance affected infant cases are excluded is one-tenth of a percent (or 6.7% lower) than the 1.5% rate for 1998 when these cases are not excluded. It does not change the pattern of significantly lower recurrence after CERAP implementation.

TABLE IX. 60 DAY RECURRENCE – EXCLUDING ALLEGATIONS INVOLVING SUBSTANCE AFFECTED INFANTS

	Total	Number Recurrent	Crude Rate	% Reduction From prior year
1995	102,906	2,200	2.1%	
1996	89,831	1,528	1.7%	19.0%
1997	83,707	1,323	1.6%	5.8%
1998	79,307	1,144	1.4%	12.5%



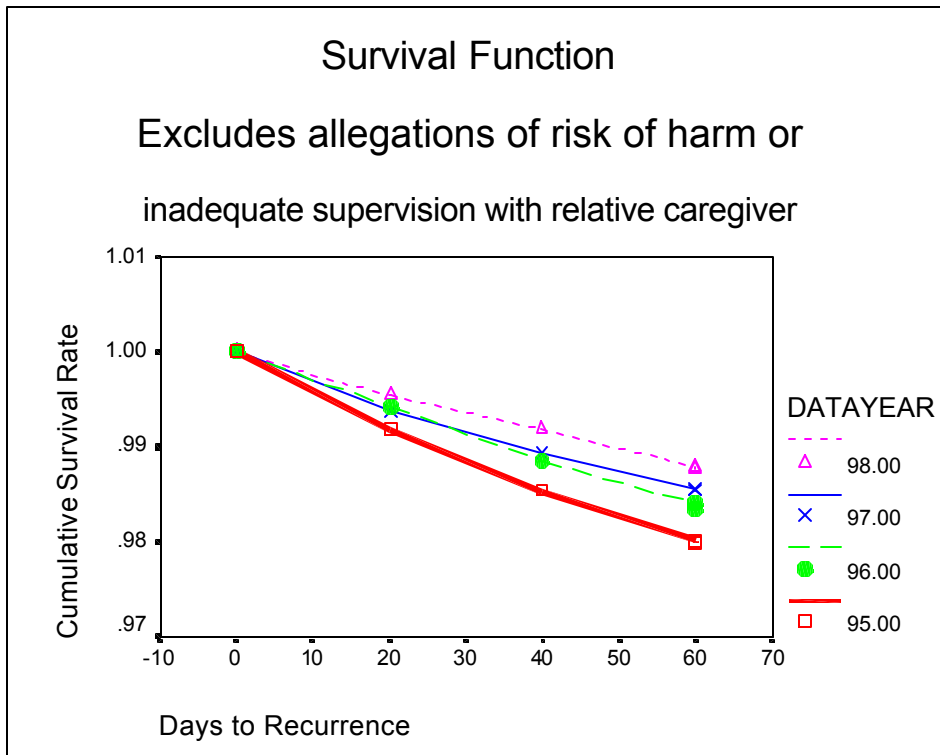
The reductions in recurrence rates from 1995 to 1996 are statistically significant at the .001 level, the reduction from 1996 to 1997 at the .10 level, and the reduction from 1997 to 1998 at the .05 level, using the results of the Kaplan-Meier Survival analysis:

Statistic Used	1995-1996 change, statistical significance	1996-1997 change, statistical significance	1997-1998 change, statistical significance
Log Rank	.0000	.0497	.0221
Breslow	.0000	.0509	.0216
Tarone-Ware	.0000	.0503	.0218

Table X and the following figures presents the recurrence rates for the four years when cases whose only allegations were inadequate supervision or risk of harm and whose caretaker was defined as a relative were excluded.¹ Recurrence rates are slightly lower each year when these cases are excluded than those shown in Table VIII for all Sequence A Non Protective Custody cases. The same pattern of differences, particularly the significantly lower recurrence after CERAP implementation, is observed, however. Thus, policy changes around these allegations and the allegations involving substance-affected infants were not responsible for the reduction in short-term safety found.

TABLE X. 60 DAY RECURRENCE – EXCLUDING ALLEGATIONS OF RISK OF HARM/INADEQUATE SUPERVISION WITH RELATIVE CARETAKERS				
	Total	Number Recurrent	Crude Rate	% Reduction From prior year
1995	73,597	1,467	2.0%	
1996	65,007	1,055	1.6%	20.0%
1997	60,082	868	1.4%	12.5%
1998	56,948	693	1.2%	14.3%

¹ This year's data represents a correction from last year's estimates. While the totals and number recurrent presented here are smaller than the counts found last year, the yearly rates of recurrence and the percent reduction between years remain fairly consistent.

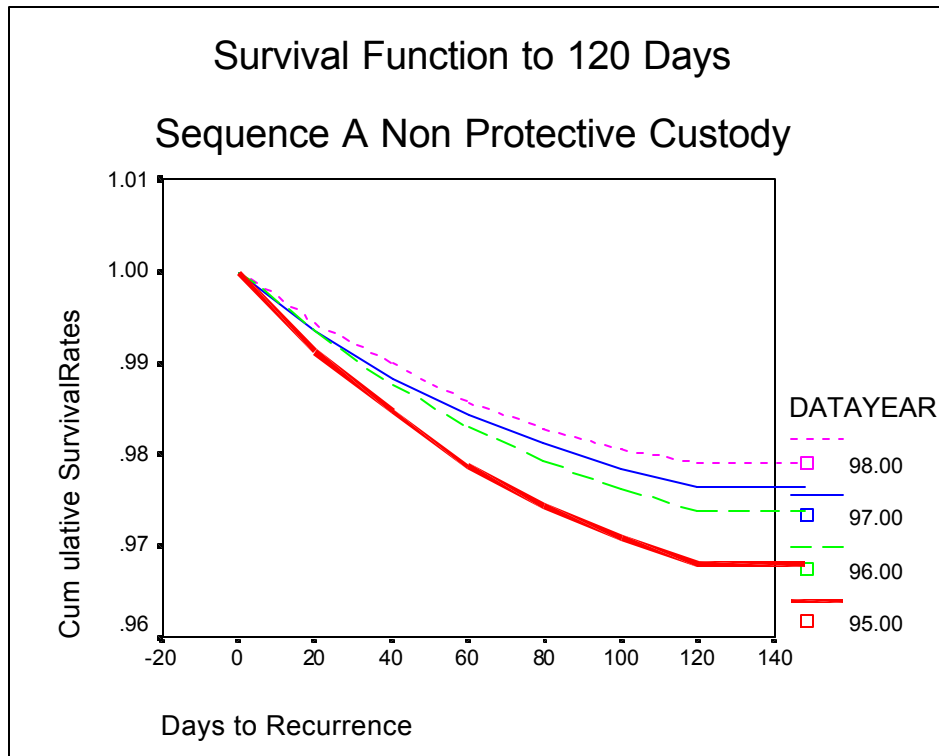


All reductions in recurrence rates are statistically significant, using the results of the Kaplan-Meier Survival analysis:

Statistic Used	1995-1996 change, statistical significance	1996-1997 change, statistical significance	1997-1998 change, statistical significance
Log Rank	.0000	.0109	.0007
Breslow	.0000	.0114	.0006
Tarone-Ware	.0000	.0112	.0007

To assess whether reductions in short-term recurrence rates remain significant at 120 days after the initial report, a 120-day survival analysis was done. Results are shown in Table XI and the following figures. As with 60-day rates, recurrence rates remain significantly lower in the three-year period following CERAP implementation.

	Total	Number Recurrent	Crude Rate	% Reduction From prior year
1995	104,233	3,343	3.2%	
1996	90,872	2,402	2.6%	18.8%
1997	84,589	1,997	2.4%	7.7%
1998	80,058	1,673	2.1%	12.5%



All reductions in recurrence rates to 120 days are statistically significant at the .001 level, using the results of the Kaplan-Meier Survival analysis:

Statistic Used	1995-1996 change, statistical significance	1996-1997 change, statistical significance	1997-1998 change, statistical significance
Log Rank	.0000	.0002	.0002
Breslow	.0000	.0002	.0002
Tarone-Ware	.0000	.0002	.0002

SUMMARY

Results of a three-year follow-up of the impact of the CERAP Safety Protocol were consistent with the results of the first year. The recurrence of moderate to severe maltreatment for at-risk children continued to show significant reduction three years post-implementation, both at 60 days and at 120 days. The overall reduction from pre-implementation to the end of the third year post-implementation is 28.6%. Assessment of possible alternative explanations showed that they were not likely to have produced the results found.