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TECHNICAL REPORT

National Evaluation of Safe Start Promising Approaches

Results Appendix F: Erie, Pennsylvania

In Jaycox, L. H., L. J. Hickman, D. Schultz, D. Barnes-Proby, C. M. Setodji, A. Kofner, R. Harris, J. D. Acosta, and T. Francois, *National Evaluation of Safe Start Promising Approaches: Assessing Program Outcomes*, Santa Monica, Calif.: RAND Corporation, TR-991-1-DOJ, 2011

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ERIE, PENNSYLVANIA, SAFE START OUTCOMES REPORT

ABSTRACT

The Erie County Safe Start program developed an integrated treatment team approach with three main components: therapy, case management, and parent education groups. The objective of this program was to improve outcomes for children (ages 0–12) exposed to violence. A full description of the program can be found in *National Evaluation of Safe Start Promising Approaches: Assessing Program Implementation* (Schultz et al., 2010). The evaluation of the program consisted of a randomized controlled trial of the intervention, with randomization occurring at the family level. Erie program staff enrolled 166 families in the study, with 63 percent of them retained for the six-month assessment. At baseline, caregivers reported that children had been exposed to an average of 4.9 types of violence in their lives. More than one-half of enrolled families reported baseline child posttraumatic stress disorder (PTSD) symptoms that fell in the “significant” range and levels of parental stress that fell in the “clinical” range. Erie’s tailored approach to services meant that families in the intervention group received an array of services, depending on their specific circumstances. Overall, 85 percent of Erie’s families in the six-month analysis sample received some form of therapy, with an average of 16.3 therapy sessions. Erie’s case manager averaged 4.9 case management contacts per family, and the integrated treatment team met an average of 5.4 times per family. Results from the evaluation of the study showed that the mean scores for the outcomes assessed moved in the expected direction. In the PTSD, social-emotional competence, and caregiver-child relationship domains, statistically significant changes were noted within the intervention group for the caregiver’s report of child’s PTSD symptoms, affective strengths, and cooperation and on the difficult child and total parental stress scales, but these changes did not differ significantly from those observed in the control group, with one exception. There was a significant difference between the intervention and control group, such that the intervention resulted in a larger decrease in caregiver reports of child assault between baseline and six months relative to control in unadjusted models. However, after controlling for demographic characteristics and baseline violence exposure in adjusted models,

this difference was no longer significant. Similarly, examination of changes among families receiving different amounts of services as compared with comparable control families revealed only one statistically significant difference. Children in the high-dosage intervention group showed significant improvement on the passage comprehension test compared with children in the control group. Although it is possible that the services as implemented in this study were not effective in improving outcomes for the population under study or may not have been provided in an adequate dose to produce better outcomes than the comparison condition, the lack of statistical findings could also reflect a lack of statistical power to detect medium intervention effects because of the sample size limitations in the study, a mismatch between the program's impact and the particular outcomes measured in this study, increased recognition of symptoms as a function of the intervention, insufficient time to observe intervention effects, or the robust nature of the services available to the control group. Overall, the Erie Safe Start model is an innovative model for providing tailored services to children exposed to violence, but firm conclusions about its effectiveness require further testing.

INTRODUCTION

The Erie Safe Start program is located in Erie County, Pennsylvania. In 2005, Erie County's Office of Children and Youth, the local child protection agency, received about 625 reports of child maltreatment, and about 20 percent of these were substantiated after the investigation (Children's Advocacy Center of Erie County, 2004). In addition, there were approximately 800 new cases of domestic violence reported each year in Erie County, of which 100 cases in 2003 resulted in criminal charges and prosecution (Children's Advocacy Center of Erie County, 2004). The Crime Victim Center of Erie County, the agency that provides services to a broad range of crime victims, served approximately 1,300 children in 2003 (Children's Advocacy Center of Erie County, 2004).

The Erie Safe Start program was intended to address the issues faced by young children who experienced or were exposed to child abuse, domestic violence, or other forms of violence. Resources for children exposed to violence in Erie County were seen as limited, and agencies charged with serving child victims functioned independently. Recognizing the need for additional services and a more coordinated approach to service delivery, the Children's Advocacy

Center of Erie County proposed for its Safe Start program to implement an integrated treatment program that offered case management and parent education groups. These services had not previously been available to this population. In addition, the Erie Safe Start program sought to coordinate therapeutic treatment for children and families across different community agencies. While there had been efforts to coordinate services for children exposed to violence and their families in the past, these efforts were often limited to integrating child abuse and domestic violence programs. The Erie Safe Start project expanded on the work in this area by also attending to the needs of child victims or witnesses of other forms of violence.

The outcomes evaluation presented here provides data relevant to the question of whether the Erie Safe Start program, as implemented within this project, improves outcomes for children exposed to violence.

ERIE SAFE START

- **Intervention type:** Individualized therapy, case management, and parent education groups
- **Intervention length:** Six months
- **Intervention setting:** In-home, clinic, school, or day care, depending on the client's preference
- **Target population:** Children who had been physically or sexually abused, had witnessed domestic violence, had been victimized in any violent crime, or had witnessed violent crime
- **Age range:** 0–12
- **Primary referral sources:** Children's Advocacy Center, Office of Children and Youth

INTERVENTION

All families referred to Erie Safe Start received a developmental screening to assess child and family functioning. The intervention model, which was only provided to families assigned to the intervention group, included three main components: individualized therapy, case management, and parenting education groups. The intervention was delivered in a location preferred by the client (e.g.,

client's home, clinic, school, or day care). The intervention period lasted approximately six months. These elements are described briefly in the following paragraphs. For a full description of the Erie intervention as it was delivered, see Schultz et al. (2010).

The therapy component of Erie's integrated treatment program was relatively unstructured and largely driven by the needs of the parent and child. The assigned therapist conducted an initial home visit, guided by a written protocol designed to gather information about the child's developmental history, the family situation, and the home environment through questions and observations by the therapist. The therapist then used all the information gathered from the developmental screening and home visit to develop a treatment plan for the family, with flexibility in how the intervention was delivered and the amount of time spent working on any area. The types of therapy might include dyadic therapy, play therapy, or family therapy. This treatment plan was reviewed by the integrated treatment team and signed by the parent, therapist, and treatment team.

The case management component of the intervention involved contacting the family regularly to connect them with services and help with any obstacles. The case management continued up to two years after enrollment in the study. In addition, Erie Safe Start convened the integrated treatment team each week to discuss and review each family's progress.

The parenting group component was developed by Erie Safe Start with the goals of expanding parent knowledge, improving parent-child bonding, and providing child management and child protection skills. There was a standard curriculum for the 12 weekly 90-minute sessions, with materials and a participant workbook for each session. Eight sessions were conducted with parents only, and four were conducted with parents and children together. The sessions focused on psycho-education, parent-child attachment and bonding, and the parent's role as leader of the family.

Efforts to monitor the quality of the program included delivery of intervention services by staff trained in the intervention model and the implementation process. In addition, staff participated in weekly treatment team meetings and individual clinical supervision. During the treatment team meetings, the team reviewed assessment and intervention techniques, discussed strategies for engaging clients, and outlined specific treatment goals. Individual

clinical supervision sessions were used to address potential difficulties, suggest appropriate approaches, and assess therapist competence. In addition, Erie Safe Start developed a process of reviewing and modifying the model-driven family treatment plans with clinical staff to ensure fidelity to the model.

METHOD

Design Overview

The design of this study was a randomized controlled trial, with block randomization occurring at the family level within age groups (0–2, 3–6, 7–12) and with eligible children recruited after families were referred to the program. In addition to usual support services provided by the Children’s Advocacy Center, including forensic interviews (i.e., neutral, fact-finding assessments) of children utilizing trained personnel and multidisciplinary team case reviews, the intervention group received individualized therapy for up to six months, case management for up to two years, and parenting education groups for up to six months. Families in the control group continued to receive usual support services. For both groups, child outcomes and contextual information were assessed at baseline, six, 12, 18, and 24 months. Study enrollment took place between April 2006 and March 2009.

Evaluation Eligibility Criteria

To be eligible for the Erie Safe Start program, the family had to be proficient in English, and the child was required to be 0–12 years old and have been exposed to violence, defined as having been physically or sexually abused, having witnessed domestic violence, having been a victim of any violent crime, or having witnessed violent crime. Evidence of exposure to violence might include a report from the Office of Children and Youth, the filing of criminal charges by the District Attorney’s office, a police report, emergency room medical data, intake data from domestic violence shelter, or history from mental health treatment personnel.

When more than one child in the eligible age range was eligible for the program by virtue of exposure to violence, the child with the closest birth date to the date of enrollment was selected as the target child for the evaluation. As noted earlier, the intervention included the entire family.

Randomization Procedures

On enrollment into the study, the children were randomized into intervention or control groups using a block randomization procedure that allowed for approximately the same number of children in the intervention and control groups (see Chapter Four of the main document [http://www.rand.org/pubs/technical_reports/TR991-1.html]). Because of the possibility that the impact of the intervention could differ by child age, the sample was stratified into three groups. One group of children was recruited from birth up to 2 years of age, the second group of children was between 3 and 6 years old, and the last group was recruited from those between the ages of 7 and 12. One family was randomized prior to completion of the baseline assessment, and the caregiver was not able to complete it, so this family was removed from the analysis. Seven families were involved with a therapist who failed to deliver services and still retained case notes on families. Erie reassigned all of these families to other therapists and did not conduct any further assessments. These families were also removed from the analysis.

Measures

The measures used in this study are described fully in Chapter Two of the main document (see http://www.rand.org/pubs/technical_reports/TR991-1.html). The measures were uniform across the national evaluation but prioritized within each site as to the relevance to the intervention under study. Given the nature of the Erie Safe Start intervention, the outcomes were prioritized as shown in Table 1.

Table 1
Prioritized Outcome Measures for Erie Safe Start

Primary Outcome Measures			
<i>Domain</i>	<i>Source/Measure</i>	<i>Age of Child</i>	<i>Respondent</i>
PTSD Symptoms	Trauma Symptom Checklist for Young Children	3–10 years	Caregiver
PTSD Symptoms	Trauma Symptom Checklist for Children	8–12 years	Child
Behavior/Conduct Problems	BITSEA and Behavior Problem Index	1–12 years	Caregiver
Social-Emotional Competence	BERS-2 (School Functioning, Affective Strengths)	6–12 years	Caregiver
Social-Emotional Competence	BERS-2 (School Functioning, Affective Strengths)	11–12 years	Child
Social-Emotional Competence	ASQ	0–2 years	Caregiver
Social-Emotional Competence	BITSEA and SSRS (Assertion and Self-Control)	1–12 years	Caregiver
Social-Emotional Competence	SSRS (Cooperation)	3–12 years	Caregiver
School Readiness/Performance	Woodcock-Johnson III	3–12 years	Child
Violence Exposure	Juvenile Victimization Questionnaire	All	Caregiver
Violence Exposure	Juvenile Victimization Questionnaire	11–12 years	Child
Secondary Outcome Measures			
<i>Domain</i>	<i>Measure</i>	<i>Age of Child</i>	<i>Respondent</i>
Depressive Symptoms	Children’s Depression Inventory	8–12 years	Child
Caregiver-Child Relationship	BERS-2 (Family Involvement)	6–12 years	Caregiver
Caregiver-Child Relationship	BERS-2 (Family Involvement)	11–12 years	Child
Caregiver-Child Relationship	Parenting Stress Index	All	Caregiver
Violence Exposure	Caregiver Victimization Questionnaire	All	Caregiver
Tertiary Outcome Measures			
<i>Domain</i>	<i>Measure</i>	<i>Age of Child</i>	<i>Respondent</i>
Background and Contextual Factors	Everyday Stressors Index	All	Caregiver
Behavior/Conduct Problems	Delinquency Items	11–12 years	Child

NOTE: ASQ = Ages and Stages Questionnaire, BERS-2 = Behavior and Emotional Rating Scales—2, BITSEA = Brief Infant-Toddler Social and Emotional Assessment, SSRS = Social Skills Rating System.

Enrollment and Retention

Erie Safe Start received most of its referrals from the Children’s Advocacy Center, Crime Victim Center, and the Erie County Office of Children and Youth. When they received referrals, program staff immediately called and attempted to

set up an appointment to complete a developmental screening and the Safe Start baseline assessment. A family was not enrolled until the developmental screening and baseline assessment were complete. After the baseline assessment was completed, program staff implemented the random assignment procedures and informed the family and the referral source of the assignment.

According to data submitted on its Quarterly Activity Reports, Erie Safe Start enrolled 41 percent of the families referred to the program. The most common reasons that families did not enroll included caregiver-related issues, such as inability to locate or missed appointments (33 percent); legal guardian-related issues, such as inability to locate or obtain permission from the noncustodial parent (30 percent); and the family not being interested in participating (23 percent).

In Table 2, we present the number and percentage of all enrollees who were eligible for participation at each data collection time point. Erie program staff enrolled 166 families in the study and completed six-month research assessments for 63 percent of caregivers and 62 percent of children. For subsequent research assessments, Erie retained from 62 to 83 percent of the families, depending on the assessment point and type.

Special Issues

The pace of recruitment and enrollment within the study was originally much slower than the program expected. Erie Safe Start thought that it would receive referrals from the Children’s Advocacy Center, the Office of Children and Youth, the District Attorney’s Office, and the Crime Victims Center. However, these referral sources were either not referring clients or not referring enough clients to meet the needed enrollment numbers. Partway through implementation, the Erie project team developed a multipronged approach to increasing referrals that included increasing the target child age range from 0–8 years to 0–12 years, outreach to some of the places that were not referring at all, education for the agencies that were referring, and promotion of Safe Start internally within the Children’s Advocacy Center. These efforts dramatically increased referrals. For a more in-depth discussion, see Schultz et al. (2010).

Table 2
Retention of Enrollees Eligible to Participate in Assessments at Each Time Point

	Caregiver Assessment				Child Assessment			
	Six Months	12 Months	18 Months	24 Months	6 Months	12 Months	18 Months	24 Months
Intervention								
Received	54	25	13	10	50	25	13	9
Expected*	79	35	16	11	75	34	16	11
Retention Rate	68%	71%	81%	91%	67%	74%	81%	82%
Control								
Received	50	22	9	9	47	21	9	9
Expected*	87	34	17	12	81	33	17	12
Retention Rate	57%	65%	53%	75%	58%	64%	53%	75%
Overall								
Retention Rate	63%	68%	67%	83%	62%	69%	67%	78%

* The number of expected assessments for longer-term assessments differs from the number who entered the study because the field period for collecting data in this study ended in the fall of 2009, before all families entered the window of time for assessments at 12, 18, or 24 months.

Analysis Plan and Power Calculations

First, we conducted descriptive analyses to summarize the sample baseline characteristics: age, gender, race or ethnicity, the family income level, and the child’s violence exposure. We also compared the two groups on primary, secondary, and tertiary outcomes at baseline. Because this was a randomized experimental design, we did not expect any meaningful differences between the two groups at baseline. However, to be certain, we tested for differences in child and caregiver characteristics and outcomes between intervention and control group children using t-tests and chi-square tests.

To assess the effect of the Safe Start intervention, we primarily examined differences between children in the intervention and control groups at six months. It is important to consider the power this study has for such an analysis. One way to describe power is by using the effect size difference between the two groups being compared. The effect size is a standardized measure of the strength of association between an intervention and an outcome and is defined as the average difference in an outcome between the intervention and control groups divided by the common standard error. The effect size measure is commonly classified as small if it is about 0.2, medium if it is about 0.5, and large if it is

about 0.8 (Cohen, 1988). With only 104 children (or caregivers) observed at both baseline and six months (54 in intervention and 50 in control), at the nominal 0.05 significance level we have a 17.2-percent chance to detect a small intervention effect, a 71.3-percent chance to detect a medium intervention effect, and an 80-percent chance to detect a large intervention effect in this study. Erie's intervention model involved therapy with children and parents, but this approach had not been previously studied. Given uncertainty about what kind of an intervention effect to expect for this site, we wanted to have enough power to detect a medium intervention effect. Statistical power was dampened by several factors other than overall sample size. The range of children's ages meant that the full data were not available for some measures because not all children were in the age range eligible to complete that measure. Further, the corrections for the multiple statistical tests being conducted also reduced power. The low power in this study must be kept in mind when interpreting the results.

We examined differences between the intervention and control groups using an intent-to-treat approach, which includes in analyses all those assigned to the intervention group, regardless of the amount of services received. As discussed in Chapter Four of the main document (see http://www.rand.org/pubs/technical_reports/TR991-1.html), comparisons of a control group only to those who complete services (or receive a predetermined amount of services) is likely to bias results. That is, those who do not engage in services or drop out prior to completion may be systematically different than those who remain. Ideally, analyses would take into account the type and amount of services received to account for dosage variability. We explore this issue of "dose" of the intervention as described in the following paragraphs.

To examine differences between the intervention and control groups using the intent-to-treat approach described in the previous paragraph, we present baseline and follow-up estimates of primary, secondary, and tertiary outcomes for both groups when the sample size is greater than or equal to five. We compare means within groups across time using t-tests, compare groups via chi-square or t-tests at each time point, and examine difference in differences to compare the two groups on mean changes over time between baseline and follow-up assessments (when the sample size is at least ten per group). Where the sample size is over 20 in each group, we conducted multiple linear regressions on the different continuous outcomes and linear probability

regressions on the dichotomous outcomes to test for the difference in difference via main effects and the interaction between intervention status and time, after controlling for baseline characteristics (parent and child age, gender, race, and exposure to violence). These baseline characteristics were selected to correct for any potential imbalance in the groups by relevant demographic characteristics.

To assess outcomes related to the as-treated sample (i.e., those families that took part in the intervention services offered), we examined the outcome means for families that took part in the intervention services offered, broken down into groups that received a low dose of the intervention, a medium dose, and a high dose. Since children with more need are likely to receive more services, we would expect this selection scheme to possibly present an unforeseeable bias, with families more in need receiving more services. To account for this selection bias related to service dosage, we used the propensity score-matching method to pair families in each dosage group with families with similar needs in the control group. The matching paired families based on similar baseline scores on the outcome measure of interest. The analyses then examined the difference in differences between the intervention and control groups for each dosage group at the six-month follow-up. Note that in this analysis, the full control group is used in the matching of each of the dosage levels. We examine only primary outcomes with this method, in recognition that it is exploratory and preliminary.

When conducting large numbers of simultaneous hypothesis tests (as we did in this study), it is important to account for the possibility that some results will achieve statistical significance simply by chance. The use of a traditional 95-percent confidence interval ($p < 0.05$), for example, will result in one out of 20 comparisons achieving statistical significance as a result of random error. We therefore adjusted for false positives using the False Discovery Rate (FDR) method (Benjamini and Hochberg, 1995). Our assessments of statistical significance were based on applying the FDR procedure separately to all of the primary, secondary, and tertiary outcome tests in this report (as reported in Tables 6–8) using an FDR of 0.05. With 15 model test statistics conducted among the primary outcomes, this led to adopting a statistical significance cutoff of 0.003 in the covariate-adjusted difference in difference results. With only six secondary outcomes with enough sample sizes to allow for modeling, the FDR significance level adopted was 0.006, while such significance level was set at 0.025 for the

tertiary outcomes (only two outcomes). In the discussion of results, we have also identified nonsignificant trends in the data, defined as those tests with p-values of less than 0.05 but not exceeding the threshold established using the FDR method to adjust for multiple significance tests. While these trends may suggest a practical difference that would be statistically significant with a larger sample size, they must be interpreted with caution, because we cannot rule out that the difference was due to chance because of the multiple significance tests being conducted.

RESULTS

Baseline Descriptive Statistics

For the descriptive statistics, we provide the characteristics for the full enrolled sample at baseline. As shown in Table 3, the baseline sample was composed of 58 percent females, with an average age of 6.3 years. The children in the sample were predominately white (65 percent), with some black (13 percent) or other race/ethnicity children (21 percent). The majority (70 percent) of children had family incomes of less than \$30,000. According to the caregiver reports, children in the baseline sample had been exposed to an average of 4.9 types of violence in their lives prior to the baseline assessment. More than three-quarters (79 percent) of the caregivers were the parent or guardian of the child. As noted in the table, there were no statistically significant differences for these characteristics between the intervention and control groups.

In the sample of families retained at six months, the demographics were similar to those at baseline, with slightly more females (63 percent) and slightly fewer with incomes below \$30,000 (63 percent). Again, there were no statistically significant differences at baseline between groups in the sample retained at six months (data not shown).

Table 3
Erie Safe Start Sample Characteristics for Families in the Baseline Assessment Sample

	Combined		Intervention		Control		Test for Comparison (p-value)
<i>Child Characteristics</i>	<i>N</i>	<i>Mean</i>	<i>N</i>	<i>Mean</i>	<i>N</i>	<i>Mean</i>	
Age	166	6.3	79	6.5	87	6.1	0.30
CR Violence Exposure	164	4.9	79	5.4	85	4.5	0.05
SR Violence Exposure	10	4.8	5	5.6	5	4.0	0.31
<i>Gender</i>							
Male	69	41.6	28	35.4	41	47.1	0.13
Female	97	58.4	51	64.6	46	52.9	
<i>Race/Ethnicity</i>							
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	
White	108	65.1	54	68.4	54	62.1	
Black	22	13.3	8	10.1	14	16.1	
Hispanic	1	0.6	0	0.0	1	1.1	
Other	35	21.1	17	21.5	18	20.7	
<i>Caregiver Characteristics</i>							
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	
<i>Family Income Level</i>							
Less than \$5,000	25	17.0	14	20.0	11	14.3	0.40
\$5,000–\$10,000	17	11.6	5	7.1	12	15.6	
\$10,001–\$15,000	15	10.2	7	10.0	8	10.4	
\$15,001–\$20,000	20	13.6	7	10.0	13	16.9	
\$20,001–\$30,000	26	17.7	13	18.6	13	16.9	
More than \$30,000	44	29.9	24	34.3	20	26.0	
<i>Relationship to Child</i>							
Parent or Guardian	129	78.7	59	75.6	70	81.4	0.37
Other Relationship	35	21.3	19	24.4	16	18.6	

NOTES: CR = Caregiver Report; SR = Child Self-Report. Percentages may not total 100 percent because of rounding.

Next, we examined the Erie sample at baseline on two outcomes (PTSD symptoms and parenting stress) to understand the level of severity on these indexes among families entering the project. As shown in Table 4, at baseline, caregivers reported PTSD symptoms that fell in the significant range for 48 percent of boys and 59 percent of girls. For the caregiver-child relationship, 52 percent of the sample had total stress levels that fell in the clinical range, with 57 percent for boys and 49 percent for girls.

Table 4
Baseline Assessment Estimates for Erie Safe Start Families

	Combined		Boys		Girls	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
CR PTSD Symptoms for Ages 3–10						
Normal	53	38	27	47	26	31
Borderline	11	8	3	5	8	10
Significant	77	55	28	48	49	59
CR Total Parenting Stress for Ages 0–12						
Parental Distress—Clinical	57	34	25	36	32	33
Parent-Child Dysfunctional Interaction—Clinical	78	47	38	55	40	41
Difficult Child—Clinical	81	49	37	54	44	45
Total Stress—Clinical	87	52	39	57	48	49

NOTE: CR = Caregiver Report.

We also examined differences between the intervention and control group at baseline for Erie’s primary, secondary, and tertiary outcomes (see this report’s appendix). Primary outcomes include PTSD symptoms, behavior problems, social-emotional competence, school readiness/performance, and child violence exposure. At baseline, there was one statistically significant difference. In the violence exposure domain, caregivers in the intervention group were more likely to report that the child had been assaulted compared with those in the control group.

Erie’s secondary outcomes include depressive symptoms, caregiver-child relationship, and caregiver violence exposure. One statistically significant difference was observed between the groups overall on these measures, with caregivers in the intervention group reporting significantly less family involvement at baseline compared with the control group.

Erie’s tertiary outcomes included only the background and contextual factor domain. There were no statistically significant differences at baseline between the intervention and control groups in relation to the tertiary outcome variables (Table A.3, first column).

Uptake, Dosage, and Process of Care

As described fully in the process evaluation report (Schultz et al., 2010), Erie intervention services began with a developmental screening, which was followed by therapy tailored to the families’ needs, case management, and parent

education groups. Tables 5a and 5b show the type and amount of services received by the families assigned to the intervention group. The data displayed include services received by summing all time points reported by the program, with a maximum of 24 months of service provision.

As seen in Table 5a, three-quarters of Erie intervention families received some form of therapy. On average, families received more than 19 sessions of therapy, with nearly one-third (32 percent) receiving more than 20 sessions. Table 5a also provides information about the specific types of therapies. Sixty-eight percent of intervention families received child individual therapy, and 32 percent received caregiver individual therapy. The mean number of sessions was 8.7 for child individual therapy and 3.4 for caregiver individual therapy. Erie Safe Start intervention families also received dyadic therapy (29 percent) and family therapy (41 percent). On average, families received 4.6 sessions of dyadic therapy (ranging from one to 22 sessions) and 7.1 sessions of family therapy (ranging from one to 26 sessions). Families also received group therapy, with 34 percent attending caregiver group therapy sessions and 16 percent attending group therapy sessions with both caregivers and children. The average number of group therapy sessions was 7.4 for caregiver group therapy (ranging from one to 14) and 4.3 for caregiver and child group therapy (ranging from three to 11). Almost all of the families received case management services (90 percent) and had multidisciplinary team involvement (82 percent). Among these families, most had one to five case management contacts (59 percent) and multidisciplinary team meetings (63 percent).

Erie reported information on the reason that the services ended for 29 of the 79 intervention group families. In 28 percent of these cases, the services ended because the family had satisfactorily completed the services. In just under one-half (45 percent) of cases, however, the sessions ended because the family discontinued their involvement in services in some way. In one case, the program elected to terminate sessions with a participating family. For nearly one-quarter of these families (24 percent), there were different reasons for ending services for different services that the family received.

Table 5a
Services Received by Erie Safe Start Intervention Families (Baseline
Assessment Sample)

Service	Number with Service	Percentage with Service*	Range	Distribution	Mean	Median
Any Individual, Dyadic, Family, or Group Therapy	59	75%	1-75	1-5 17% 6-10 14% 11-20 37% >20 32%	19.3	14.3
Child Individual Therapy	54	68%	1-44	1-5 46% 6-10 24% 11-20 22% >20 7%	8.7	6.0
Caregiver Individual Therapy	25	32%	1-17	1-5 88% 6-10 8% 11-20 4%	3.4	2.1
Dyadic Therapy	23	29%	1-22	1-5 74% 6-10 17% 11-20 4% >20 4%	4.6	2.4
Family Therapy	32	41%	1-26	1-5 44% 6-10 31% 11-20 22% >20 3%	7.1	5.7
Caregiver Group Therapy	27	34%	1-14	1-5 33% 6-10 44% 11-20 22%	7.4	7.1
Caregiver and Child Group Therapy	13	16%	3-11	1-5 92% 6-10 8%	4.3	3.4
Case Management	71	90%	1-19	1-5 59% 6-10 25% 11-20 15%	5.8	3.8
Multidisciplinary Team	65	82%	1-23	1-5 63% 6-10 22% 11-20 11% >20 5%	6.2	3.6

* The denominator is the 79 intervention group families with a follow-up Family Status Sheet at the six-month assessment point.

NOTE: Percentages may not total 100 percent because of rounding.

Table 5b shows the services received between the baseline and six-month assessment for the 54 intervention families who participated in at least the six-month follow-up research assessment and thus are part of our analytic sample

for examination of outcomes. Overall, the majority of families (85 percent) received some form of therapy. The number of therapy sessions ranged from one to 40, with a mean of 16.3 therapy sessions. More than three-quarters (76 percent) of the families received child individual therapy sessions, with an average of eight sessions per family. Nearly one-third (31 percent) of families received caregiver individual therapy, with the vast majority receiving five or fewer sessions. Intervention families also took part in dyadic (30 percent) and family (41 percent) therapy sessions. On average, these families received 4.6 sessions of dyadic therapy and 6.4 sessions of family therapy. Some of Erie's intervention families participated in caregiver group therapy (35 percent) and caregiver and child group therapy (17 percent) sessions. The number of caregiver group therapy sessions ranged from one to 12, with an average of 7.1. The number of caregiver and child group therapy sessions ranged from three to 11, with an average of 4.6. Erie's case manager was involved with nearly all of the families (96 percent), with an average of 4.9 case management activities per family. Erie's multidisciplinary team met regarding the vast majority of the families (91 percent), with an average of 5.4 meetings per family.

Erie program staff reported why services ended for 34 of the families in the six-month analysis sample. The reasons for services ending included that the family dropped out or the program lost contact with the family (44 percent), treatment had been satisfactorily completed (24 percent), and different reasons depending on the type of service (32 percent).

Table 5b
Six-Month Services Received by Erie Safe Start Intervention Families in the Six-Month Assessment Sample

Service	Number with Service	Percentage with Service*	Range	Distribution	Mean	Median
Any Individual, Dyadic, Family, or Group Therapy	46	85%	1-40	1-5 13% 6-10 15% 11-20 41% >20 30%	16.3	14.0
Child Individual Therapy	41	76%	1-20	1-5 44% 6-10 22% 11-20 34%	8.0	7.2
Caregiver Individual Therapy	17	31%	1-8	1-5 94% 6-10 6%	2.6	1.7
Dyadic Therapy	16	30%	1-16	1-5 69% 6-10 19% 11-20 13%	4.6	2.0
Family Therapy	22	41%	1-14	1-5 45% 6-10 36% 11-20 18%	6.4	5.5
Caregiver Group Therapy	19	35%	1-12	1-5 21% 6-10 74% 11-20 5%	7.1	7.2
Caregiver and Child Group Therapy	9	17%	3-11	1-5 89% 6-10 11%	4.6	3.4
Case Management	52	96%	1-15	1-5 65% 6-10 27% 11-20 8%	4.9	3.9
Multidisciplinary Team	49	91%	1-18	1-5 63% 6-10 22% 11-20 14%	5.4	3.6

* The denominator is the 54 intervention group families in the six-month assessment sample.
 NOTE: Percentages may not total 100 percent because of rounding

Outcomes Analysis

We begin by comparing the intervention and control groups' mean scores on primary, secondary, and tertiary outcomes at each follow-up assessment point (six, 12, 18 and 24 months). We then look at changes in mean scores over time. For these analyses, we first tested whether there were statistically significant changes in mean scores within the intervention group and the control group. Then, at each assessment point, we compared the mean score change of the two

groups to determine if there were statistically significant differences in mean changes, using an intent-to-treat approach that included all families in the intervention group, regardless of the level of service they received. Finally, we present descriptive data on families that received different levels of services, as compared with similar controls, on primary outcomes only.

Comparison of Means Between Groups

A summary of differences between the intervention and control groups at each follow-up assessment point for Erie's primary, secondary, and tertiary outcomes is depicted in the appendix. Primary outcomes include PTSD symptoms, behavior problems, social-emotional competence, school readiness/performance, and child violence exposure. No statistically significant differences were observed between the groups at any follow-up assessment point on these measures (Table A.1). There was, however, an observable nonsignificant trend in the data on one aspect of social-emotional competence. At the six-month follow-up assessment, caregivers in the intervention group reported lower levels of self-control than the control group. However, because of the multiple significance tests being conducted, this trend did not reach statistical significance and thus may be due to chance.

For secondary outcomes, there were no statistically significant differences between the groups at any follow-up assessment point on these measures (Table A.2). Two nonsignificant trends emerged in the caregiver-child relationship domain. At the six-month follow-up assessment, caregivers in the intervention group reported lower levels of family involvement than the control group. For the 12-month follow-up assessment, caregivers in the intervention group reported more parent-child dysfunction than caregivers in the control group. Because of the multiple significance tests being conducted, these observed differences did not reach statistical significance.

Erie's tertiary outcomes included only the background and contextual factor domain. There were no statistically significant differences at any time point between the intervention and control group in relation to the tertiary outcome variables (Table A.3).

Mean Differences over Time

Table 6 shows differences over time for Erie's primary outcomes. The second column of numbers in Table 6 shows the mean change between the baseline and six-month score for each individual family. For the intervention

group, the analyses revealed several statistically significant within-group differences from baseline to six months, including decreases in the caregiver's report of the child's PTSD symptoms, increases in the caregiver's report of the child's affective strengths and cooperation, and improvement on the child's letter-word identification test. Between baseline and the six-month follow-up, caregivers in both groups reported significantly fewer total child victimization experiences and fewer maltreatment, assault, sexual abuse, and witnessing violence experiences. These decreases in the caregiver's report of child victimization were expected because of different reference periods for the baseline assessment (where the reference period is lifetime) and six-month assessment (where the reference period is the prior six months). Within the intervention group, there were also two nonsignificant trends, with caregivers reporting fewer child problem behaviors and better school functioning from baseline to six months. For the 12-month follow-up assessment (data not shown), there were similar significant differences within the groups in the violence exposure measures, which would be expected given the different reference periods for the baseline and 12-month assessments. In the control group, caregivers reported significantly fewer child PTSD symptoms at 12 months. At the 18- and 24-month assessment points, the sample size fell below the threshold of at least ten cases per group for significance tests.

The third column in Table 6 shows the results of the comparison of the intervention group's mean change in scores from baseline to six months to the control group's mean change in scores using the statistical test of differences in differences. The analysis revealed a statistically significant difference between the groups in the violence exposure domain, with caregivers in the intervention group reporting a greater decrease in child assault experiences. These comparisons also revealed some nonsignificant trends for four primary outcomes (child report of PTSD symptoms, caregiver's reports of both school functioning and cooperation, and caregiver's report of the child's total victimization experiences), with the intervention group changing more in the expected direction than the control group. When demographics and baseline violence exposure were controlled in adjusted models (fourth column of Table 6), none of the results were statistically significant. One nonsignificant trend was observed. Specifically, participation in the intervention resulted in larger decreases in the caregiver's report of child assault in the period since the baseline assessment.

For the 12-month follow-up assessment (data not shown), the comparison of mean change over time revealed statistically significant differences for several of the violence exposure outcomes, including the caregiver's report of total victimization, child assault, and child witnessing violence. There was also one nonsignificant trend observed at 12 months, with caregivers in the intervention group reporting larger decreases in child maltreatment experiences. In the adjusted models, which include several control variables, none of the differences between the groups at 12 months reached statistical significance. In the adjusted model, participation in the intervention resulted in one nonsignificant trend, with larger decreases in the caregiver's report of child maltreatment. At the 18- and 24-month assessment points, the sample size fell below our threshold of at least ten cases per group for the unadjusted models and 20 cases per group for the adjusted models, and thus we did not examine differences.

Tables 7 and 8 show differences over time for Erie's secondary and tertiary outcomes. Between baseline and the six-month follow-up, there were several statistically significant within-group differences on secondary outcomes (second column of Table 7). Within the intervention group, caregivers reported significant decreases on the difficult child and total parenting stress scales at six months. There were also nonsignificant downward trends on the parent-child dysfunction scale and the caregivers' domestic violence experiences. Control group caregivers reported significantly fewer domestic violence experiences at six months. Within the control group, there was also one nonsignificant trend, with caregivers reporting fewer total traumatic experiences from baseline to six months. Decreases in caregiver victimization experiences are expected because of different reference periods for the baseline (one year) and follow-up assessments (six months). There were statistically significant differences within the intervention group on two of the tertiary outcomes (second column of Table 8). Caregivers in the intervention group reported significantly fewer resource and personal problems at the six-month assessment.

For the 12-month assessment (data not shown), caregivers in the control group reported significantly lower scores on the total parenting stress, parental distress, and difficult child scales between baseline and 12 months. There were no other within group differences between baseline and 12 months for any other secondary or tertiary outcomes.

For secondary and tertiary outcomes, the comparison of the intervention group's change in mean scores to the control group's change in mean scores from baseline to six months revealed no statistically significant differences between groups in the unadjusted or adjusted models (third column of Tables 7 and 8). There were no differences between the groups for any of the follow-up assessment points in the unadjusted or adjusted models with enough data to make these comparisons.

Table 6
Changes in Means for Primary Outcome Variables Between Baseline and Six-Month Assessment and Group-Level Comparison of Mean Changes

Primary Outcome	Group	N	Within-Family Mean Changes ^a	Group-Level Comparison of Mean Changes (Unadjusted Model) ^b	Group-Level Comparison of Mean Changes (Adjusted Model) ^c
PTSD Symptoms					
CR Child PTSD Symptoms for Ages 3–10	Intervention	45	-4.11 *	-4.11	-1.18
	Control	41	0.00		
SR Child PTSD Symptoms for Ages 8–12	Intervention	22	-2.91	-3.91 #	
	Control	13	1.00		
Behavior/Conduct Problems					
CR Child Behavior Problems for Ages 1–18	Intervention	53	-0.17 #	-0.23	-0.06
	Control	50	0.07		
Social-Emotional Competence					
CR Child Affective Strengths for Ages 6–12	Intervention	32	1.56 *	0.97	-0.61
	Control	27	0.59		
CR Child School Functioning for Ages 6–12	Intervention	30	1.67 #	2.40 #	1.08
	Control	26	-0.73		
CR Child Assertion for Ages 1–12	Intervention	53	0.15	0.13	0.06
	Control	49	0.02		
CR Child Self-Control for Ages 1–12	Intervention	53	0.07	0.07	-0.05
	Control	50	-0.01		
CR Child Cooperation for Ages 3–12	Intervention	43	1.51 *	1.61 #	0.02
	Control	41	-0.10		

Table 6—continued

Primary Outcome	Group	N	Within-Family Mean Changes ^a	Group-Level Comparison of Mean Changes (Unadjusted Model) ^b	Group-Level Comparison of Mean Changes (Adjusted Model) ^c
School Readiness/Performance					
Letter Word Identification for Ages 3–18	Intervention	44	4.89 *	4.61	2.20
	Control	44	0.27		
Passage Comprehension for Ages 3–18	Intervention	46	2.30	3.53	1.97
	Control	44	-1.23		
Applied Problems for Ages 3–18	Intervention	41	1.49	-0.37	2.20
	Control	42	1.86		
Violence Exposure					
CR Total Child Victimization Experiences for Ages 0–12	Intervention	54	-3.96 *	-1.07 #	-0.55
	Control	47	-2.89 *		
CR Child Maltreatment for Ages 0–12	Intervention	53	-1.11 *	-0.24	-0.21
	Control	46	-0.87 *		
CR Child Assault for Ages 0–12	Intervention	53	-1.21 *	-0.77 *	-0.58 #
	Control	48	-0.44 *		
CR Child Sexual Abuse for Ages 0–12	Intervention	53	-0.60 *	-0.05	0.04
	Control	47	-0.55 *		
CR Child Witnessing Violence for Ages 0–12	Intervention	51	-1.43 *	-0.55	-0.38
	Control	43	-0.88 *		

^a This column reflects within-family mean changes between the baseline and six-month scores for each group separately. * indicates a significant paired t-test of differences over time.

^b This column reflects the group-level comparison of within-family mean changes from baseline to six months. * indicates a significant t-test of group differences.

^c This column reflects the estimate of the difference between the two groups' within-family mean change from baseline to six months, controlling for age, gender, ethnicity, income, and violence exposure at baseline. * indicates a significant test for the estimate.

NOTES: CR = Caregiver Report; SR = Child Self-Report. # indicates a nonsignificant trend in the t-test ($p < 0.05$ but does not meet the FDR correction threshold). Mean change estimates are not shown when the group size is fewer than ten, and comparisons are not shown when the group size is fewer than ten for either group. Adjusted model results are not shown when the group size is fewer than 20 for either group.

Table 7
Changes in Means for Secondary Outcome Variables Between Baseline and Six-Month Assessment and
Group-Level Comparison of Mean Changes

Secondary Outcome	Group	N	Within-Family Mean Changes ^a	Group-Level Comparison of Mean Changes (Unadjusted Model) ^b	Group-Level Comparison of Mean Changes (Adjusted Model) ^c
Depressive Symptoms					
SR Child Depressive Symptoms for Ages 8–18	Intervention	21	-1.24	0.76	
	Control	14	-2.00		
Caregiver-Child Relationship					
CR Parental Distress for Ages 0–12	Intervention	53	-1.38	0.52	1.94
	Control	50	-1.90		
CR Parent-Child Dysfunction for Ages 0–12	Intervention	53	-1.87 #	-1.09	0.61
	Control	50	-0.78		
CR Difficult Child for Ages 0–12	Intervention	54	-2.20 *	-1.22	1.39
	Control	50	-0.98		
CR Total Parental Stress for Ages 0–12	Intervention	53	-5.45 *	-1.79	3.89
	Control	50	-3.66		
CR Family Involvement for Ages 6–12	Intervention	32	1.19	0.89	-0.65
	Control	27	0.30		

Table 7—continued

Secondary Outcome	Group	N	Within-Family Mean Changes ^a	Group-Level Comparison of Mean Changes (Unadjusted Model) ^b	Group-Level Comparison of Mean Changes (Adjusted Model) ^c
Violence Exposure^d					
CR Caregiver Total Number of Traumatic Experiences	Intervention	53	-0.04	0.16	0.10
	Control	50	-0.20 #		
CR Caregiver Experience of Any Non-DV Traumas ^d	Intervention	54	-0.06	-0.06	-0.02
	Control	50	0.00		
CR Caregiver Experience of Any Domestic Violence ^d	Intervention	54	0.00 #	0.06	0.12
	Control	50	-0.06 *		

^a This column reflects within-family mean changes between the baseline and six-month scores for each group separately. * indicates a significant paired t-test of differences over time.

^b This column reflects the group-level comparison of within-family mean changes from baseline to six months. * indicates a significant t-test of group differences.

^c This column reflects the estimate of the difference between the two groups' within-family mean change from baseline to six months, controlling for age, gender, ethnicity, income, and violence exposure at baseline. * indicates a significant test for the estimate.

^d This outcome is a categorical variable, and the unadjusted within-family mean change and the group-level comparison are changes in proportion, while the covariate-adjusted group-level comparison is the difference in proportions obtained from a linear probability model.

NOTES: CR = Caregiver Report; DV = domestic violence; SR = Child Self-Report. # indicates a nonsignificant trend in the t-test ($p < 0.05$ but does not meet the FDR correction threshold). Mean change estimates are not shown when the group size is fewer than ten, and comparisons are not shown when the group size is fewer than ten for either group. Adjusted model results are not shown when the group size is fewer than 20 for either group.

Table 8
Changes in Means for Tertiary Outcome Variables Between Baseline and Six-Month Assessment and Group-Level Comparison of Mean Changes

Tertiary Outcome	Group	N	Within-Family Mean Changes ^a	Group-Level Comparison of Mean Changes (Unadjusted Model) ^b	Group-Level Comparison of Mean Changes (Adjusted Model) ^c
Background and Contextual Factors					
CR Caregiver Resource Problems	Intervention	53	-1.04 *	-0.68	-0.29
	Control	50	-0.36		
CR Caregiver Personal Problems	Intervention	53	-2.11 *	-1.47	0.13
	Control	50	-0.64		

^a This column reflects within-family mean changes between the baseline and six-month scores for each group separately. * indicates a significant paired t-test of differences over time.

^b This column reflects the group-level comparison of within-family mean changes from baseline to six months. * indicates a significant t-test of group differences.

^c This column reflects the estimate of the difference between the two groups' within-family mean change from baseline to six months, controlling for age, gender, ethnicity, income, and violence exposure at baseline. * indicates a significant test for the estimate.

NOTES: CR = Caregiver Report. # indicates a nonsignificant trend in the t-test ($p < 0.05$ but does not meet the FDR correction threshold). Mean change estimates are not shown when the group size is fewer than ten, and comparisons are not shown when the group size is fewer than ten for either group. Adjusted model results are not shown when the group size is fewer than 20 for either group.

Safe Start Service Dosage and Changes in Primary Outcomes

To examine any intervention effects of Safe Start service dosage on outcomes, we divided the Erie intervention families into three dosage groups, depending on the number of total Safe Start service sessions received in the first six months. We calculated this total by summing for each family the eight possible types of services that took place. The Safe Start intervention represented a package of services, rather than a single service of a specific type. Thus, we defined the overall Safe Start dose as a sum of all services together. Because the sample size had already substantially reduced statistical power in these analyses, we were unable to further explore whether there may have been different impacts for the different services offered by the site.

Overall, all but one of the families in the six-month analysis sample received at least one service. Out of a total of eight possible types of services that were available to Erie's intervention families, families who received one to ten total services (e.g., therapy sessions, case management contacts, multidisciplinary team meetings) between the baseline and six-month follow-up assessment were considered to be in the low-dosage group. Families receiving 11 to 20 services were in the medium-dosage group, and families receiving more than 20 services were in the high-dosage group. Since children and families with more need are likely to receive more services, we would expect this selection bias, with needier families receiving more services. To account for this selection bias related to service dosage, we used the propensity score-matching method to pair families in each dosage group with families with similar needs in the control group. The matching paired families based on baseline scores on the outcome measure of interest. The analyses examined the difference in mean score changes between the intervention and control groups for each dosage group. Note that in this analysis, the full control group is used in the matching of each of the dosage levels.

The propensity score-matching analyses for Erie's primary outcomes revealed that, across the outcome measures, the high-dosage group generally had mean scores in the expected direction, with higher scores on negatively directed outcomes and lower scores on positively directed outcome (see Table A.4 in the appendix). These findings show that the high-dosage group usually had more symptoms or problems and thus a greater need for services. The statistical test of differences in differences revealed one statistically significant difference. Children in the high-dosage intervention group showed significant improvement on the passage comprehension test compared with children in the control group. The analyses did not reveal any other statistically significant differences between the intervention and control group for any of the dosage levels with an adequate group size.

CONCLUSIONS

Erie's Safe Start Program used an integrated treatment team approach to provide therapy, case management, and parent education groups. The evaluation consisted of a randomized controlled trial of the intervention. Erie program staff enrolled 166 families in the study, with 63 percent of them retained for the six-month assessment. The lower-than-expected enrollment partly reflects the slow pace of referrals from referring agencies at the beginning of the project. The participants in the study had substantial violence exposure, with caregivers reporting that children had been exposed to an average of 4.9 types of violence in their lives prior to the baseline assessment. At baseline, families enrolled in the study were experiencing PTSD symptoms and parenting stress. Caregivers for more than half of the families reported PTSD symptoms that fell in the significant range and levels of parental stress that fell in the clinical range.

Erie's tailored approach to services meant that families in the intervention group received different types of therapy depending on the circumstances. Overall, 85 percent of families in Erie's six-month analysis sample received some form of therapy. On average, these intervention families received 16.3 therapy sessions. Erie's case manager averaged 4.9 contacts per family to provide case management services, and the integrated treatment team met an average of 5.4 times per family.

Based on the number of participants in the study, we had a 72-percent chance to detect a medium effect of the intervention on outcomes, which is the size of the intervention effect we expected, given the tailored approach to treatment that led to families receiving a varying array of services. In the intent-to-treat analyses, despite mean scores in the intervention and control groups in the expected directions, there was only one statistically significant difference between the intervention and control groups. The intervention resulted in a larger decrease in caregiver reports of child assault between baseline and six months. However, after controlling for demographics and baseline violence exposure, this difference was no longer significant. In the PTSD, social-emotional competence, and caregiver-child relationship domains, statistically significant changes were noted within the intervention group for the caregiver's report of child's PTSD symptoms, affective strengths, and cooperation and on the difficult child and total parental stress scales, but these changes did not differ from those observed in the control group. Similarly, examination of changes among families that received a low, medium, or high dose of intervention services, as compared with comparable control families, revealed only one statistically significant difference in the school readiness/performance domain. Children in the high-dosage intervention group

showed significant improvement on the passage comprehension test, compared with children in the control group.

Overall, the analysis of Erie's program did not show significant improvements in outcomes for the children who received the intervention when compared with similar children who received the usual services available in community. It is possible that outcomes among those families who participated fully and completed the intervention are better than those in the full sample of intervention group families presented here. Even in the context of a randomized controlled trial, we are not able to draw firm conclusions about the effectiveness of the Erie Safe Start program. Although it is possible that the services as implemented in this study were not effective in improving outcomes for children in the intervention group relative to controls, there are several other possible explanations for the results presented here. The lack of difference between groups over time may reflect a lack of statistical power to observe a medium intervention effect on the measured outcomes. That is, a larger sample size might have allowed for the detection of statistically significant changes associated with the Safe Start services. Further, the evaluation ended early because of funding constraints when the appropriation for Safe Start was curtailed, which may have affected the sample size. It is possible that interventions focused on violence could heighten caregiver sensitivity to and recognition of child symptoms and thus any intervention effect may be obscured by caregiver reports of increased or level symptoms. It is also possible that intervention effects may not be observable at the earlier follow-up time points that are examined here, particularly for interventions that may result in symptoms worsening temporarily before they improve. The inability to detect significant differences between the groups may also have been due to the particular outcomes measured. That is, the Erie Safe Start program may have improved the lives of children and families in ways that were not measured (or were not measured adequately) in this study. In this program, the control group received enhanced services during their involvement in the study. These enhanced services may have also served to reduce the amount of difference between the two groups. While the analyses did not demonstrate the program's effectiveness, the Erie Safe Start model showed some promise on measures of PTSD, certain aspects of social-emotional competence, and the caregiver-child relationship when working with children in this testing, which underscores the need to conduct further testing.

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ERIE OUTCOMES APPENDIX

Table A.1
Comparison of Means for Erie Primary Outcome Variables over Time

Primary Outcome		Baseline		Six Months		12 Months		18 Months		24 Months	
		N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
PTSD Symptoms											
CR Child PTSD Symptoms for Ages 3–10	Intervention	70	52.11	45	49.49	18	46.94	12	41.75	10	36.90
	Control	76	48.43	41	47.17	19	40.00	8	39.38	8	39.25
SR Child PTSD Symptoms for Ages 8–12	Intervention	29	12.90	22	9.14	12	9.08	4		3	
	Control	21	11.14	14	10.93	8	5.38	4		5	9.80
Behavior/Conduct Problems											
CR Child Behavior Problems for Ages 1–18	Intervention	78	0.70 #	54	0.53	25	0.38	13	-0.36	10	-0.75
	Control	87	0.39	50	0.30	21	0.16	9	-0.12	8	-0.01
Social-Emotional Competence											
CR Child Affective Strengths for Ages 6–12	Intervention	45	14.29 #	36	14.86	21	15.33	9	18.89	10	18.90
	Control	42	16.33	27	16.56	16	17.06	6	16.83	6	18.33
SR Child Affective Strengths for Ages 11–18	Intervention	5	16.00	4		6	14.67	0		0	
	Control	5	17.00	5	15.80	2		0		1	
CR Child School Functioning for Ages 6–12	Intervention	43	15.88	33	18.03	21	19.81	9	22.00	10	22.40
	Control	42	17.86	26	18.08	16	19.25	6	20.83	6	19.67
SR Child School Functioning for Ages 11–18	Intervention	5	21.80	4		6	21.00	0		0	
	Control	5	20.80	5	23.80	2		0		1	

Table A.1—continued

Primary Outcome		Baseline		Six Months		12 Months		18 Months		24 Months	
		N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
CR Child Assertion for Ages 1–12	Intervention	78	-0.07	54	-0.06	25	0.05	13	0.42	10	0.80
	Control	87	0.16	49	0.15	21	0.06	9	0.11	8	0.29
CR Child Self-Control for Ages 1–12	Intervention	78	-0.29 #	54	-0.27 #	25	0.01	13	0.57	10	0.87
	Control	87	0.02	50	0.04	21	0.08	9	0.42	8	0.31
CR Child Cooperation for Ages 3–12	Intervention	70	10.21	45	10.53	21	11.38	12	14.25	9	13.22
	Control	73	11.48	43	11.74	20	11.85	8	13.13	9	13.00
School Readiness/Performance											
Letter Word Identification for Ages 3–18	Intervention	68	-0.94	48	2.40	23	2.13	12	-2.92	9	8.00
	Control	75	0.20	45	0.09	19	1.84	9	-5.33	9	-2.00
Passage Comprehension for Ages 3–18	Intervention	69	-2.59	50	-1.72	23	-4.52	12	-5.08	9	0.00
	Control	79	-0.23	45	-2.47	20	-3.75	9	-3.89	9	-5.67
Applied Problems for Ages 3–18	Intervention	66	-4.36	48	-0.96	21	1.57	12	0.92	9	8.33
	Control	77	-1.62	45	-1.71	19	-2.58	9	-1.78	8	2.25
Violence Exposure											
CR Total Child Victimization Experiences for Ages 0–12	Intervention	79	5.38 #	54	1.63	25	1.24	13	0.69	10	0.80
	Control	85	4.52	49	1.43	21	1.00	9	0.56	9	1.33
CR Child Maltreatment for Ages 0–12	Intervention	78	1.40 #	54	0.39	25	0.20	13	0.15	10	0.10
	Control	84	1.04	49	0.27	21	0.29	9	0.00	9	0.11

Table A.1—continued

Primary Outcome		Baseline		Six Months		12 Months		18 Months		24 Months	
		N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
CR Child Assault for Ages 0–12	Intervention	78	1.42 *	54	0.33	25	0.40	13	0.08	10	0.10
	Control	85	0.91	50	0.40	21	0.14	9	0.00	9	0.44
CR Child Sexual Abuse for Ages 0–12	Intervention	79	0.67	53	0.09	25	0.00	13	0.00	10	0.10
	Control	85	0.66	49	0.10	21	0.05	9	0.11	9	0.11
CR Child Witnessing Violence for Ages 0–12	Intervention	75	1.71	52	0.31	24	0.29	10	0.40	9	0.22
	Control	81	1.68	47	0.47	20	0.30	9	0.11	9	0.33
SR Total Child Victimization Experiences for Ages 11–18	Intervention	5	5.60	4		6	0.83	0		0	
	Control	5	4.00	5	2.40	2		0		1	
SR Child Maltreatment for Ages 11–18	Intervention	5	1.40	4		6	0.00	0		0	
	Control	5	0.60	5	0.80	2		0		1	
SR Child Assault for Ages 11–18	Intervention	5	1.80	4		6	0.00	0		0	
	Control	5	1.40	5	1.20	2		0		1	
SR Child Sexual Abuse for Ages 11–18	Intervention	5	0.20	4		6	0.00	0		0	
	Control	5	0.40	5	0.00	2		0		1	
SR Child Witnessing Violence for Ages 11–18	Intervention	5	2.00	4		5	0.00	0		0	
	Control	5	1.80	5	0.60	2		0		1	

NOTES: CR = Caregiver Report; SR = Child Self-Report. * indicates statistically significant (p-value<FDR significance criterion); # indicates nonsignificant trend (p<0.05 and >FDR significance criterion). Data are not shown for outcomes when the cell size is fewer than five for the group. Comparisons were not tested when the group size was fewer than ten for either group.

Table A.2
Comparison of Means for Erie Secondary Outcome Variables over Time

Secondary Outcome		Baseline		Six Months		12 Months		18 Months		24 Months	
		N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Depressive Symptoms											
SR Child Depressive Symptoms for Ages 8–18	Intervention	28	11.43	22	7.82	12	8.75	4		3	
	Control	22	12.77	14	9.29	8	3.75	4		5	13.20
Caregiver-Child Relationship											
CR Parent Distress for Ages 0–12	Intervention	79	30.33	53	29.49	25	28.04	13	23.92	10	22.40
	Control	87	28.45	50	26.10	22	24.36	9	27.89	9	24.78
CR Parent-Child Dysfunction for Ages 0–12	Intervention	79	26.58	53	25.62	25	27.84 #	13	22.46	10	18.20
	Control	87	24.56	50	23.52	22	22.41	9	21.67	9	20.89
CR Difficult Child for Ages 0–12	Intervention	79	34.85	54	32.91	25	33.44	13	27.15	10	24.40
	Control	87	32.59	50	30.86	22	29.32	9	26.67	9	26.33
CR Total Parenting Stress for Ages 0–12	Intervention	79	91.76	53	88.02	25	89.32	13	73.54	10	65.00
	Control	87	85.60	50	80.48	22	76.09	9	76.22	9	72.00
CR Family Involvement for Ages 6–12	Intervention	45	19.96 *	36	20.58 #	21	21.43	9	25.33	10	24.90
	Control	42	22.81	27	23.00	16	23.88	6	24.00	6	22.67
SR Family Involvement for Ages 11–18	Intervention	5	22.80	4		6	20.50	0		0	
	Control	5	24.40	5	22.80	2		0		1	

Table A.2—continued

Secondary Outcome		Baseline		Six Months		12 Months		18 Months		24 Months	
		N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Violence Exposure											
CR Caregiver Total Number of Traumatic Experiences	Intervention	79	0.14 #	53	0.06	25	0.00	13	0.15	10	0.00
	Control	87	0.32	50	0.12	21	0.10	9	0.00	9	0.00
CR Caregiver Experience of Any Non-DV Trauma	Intervention	79	0.19	54	0.15	25	0.20	13	0.15	10	0.10
	Control	87	0.21	50	0.18	22	0.14	9	0.11	9	0.00
CR Caregiver Experience of Any DV	Intervention	79	0.19	54	0.13	25	0.04	13	0.08	10	0.00
	Control	87	0.26	50	0.12	22	0.18	9	0.22	9	0.11

NOTES: CR = Caregiver Report; DV = domestic violence; SR = Child Self-Report. * indicates statistically significant (p-value<FDR significance criterion); # indicates nonsignificant trend (p<0.05 and >FDR significance criterion). Data are not shown for outcomes when the cell size is fewer than five for the group. Comparisons were not tested when the group size was fewer than ten for either group.

**Table A.3
Comparison of Means for Erie Tertiary Outcome Variables over Time**

Tertiary Outcome		Baseline		Six Months		12 Months		18 Months		24 Months	
		N	Mean	N	Mean	N	Mean	N	Mean	N	Mean
Background and Contextual Factors											
CR Caregiver Resource Problems	Intervention	79	12.76	53	11.23	25	11.20	13	11.31	10	9.20
	Control	87	12.09	50	11.54	22	9.86	9	12.44	9	11.56
CR Caregiver Personal Problems	Intervention	79	24.06	53	22.57	25	23.40	13	20.00	10	17.80
	Control	87	23.74	50	22.54	22	20.82	9	22.78	9	21.78

NOTES: CR = Caregiver Report. * indicates statistically significant (p-value<FDR significance criterion); # indicates nonsignificant trend (p<0.05 and >FDR significance criterion). Data are not shown for outcomes when the cell size is fewer than five for the group. Comparisons were not tested when the group size was fewer than ten for either group.

Table A.4
Changes in Means by Dosage Group for Erie Primary Outcome Variables
Between Baseline and Six-Month Assessment

Primary Outcome	Dosage	Group	N	Baseline Mean	Six-Month Mean	Difference
PTSD Symptoms						
CR Child PTSD Symptoms for Ages 3–10	Low	Intervention Control	8 8	48.25 47.63	41.88 44.38	-3.13
	Medium	Intervention Control	12 13	49.92 49.62	48.42 49.00	-1.80
	High	Intervention Control	10 10	47.00 47.00	48.40 43.10	5.30
SR Child PTSD Symptoms for Ages 8–12	Low	Intervention Control				
	Medium	Intervention Control	3 3			
	High	Intervention Control	6 6	8.33 8.17	7.83 11.17	-3.50
Behavior/Conduct Problems						
CR Child Behavior Problems for Ages 1–18	Low	Intervention Control	10 10	0.55 0.59	0.17 0.50	-0.28
	Medium	Intervention Control	11 11	0.53 0.53	0.60 0.42	0.17
	High	Intervention Control	13 13	0.52 0.52	0.47 0.15	0.32
Social-Emotional Competence						
CR Child Affective Strengths for 6–12-Year-Olds	Low	Intervention Control	5 5	14.60 14.60	16.60 16.80	-0.20 .
	Medium	Intervention Control	5 5	13.60 13.60	14.80 15.20	-0.40 .
	High	Intervention Control	10 10	16.40 16.40	16.20 16.80	-0.60
CR Child School Functioning for 6–12-Year-Olds	Low	Intervention Control	4 4			
	Medium	Intervention Control	6 6	18.50 18.50	17.17 18.50	-1.33
	High	Intervention Control	10 10	16.40 16.40	17.80 14.60	3.20
CR Child Assertion for Ages 1–12	Low	Intervention Control	10 10	0.05 0.01	-0.04 -0.12	0.04
	Medium	Intervention Control	14 14	-0.11 -0.12	0.08 -0.02	0.10
	High	Intervention Control	17 17	-0.10 -0.09	0.04 -0.02	0.07

Table A.4—continued

Primary Outcome	Dosage	Group	N	Baseline Mean	Six-Month Mean	Difference
CR Child Self-Control for Ages 1–12	Low	Intervention Control	8 8	-0.21 -0.23	-0.10 -0.33	0.21
	Medium	Intervention Control	13 13	-0.23 -0.23	-0.12 -0.24	0.12
	High	Intervention Control	15 15	-0.03 -0.01	0.01 -0.05	0.08
CR Child Cooperation for Ages 3–12	Low	Intervention Control	7 7	9.00 9.00	9.43 8.86	0.57
	Medium	Intervention Control	11 14	9.57 9.57	11.18 10.29	1.19
	High	Intervention Control	16 17	10.29 10.29	11.00 10.24	1.12
School Readiness/Performance						
Letter Word Identification for Ages 3–18	Low	Intervention Control	7 7	-1.86 -2.71	2.71 3.57	-1.71
	Medium	Intervention Control	10 10	0.00 0.20	5.70 5.70	0.20
	High	Intervention Control	17 19	-1.21 -1.68	3.18 -0.68	3.41
Passage Comprehension for Ages 3–18	Low	Intervention Control	3 3			
	Medium	Intervention Control	7 7	-0.43 -0.14	-2.14 -2.57	0.71
	High	Intervention Control	20 20	0.25 1.00	3.10 -4.35	8.20*
Applied Problems for Ages 3–18	Low	Intervention Control	4 4			
	Medium	Intervention Control	4 4			
	High	Intervention Control	19 20	-4.65 -2.00	-1.74 1.45	-0.13
Violence Exposure						
CR Total Child Victimization Experiences for Ages 0–12	Low	Intervention Control	10 10	4.40 4.20	1.50 1.20	0.10
	Medium	Intervention Control	11 12	5.58 5.58	1.27 2.08	-0.86
	High	Intervention Control	18 18	5.06 5.06	1.83 2.17	-0.33

Table A.4—continued

Primary Outcome	Dosage	Group	N	Baseline Mean	Six-Month Mean	Difference
CR Child Maltreatment for Ages 0–12	Low	Intervention	11	1.09	0.36	0.27
		Control	11	1.00	0.00	
	Medium	Intervention	17	1.88	0.35	-0.24
Control	17	1.88	0.59			
High	Intervention	25	1.44	0.44	-0.04	
	Control	25	1.44	0.48		
CR Child Assault for Ages 0–12	Low	Intervention	11	1.73	0.27	-0.36
		Control	11	1.73	0.64	
	Medium	Intervention	15	1.60	0.27	-0.13
Control	15	1.60	0.40			
High	Intervention	24	1.33	0.33	-0.08	
	Control	24	1.33	0.42		
CR Child Sexual Abuse for Ages 0–12	Low	Intervention	11	0.55	0.09	0.00
		Control	11	0.55	0.09	
	Medium	Intervention	15	0.69	0.07	-0.04
Control	16	0.69	0.13			
High	Intervention	26	0.73	0.12	0.08	
	Control	26	0.73	0.04		
CR Child Witnessing Violence for Ages 0–12	Low	Intervention	10	1.10	0.50	0.30
		Control	10	1.10	0.20	
	Medium	Intervention	16	2.00	0.13	-0.35
Control	17	2.00	0.47			
High	Intervention	25	1.84	0.36	-0.24	
	Control	25	1.84	0.60		

NOTES: CR = Caregiver Report; SR = Child Self-Report. * indicates statistically significant (p-value<0.05). Data are not shown for outcomes when the cell size is fewer than five for the group. Comparisons were not tested when the group size was fewer than ten for either group.