Examining the effectiveness of home-based parent aide services to reduce risk for physical child abuse and neglect: Six-month findings from a randomized clinical trial

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A B S T R A C T

Objective: This study set out to carry out a feasible, real-world, randomized clinical trial to examine the benefits of home-based paraprofessional parent aide services in reducing physical abuse and neglect risk in high-risk parents.

Methods: Families were randomly assigned to receive either parent aide plus case management services (n = 73) or case management services only (n = 65), collecting in-home data on physical child abuse and neglect and proximal risk and protective factors, just prior to service initiation, and again after six months of services.

Results: Mothers receiving parent aide and case management services reported significant improvements from baseline to six-month follow-up in self-reported indicators of physical child abuse risk, as well as improvements on parental stress, mastery, depression, and anxiety, whereas mothers receiving only case management services did not. The slopes of such observed changes across groups, however, were not found to be statistically significantly different. No discernable improvements were found with regard to indicators of risk for child neglect.

Conclusions: As the first randomized clinical trial examining the effectiveness of parent aide services, this study provides the first controlled evidence examining the potential benefits of this service modality. This study suggests promising trends regarding the benefit of parent aide services with respect to physical child abuse risk reduction and related predictors, but evidence does not appear to suggest that such services, as they are presently delivered, reduce child neglect.

Practice implications: These findings support the continued use of parent aide services in cases of physical child abuse and also suggest careful consideration of the ways such services may be better configured to extend their impact, particularly with respect to child neglect risk.

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The prevention of physical child abuse and neglect has become a public health priority, given its now well documented impact on the health and wellbeing of the developing child, and the wider social fabric (Whittaker, Lutkzer, & Shelley, 2005). The evidence base supporting preventive interventions has grown significantly over the past several decades, with promising findings emerging from a variety of preventive strategies, particularly those that are home-based and intervene early (Guterman, 2001; Howard & Brooks-Gunn, 2009; MacLeod & Nelson, 2000). Perhaps those most carefully studied with respect to physical child abuse and neglect prevention are early home visiting interventions that typically provide services in the homes of vulnerable families before any identified abuse and neglect, in order to promote positive parent–child interaction trajectories so that they veer away from abusive or neglectful parenting. Across a variety of home visitation models, meta-analyses of home visiting services have consistently reported overall positive preventive benefit, although findings from varying strategies have not been uniformly positive, and effect sizes on maltreatment risk reduction have been mixed (e.g., Bilukha et al., 2005; Guterman, 2001; Nievar, Van Egeren, & Pollard, 2010; Sweet & Appelbaum, 2004).

Home visitation programs targeting child abuse risk reduction emerged most visibly in the USA following the release of the home health visitor model developed and studied by C. Henry Kempe in 1976 (Kempe, 1976) and a later series of promising randomized clinical trials of home visiting interventions beginning in the 1980s, the most notable of which has been the landmark randomized controlled trial of the nurse home visitor model studied by David Olds and colleagues (Olds, Henderson, Tatelbaum, & Chamberlin, 1986; Olds et al., 1999). One of the clear predecessors to early home visitation program models is the “parent aide” service strategy, which was originally initiated in 1969 by the National Center for the Treatment of Child Abuse and Neglect (Carrol & Reich, 1978), predating the advent of early home visitation models by almost a decade. This strategy, still in operation across several hundred communities throughout the USA, deploys trained paraprofessionals in the homes of families where child maltreatment has already been identified or deemed imminent, and aims to reduce the risk of further or potentially more severe maltreatment that could necessitate out-of-home child placement.

Parent aide services differ from the more recently developed and better-studied early home visitation program models, the latter of which determine service initiation on the basis of the birth or expected birth of a child. Parent aide services instead, initiate services on the basis of assessed high risk for future child maltreatment against a child or children who may be as old as twelve years of age. Referrals to parent aide service programs therefore come not only from the health care system, but also from child protective services departments and community-based agencies. Similar to other home visitation models, however, parent aide service programs draw their rationale from ecological and stress theories (e.g., Belsky, 1993) and endeavor to reduce the risk of abuse and/or neglect by providing direct guidance on non-maltreating parenting in the home, and by helping parents better cope with environmental stressors, a process linked with child maltreatment risk (e.g., Rodriguez, 2010). Parent aide programs typically utilize trained and professionally-supervised paid or volunteer paraprofessional home visitors to provide parenting skill guidance, to provide support and guidance to help families address immediate concrete concerns (such as housing, clothing or domestic violence), to link them up with local supports and resources, and to address imminent crises that may trigger maltreating behavior.

Despite their predating early home visitation service models, little is known about the clinical effectiveness of such programs in reducing child maltreatment risk. Given that early home visitation programs aim to intervene during the “sensitive period” of early childhood (e.g., National Research Council and Institute of Medicine, 2000), and before parenting patterns become entrenched, the empirical base presently does not clarify the degree to which a similar treatment strategy can effectively promote preventive benefit when families are already in a state of very high risk. To date, for example, we are unaware of any randomized trials that have examined the impact of parent aide services on child maltreatment risk and associated stressors of parenting. The few available studies directly examining parent aide service programs suffer from a variety of methodological limitations that severely hamper our ability to draw firm inferences about programmatic benefit. For example, one evaluation study of a parent aide program conducted in Dallas, Texas (Harder, 2005), reported that those families who completed services were referred to child protective services significantly less frequently than those who did not complete the program. However, although the authors statistically controlled post hoc for prior referrals to protective services, as well as for parental substance abuse risk, those not completing the program may have dropped out or refused services for a variety of other confounding reasons (e.g., maternal depression) which may have covaried with observed higher CPS referral rates. A second case–record review study employing a non-randomly assigned comparison group did not discern any significant program effects linked with parent aide services, and it utilized a comparison group of families who may have received other supportive services that might plausibly have masked program effects (Choi, Berger, & Flynn, 1997).

Although no randomized trials have yet been conducted to assess the effectiveness of parent aides as a general service strategy, one available randomized trial of nurse home visitors targeting the recurrence of maltreatment (in contrast to many randomized trials documenting the benefit of home visiting on reducing the initial occurrence of maltreatment) reported no observable differences between intervention and control group on child maltreatment reports (MacMillan et al., 2005), and a second unpublished report utilizing paraprofessionals, although showing a trend toward reduced maltreatment risk, does not adjust for a number of non-equivalencies across intervention and control groups at baseline (DuMont et al., 2010). Similarly, allied outcome studies of in-home family preservation service programs which target the prevention of out-of-home child placement most frequently have not reported on child maltreatment risk reduction per se as an outcome, and when they have, report unclear findings on maltreatment risk reduction (e.g., Fraser, Nelson, & Rivard, 1997). Perhaps the most hopeful findings with respect to serving a high-risk target population for maltreatment come from randomized trials of home visitors who employ the SafeCare curriculum, comprised of skills-based, eco-behavioral modules to address parenting risk. These studies have shown promising and significant outcomes when compared with alternative home-based services.
(e.g., Chaffin et al., 2012; Silovsky et al., 2011). Beyond the findings of this specific curriculum delivered in the home, the effectiveness of paraprofessional parent aide services as an overall programmatic strategy for families facing imminent risk of, or already maltreating families, remains in question.

Given this, we set out to conduct a real-world and feasible randomized trial, balancing scientific integrity with ethical and safety considerations. Cognizant that families referred for parent aide services are deemed at high risk for future physical child abuse and neglect, we randomly assigned families to receive parent aide and case management services immediately or to receive delayed treatment, which meant receiving only case management services for the first six months and then, after a six-month follow-up interview, receiving both parent aide and case management services. The primary study question focused on whether parent aide services would predict a significant reduction in child maltreatment risk when compared with families only receiving case management. Secondarily, we examined whether parent aide services, in contrast to case management services only, would predict positive benefits in factors proximal to physical child abuse and neglect risk, and consistent with mediator factors targeted by parent aide services, including parents’ reported stress, depression and anxiety, problem solving capacity, and available social supports.

Methods

Sample and design

Study participants were drawn from six parent aide program sites of the National Exchange Club Foundation (NECF) serving a southeast region of the USA. NECF coordinates the largest collection of parent aide programs in the USA, with 76 centers serving over 6,000 parents each year across 100 program sites. To be eligible for services at these programs, families must have at least one child 12 years of age or younger living in the home and be deemed at high risk of abuse and/or neglect as determined by a referral from child protective services or by an initial case assessment conducted by a program staff member examining imminent risk of harm to the child, parental capacity and resources to cope with stress in the parenting role. Cases are referred to these programs by the local child protective services department (46%), self referral (28%), medical personnel (13%), schools (4%), or other sources (9%).

All study procedures were reviewed and approved by the Institutional Review Board of the participating university. Once deemed eligible for parent aide services through the initial case assessment completed by workers at each program site, workers then completed a study screening instrument for review by the research study coordinator. To be eligible for study enrollment mothers were required to be the biological or adoptive mother of at least one child 12 years of age or younger living in the home. Mothers were also required to be at least 18 years old and fluent in English. Mothers were deemed ineligible if during an initial assessment they demonstrated a psychotic mental illness (e.g., schizophrenia), had a substance abuse problem for which they were not actively receiving treatment, or showed an IQ below 60. Enrollment into the study was open for four full calendar years. During this period, 213 mothers were referred to the study, of which 187 were deemed eligible for study enrollment. Once determined as eligible for study enrollment, mothers were provided an overview about the study by program staff, and, if interested, were then contacted by a research interviewer to arrange an informed consent interview. Of the 187 mothers eligible for the study, 138 (73.9%) were consented and were successfully enrolled in the study.

Once an informed consent process was completed by the research interviewer, a baseline data collection interview (detailed further below) was completed in the home. Those mothers declining enrollment into the study received services as usual. Mothers consenting to study enrollment were randomly assigned to receive either parent aide services that included case management activities (i.e., the “PA + CM,” or intervention group condition), or to case management services only (i.e., the “CM only,” or control group condition) for six months. Random assignment, which was determined by a computer-generated program, was blocked by program site to eliminate potential site-level bias in the delivery of services across conditions. Although parent aide services normatively continue past six months (averaging approximately one year in length in the study sites), a six-month follow-up period was viewed as a sufficient length of time to permit the delivery of a service dosage that would likely surface intervention effects if they were present. Balanced against this was the high-risk status of referred families, many of whom faced service mandates from child protective services. Given this, it was deemed both unfeasible and unethical to withhold parent aide services from families assigned to the control group for longer than six months. For these reasons, mothers assigned to the CM-only control group were crossed over to the PA + CM group after completing their six-month follow-up interview, thus initiating the same package of services as mothers assigned to the intervention group. Of the total 138 mothers enrolled and completing baseline interviews, 73 were randomly assigned to the PA + CM condition, and 65 were assigned to the CM-only condition. Of the participants who had initially entered the study, 16 and 21 were lost to follow-up across the PA + CM and the CM-only groups, respectively. Thus, from the original baseline sample N of 138, 101 (73.2%) were retained to the six-month data collection point. Fig. 1 summarizes the sample enrollment and retention, from eligibility through the six-month follow-up interview.

In order to examine the success of the random assignment, mothers across conditions were compared on all major demographic variables. No significant differences were found on any demographic variable at baseline, including mothers’ race, marital status, family composition, years of prior completed education by the mother, household income, or mothers’ age. These variables were again examined at the six-month follow-up point to detect for selective attrition biases, and again, no significant differences were found across groups (see Table 1). Comparing the final study sample demographics with case record data collected from these same program sites from 1980 through 2006 indicated that the demographic composition

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Fig. 1. Study enrollment flow chart and sample retention.

of those enrolled in the study was nearly identical to the demographic profile of families served in these programs. The full study sample retained from baseline to six months consisted of mothers with a mean age of 29.6 years old (sd = 7.8), a mean 12.1 years of formal education (sd = 2.1), and a mean monthly gross income of $1,082 (sd = $799). The racial composition of the final study sample included 62.4% white, 30.7% black, and 6.9% other racial categories. Regarding their marital status, 39.6% of the mothers were never married, 30.7% were married, 10.9% were separated/widowed, and 18.8% were divorced. Approximately 31.7% were living alone, 38.6% were living with a spouse and children, and 29.7% were living with someone else (see Table 1).

Table 1: Demographic comparisons between parent aide + case management (PA + CM) and case management only (CM) conditions.

<table>
<thead>
<tr>
<th>Race</th>
<th>Baseline (n=73)</th>
<th>CM (n=65)</th>
<th>Statistics</th>
<th>Six-month follow-up (n=57)</th>
<th>CM (n=44)</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n(%) or mean (sd)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>43 (58.9%)</td>
<td>45 (69.2%)</td>
<td>χ² = 2.2, p = 0.35</td>
<td>35 (61.4%)</td>
<td>28 (63.6%)</td>
<td>χ² = 0.7, p = 0.71</td>
</tr>
<tr>
<td>Black</td>
<td>23 (31.5%)</td>
<td>17 (26.2%)</td>
<td></td>
<td>17 (29.8%)</td>
<td>14 (31.8%)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>7 (9.6%)</td>
<td>3 (4.6%)</td>
<td></td>
<td>5 (8.8%)</td>
<td>2 (4.6%)</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never married</td>
<td>27 (37.0%)</td>
<td>29 (44.6%)</td>
<td></td>
<td>21 (36.8%)</td>
<td>19 (43.2%)</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>24 (32.9%)</td>
<td>17 (26.1%)</td>
<td></td>
<td>18 (31.6%)</td>
<td>13 (29.5%)</td>
<td></td>
</tr>
<tr>
<td>Separated/widowed</td>
<td>9 (12.3%)</td>
<td>7 (10.8%)</td>
<td></td>
<td>7 (12.3%)</td>
<td>4 (9.1%)</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>13 (17.8%)</td>
<td>12 (18.5%)</td>
<td>χ² = 1.1, p = 0.78</td>
<td>11 (19.3%)</td>
<td>8 (18.2%)</td>
<td>χ² = 0.5, p = 0.91</td>
</tr>
<tr>
<td>Family composition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living alone</td>
<td>22 (30.1%)</td>
<td>24 (36.9%)</td>
<td></td>
<td>17 (29.8%)</td>
<td>15 (34.1%)</td>
<td></td>
</tr>
<tr>
<td>Living w/spouse &amp; children</td>
<td>20 (29.7%)</td>
<td>25 (38.5%)</td>
<td></td>
<td>24 (42.1%)</td>
<td>15 (34.1%)</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>12.0 (0.2)</td>
<td>11.7 (0.3)</td>
<td></td>
<td>12.1 (0.3)</td>
<td>12.0 (0.4)</td>
<td></td>
</tr>
<tr>
<td>Monthly income</td>
<td>11048 (142.1)</td>
<td>1082.4 (96.6)</td>
<td>t = 0.1, p = 0.90</td>
<td>1007.8 (108.8)</td>
<td>1178.0 (127.6)</td>
<td>t = 0.1, p = 0.31</td>
</tr>
<tr>
<td>Age</td>
<td>29.2 (0.9)</td>
<td>26.8 (0.9)</td>
<td></td>
<td>25.7 (1.0)</td>
<td>29.5 (1.2)</td>
<td></td>
</tr>
</tbody>
</table>

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Description of the intervention. Mothers assigned to the intervention group received parent aide services in addition to case management services. Parent aide services aimed to reduce the risk of physical abuse and/or neglect by targeting parenting behavior and environmental challenges linked with child maltreatment risk. Parent aides delivered services in the home and engaged in activities specifically targeting: (1) child safety (e.g., addressing home hazards), (2) parenting skill guidance (e.g., appropriate discipline), (3) problem-solving support (e.g., thinking through how to address extended family conflicts, or how to access local public services), and (4) improving parents’ social support (e.g., identifying and reaching out to supportive family or friends). Parent aides’ work was structured by setting up goal plans with participants, which were reviewed quarterly. Parent aides could visit the homes of their assigned cases up to two times per week, depending upon assessed risk, need, and the assigned level of service. Frequency of visits ranged from a more intensive engagement phase focusing on immediate concerns, through a subsequent phase emphasizing work on parent–child discipline and family communication, and later attenuating to focus on maintenance of gains and termination.

Parent aides are paraprofessionals who receive an initial 12 h of on-the-job training, followed by monthly training and regular supervision thereafter, using a standardized and accredited training package and manual, reviewed under the auspices of the National Exchange Club Foundation office. The training covers such topics as identification of child maltreatment, communication skills, problem solving skills, and linkage to available community resources, and it is combined with weekly supervision and coaching by master’s-level professionals. Parent aides are assigned cases by supervisors matched according to families’ assessed needs, risk, and ethnicity. Paid parent aides carry a caseload of approximately 12–15 cases, with programs also utilizing volunteer parent aides, who carry one or two cases at a time. In 2010, parent aide services delivered in the state where the present study was conducted were calculated to cost an average of $2,500 per case, per year.

The case management component, which was devised as the minimum base service provided to families randomly assigned to the control group, but also provided by families in the PA + CM condition, included an initial needs assessment conducted by a case manager to gather information about family history and risk for maltreatment (including psychosocial and environmental risk), crisis intervention counseling whenever necessary, and referrals for substance abuse, child care/respite, and other community resources when necessary. Families assigned to the CM-only study condition received services limited to phone contacts (up to two per month) or, if participants did not have active phone lines, such contacts were permitted to be carried out in-person in the home. Families assigned to the PA + CM study condition received their services either in the home or over the phone.

Fidelity check and treatment integrity across conditions. In order to check the fidelity of the parent aide services as they were implemented and to assess for potential leakage across the intervention and control conditions, workers completed a “Parent Services Log” (PSL) self-report form after each contact with the family. The PSL tracked 27 different types of service or support that could be provided to families, arrayed in five service domains targeting the stated objectives of case management (domain 1) and parent aide services (domains 2 through 5), including: (1) case management (e.g., providing referrals to local community resources, crisis intervention), (2) child safety activities (e.g., helping parents to maintain security of the home, helping to identify household or sanitation hazards), (3) parenting skill guidance (e.g., counseling parent on appropriate disciplinary techniques), (4) problem-solving skill-building (e.g., teaching parent home management and/or housekeeping, or assisting parent in generating and selecting alternative solutions to real or perceived obstacles), and (5) help to improve social support (e.g., counseling parent regarding improving relationships with household family members). To ensure reliability across workers in completing the PSLs, all workers were intensively trained to complete the PSLs using four videotaped service vignettes, and then assessed on a fifth criterion videotaped vignette to assess the accuracy of their coding. On the final criterion vignette, 90.4% of the workers were assessed by the research team as coding correctly for specific services delivered.

Using PSL data, we examined fidelity of service delivery and dosage patterns across the PA + CM group versus the CM-only group. As shown in Table 2, regarding dosage of services delivered from baseline to six-month follow-up, families in the PA + CM group, as expected, received greater dosage across all forms of service when compared to those families in the CM-only group, ranging from approximately 3 times greater dosage over six months (for case management activities) to approximately 5 times greater dosage over six months (for problem-solving activities). Families in the PA + CM condition received twice as many total contacts by workers and almost 4 times as much direct service contact as families receiving only case management control group condition. It is important to note that although CM-only families received a very small to negligible amount of service (<20 min per family over six months) focused on improving social support and child safety (activities reserved for parent aide services), they also received approximately 80 min over six months in parent skills development (delivered over the phone), reserved for PA + CM families. Although on average, families in the PA + CM condition received far greater attention from the parent aide for parent skills development delivered in the home (a mean of 281 min), delivery of some parent skill guidance in the case management condition suggests a mild amount of “leakage” in the real-world implementation of the services across treatment conditions. Such leakage, however, would serve to suppress rather than inflate any observable differences across the two study conditions. Although similar monitoring of service was not in place prior to the initiation of the present study, anecdotal information from program staff suggested that the observed service intensity appeared no different than that delivered prior to the initiation of the randomized trial. Although collection of observed data to check fidelity of service implementation, independent of worker self-report data, was not budgetarily feasible in the present study, these anecdotal reports do not reveal any discernable systematic biases to workers’ self-reports.

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Table 2
Services and dosages provided across PA+CM versus CM only study conditions.

<table>
<thead>
<tr>
<th>Measures</th>
<th>CM only Mea (sd)</th>
<th>PA+ CM Mean (sd)</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dosage</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average number of contacts (min)</td>
<td>8.95 (6.40)</td>
<td>17.15 (12.97)</td>
<td>t = -3.62, p = 0.001</td>
</tr>
<tr>
<td>Average total length of contacts</td>
<td>207.19 (239.51)</td>
<td>819.76 (721.20)</td>
<td>t = -4.93, p = 0.000</td>
</tr>
<tr>
<td>Average total number of cases</td>
<td>12.81 (11.35)</td>
<td>30.50 (24.91)</td>
<td>t = -3.97, p = 0.000</td>
</tr>
<tr>
<td>Service type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case management</td>
<td>8.10 (17.12)</td>
<td>14.60 (30.39)</td>
<td>t = -3.34, p = 0.001</td>
</tr>
<tr>
<td>Child safety</td>
<td>1.82 (6.57)</td>
<td>4.51 (13.97)</td>
<td>t = -4.16, p = 0.002</td>
</tr>
<tr>
<td>Parent skills</td>
<td>8.54 (14.40)</td>
<td>16.70 (24.57)</td>
<td>t = -5.22, p = 0.000</td>
</tr>
<tr>
<td>Problem solving</td>
<td>4.20 (11.59)</td>
<td>9.24 (18.71)</td>
<td>t = -4.17, p = 0.000</td>
</tr>
<tr>
<td>Social support</td>
<td>2.26 (8.54)</td>
<td>4.19 (10.94)</td>
<td>t = -2.62, p = 0.009</td>
</tr>
<tr>
<td>Case management</td>
<td>69.92 (97.73)</td>
<td>223.61 (284.41)</td>
<td>t = -3.05, p = 0.003</td>
</tr>
<tr>
<td>Child safety</td>
<td>15.34 (38.46)</td>
<td>72.30 (102.87)</td>
<td>t = -3.10, p = 0.003</td>
</tr>
<tr>
<td>Parent skills</td>
<td>80.31 (93.70)</td>
<td>281.19 (304.48)</td>
<td>t = -3.75, p = 0.000</td>
</tr>
<tr>
<td>Problem solving</td>
<td>32.72 (41.61)</td>
<td>160.66 (169.68)</td>
<td>t = -4.35, p = 0.000</td>
</tr>
<tr>
<td>Social support</td>
<td>19.17 (42.72)</td>
<td>82.01 (116.62)</td>
<td>t = -3.24, p = 0.003</td>
</tr>
</tbody>
</table>

on the PSL forms. Nonetheless, the lack of observed or independently assessed service implementation data limits our ability to detect such biases if they were present.

Data from the PSLs indicate that the mean number of contacts and service delivery time (in minutes) was less than planned, thus indicating that the intended dosage of services delivered was not fully attained, with an average of approximately 14 h of parent aide service provided via a mean 18 contacts per family over six months. Although implementation challenges and delivery of intended dosage of home-based services has been underscored as a persistent challenge in the field, this would also serve to attenuate treatment effects that might be present if the full intended dosage of services was delivered in this study. Finally, as those families assigned to the CM-only condition received a mean 207 min of services over six months, compared to a mean 819 min in the PA+CM condition, the potential for a dosage confound (i.e. that the total amount of services delivered, independent of the nature or type of the services delivered) cannot be ruled out.

**Blinding to condition.** Although study participants and service providers could not be blinded to the study condition by virtue of the services delivered and received, data collectors were blinded to the random assignment of mothers interviewed in order to minimize potential expectancy biases that might enter data collection activities. To check on the validity of data collector blinding, data collectors were asked at the six-month data collection point whether they could guess if the parent they interviewed was in the PA+CM or CM-only condition. Approximately 58% (n = 33) of the participants were correctly identified by the interviewers as to their study assignment. Of these correctly identified cases, the interviewers reported that 88% (n = 29) of their answers were the result of “guessing” and 11% (n = 4) were somewhat confident that their guess was correct, suggesting minimal likelihood of potential expectancy biases from the data collectors.

**Data collection and measures**

Data collection interviews were conducted at: (1) baseline, immediately prior to random assignment and service initiation, and (2) follow-up, after six months of services had been received. All baseline and follow-up interviews were conducted by two intensively trained data collectors, and interviews were carried out in the homes of study participants at a time and location that mothers deemed would provide maximum privacy and a minimum likelihood of interruption. All responses were entered on programmed laptop computers to eliminate data entry error. To minimize self-report biases on questions of a sensitive nature (such as questions on child maltreatment-related behaviors, depression, or substance use patterns), all such questions were answered privately by respondents, using audio-recorded, computer assisted self-interviewing technology (A-CASI), whereby mothers listened to each question read to them on headphones, and directly entered their own answers onto the laptop computer, without the data collector’s knowledge of the nature of their response. All questions were worded at a fourth-grade vocabulary level or lower. At the end of the interview, data collectors also completed six brief observational questions from the Child Well-Being Scales (described further below), based on their observations of the home conditions. On average, interviews took 60–90 min to complete.

Outcome measures examined the two primary overall domains that parent aide services target: (1) physical child abuse and neglect risk, and (2) risk and protective factors proximal to physical child abuse and neglect. All outcome measures were assessed at both baseline and six-month follow-up interviews to examine patterns of change across six months of service in both groups. Multiple indicators were measured in each outcome measure, and raw scores from the multiple indicators were summed to create indices. Resultant index scores on outcome and risk and protective factors indicate that the study sample shows high risk for physical child abuse and neglect when compared to reported means of the same indices with high risk and community samples (e.g., Gustafsson & Cox, 2012; Pereira et al., 2012).

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Outcome measures: Maternal physical child abuse proxies. Both self-report measures and one observational measure assessed aspects of parenting behavior that might foreshadow or indicate risk for physical child abuse and neglect. To assess risk for physical child abuse, we opted for maternal self-reported proxy measures and one observational measure over official child protective services (CPS) reports for multiple reasons: First, both sets of measures have been reported as predictive of risk for physical abuse. Second, CPS reports were expected to have a low occurrence rate over six months, given the modest sample size for this study (and therefore pose a problem of low statistical power). Third, prior studies have indicated that CPS reports are based on substantial variability and discretion across workers, agencies, and state contexts (e.g., King, Reece, Bendel, & Patel, 1998), and that individual worker choices are often subject to significant bias and inaccuracy (e.g., King et al., 1998; Socolar, Runyan, & Amaya-Jackson, 1995). Finally, we anticipated a likely monitoring or surveillance bias (cf. Bilukha et al., 2005) that would confound findings across groups on CPS reports, given the significantly greater in-home worker monitoring that occurred for families receiving PA+CM compared to those receiving CM-only services, which were largely delivered via phone.

Parent–Child Conflict Tactics Scales (CTS-PC), physical aggression, psychological aggression, and neglect subscales. The Parent–Child Conflict Tactics Scales (CTS-PC) (Straus, Hamby, Finkelhor, Moore, & Runyan, 1998) measure mothers’ self-reported acts of physical and psychological aggression toward the child and core behaviors deemed neglectful. The CTS-PC measure, which retains the same basic conceptualization and operationalization as the original CTS scale, has been used across multiple ethnic groups and in various nations with reported satisfactory psychometric properties, including predictive validity, temporal consistency, and discriminant validity (Straus et al., 1998). To assess risk for physical child abuse and neglect, we employed the physical aggression, psychological aggression, and neglect subscale items assessing a range of physically and psychologically aggressive or neglectful mother-to-child behaviors, including how many times in the past six months (from “never” to “more than 20 times”) the mother shook the child; pinched him/her; slapped him/her on the head, face, or ears (physical aggression, baseline $X = 5.25, sd = 4.69, range = 0–18, \alpha = .59$); shouted, swore, threatened, or cursed at the child (psychological aggression, baseline $X = 8.47, sd = 6.24, range = 0–24, \alpha = .78$); or (from “never” to “2 or more times per day”) left the child alone, did not give the child food when needed, or did not take the child to the doctor even when needed (child neglect, $X = 1.52, sd = 3.36, range = 0–24, \alpha = .55$ at six-month follow-up). Psychological and physical aggression measures were assessed at baseline and at six-month follow-up, and the neglect subscale was measured only at six-month follow-up.

Child Well-Being Scales (CWBS) – Household adequacy scale. The Child Well-Being Scales (Magura & Moses, 1986) are observational scales that assess various dimensions of parents’ caregiving behaviors that are linked with physical child abuse and neglect risk. Studies report the overall measure shows satisfactory external validity and internal consistency (Gaudin, Polansky, & Kilpatrick, 1992), with the household adequacy scale demonstrating predictive validity for child neglect (Dubowitz, Pitts, & Black, 2004). For the present study, six of 10 items from the household adequacy factor were selected as a observed proxy measure of risk for child neglect, as the omitted four items required more extensive interaction between the data collectors and study participants than deemed reasonable during the brief home interviews (e.g., in/adequacy of nutrition and diet, or money management. Data collectors were asked to provide rating scores ranging from 0 (“adequate care”) to 5 (“inadequate care”) on domains of the household that could readily be observed by data collectors during their brief home-based research interview. These six items included the adequacy/inadequacy of household furnishings, overcrowding, household sanitation, security of residence, availability of utilities, and physical safety in home; baseline $X = 6.14, sd = 3.00, range = 5–25, \alpha = .53$).

Mother–Child Neglect Scale (MCNS). The Mother–Child Neglect Scale (MCNS) (Lounds, Borkowski, & Whitman, 2004) is a self-report scale used to gauge a mother’s potential for neglect. Early studies (Lounds et al., 2004) demonstrate evidence of convergent validity, high reliability, and moderate test–retest reliability. At follow-up only, mothers were asked 11 Likert-type questions as a proxy indicator of child neglect, indicating the degree to which they agree/disagree on a four-point scale (from 0 “strongly agree” to 4 “strongly disagree”) on statements such as, “When I couldn’t be with my child, I made sure s/he was with someone.” “I made sure my child saw a doctor when s/he needed one,” or “I kept unsafe objects away from my child.” ($X = 11.78, sd = 2.16, range = 10–20, \alpha = .79$ at six-month follow-up).

Maternal risk and protective factors

Eight measures assessing potential risk and protective factors known to be related to physical child abuse and neglect risk were utilized:

Parenting Stress Index-Short Form (PSI-SF): The Parenting Stress Index-Short Form (PSI-SF) (Abidin, 1995) is a brief version of the widely used Parenting Stress Index (Abidin, 1986) consisting of 36 items that assess mothers’ perceptions of stress in the parenting role. Studies have shown perceived parenting stress to be a consistent predictor of child abuse risk (e.g., Haskett, Smith, & Sabourin, 2004) and that PSI-SF demonstrates internal consistency across several ethnic groups, as well as strong construct and discriminant validity, test–retest ability, and promising predictive validity (Haskett, Ahern, Ward, & Allaire, 2006). Items are arrayed on a 5-point Likert-type scale (from 1 = “strongly disagree” to 5 = “strongly agree”), and
scores were summed to measure parents’ overall perceived level of stress, with higher scores indicating higher perceived stress (baseline $\bar{X} = 98.88$, $sd = 25.69$, range = 48–158, $\alpha = .94$).

**Brief Symptom Inventory (BSI):** The Brief Symptom Inventory (BSI) (Derogatis, 1975) measures mental health across nine major symptom domains. For the purpose of this study, three domains/subscales were chosen to measure maternal mental health empirically linked with abuse and neglect risk: depression, anxiety, and hostility (Rodriguez, 2010). The BSI has shown satisfactory internal consistency, test–retest reliability (Derogatis, 1975), as well as construct validity (Derogatis & Melisaratos, 1983), and has been validated across several ethnic groups (Hoe & Brekke, 2009). Each of the three subscales employed six items and was summed for each subscale assessing symptoms over the prior 7 days. Response options for each subscale included: “not at all” (1), “a little bit” (2), “moderately” (3), “quite a bit” (4), and “extremely” (5), with a higher score indicating greater depressive symptoms (baseline $\bar{X} = 11.72$, $sd = 5.61$, range = 6–28, $\alpha = .88$), greater anxiety (baseline $\bar{X} = 12.01$, $sd = 5.48$, range = 6–27, $\alpha = .86$), and greater hostility (baseline $\bar{X} = 9.03$, $sd = 3.74$, range = 5–22, $\alpha = .79$).

**Drug Use Screening Inventory (DUSI):** The Drug Use Screening Inventory (DUSI) (Tarter, 1990; Tarter & Kirisci, 1997) was developed to measure the severity of drug use problems, shown in prior work to predict child maltreatment risk (e.g., Chaffin, Kelleher, & Hollenberg, 1996). The measure has reported satisfactory internal consistency, test–retest reliability, and construct validity (Tarter & Kirisci, 2001). For the purpose of this study, a shortened 24-item adult version of the DUSI was used to assess substance abuse in each mother and male partner who had the greatest contact with the child in the past six months. All items are yes/no responses and were summed, with higher scores indicating greater substance use (baseline $\bar{X} = 0.20$, $sd = 0.58$, range = 0–3, $\alpha = .94$ for maternal substance use; and $\bar{X} = 0.53$, $sd = 1.23$, range = 0–6, $\alpha = .89$ for her male partner).

**Pearlin-Schooler Mastery (PSM) scale:** The Pearlin-Schooler Mastery (PSM) scale (Pearlin & Schooler, 1978) is a seven-item self-report scale used to assess parents’ personal sense of control over life circumstances. Parental sense of personal control has been shown to predict physical abuse risk (Bugental, Lewis, Lin, Lyon, & Kopeikin, 1999), and has been reported as both a moderator of the impact of home-based child maltreatment prevention strategies (Olds et al., 1986) and as a positive outcome of such services, as assessed by this scale (Kitzman et al., 1997). The seven items were summed using a 4-point scale (1 = “strongly disagree” to 4 = “strongly agree”), with higher scores indicating greater sense of personal control (baseline $\bar{X} = 23.75$, $sd = 3.93$, range = 15–32, $\alpha = .71$).

**Multidimensional Scale of Perceived Social Support (MSPPS):** The Multidimensional Scale of Perceived Social Support (MSPPS) (Zimet, Dahlem, Zimet, & Farley, 1988) is a 12-item scale used to assess mothers’ overall perceived social support, including from significant others, family, or friends, and has been consistently shown to predict physical child abuse and neglect risk (Guterman, 2001). The MSPPS has shown satisfactory construct validity and reliability (Clara, Cox, Enns, Murray, & Torgrud, 2003; Eker & Arkar, 1995). The 12 items were scored using the response options 1 (“very strongly disagree”) to 7 (“very strongly agree”) and summed, with higher scores indicating higher level of perceived support (baseline $\bar{X} = 60.42$, $sd = 15.05$, range = 15–84, $\alpha = .93$).

In addition to demographic variables, all of the baseline measures in the study were compared across the two study groups to confirm random assignment and data balance. No significant differences were found (see Table 3).

### Analyses

The primary goal of the current study was to examine for significant changes in physical child abuse and neglect risk across six months of services, comparing PA + CM families against CM only. Changes assessed on CTS–PC psychological aggression and physical aggression subscales and the CWBS-observed household adequacy scale that might indicate child neglect, as well as all of the proximal maternal risk and protective factors, were investigated using two-factor mixed ANOVA models.

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**Table 3**

Baseline measures comparing parent aide + case management (PA + CM) and case management only (CM) conditions.

<table>
<thead>
<tr>
<th>Measures</th>
<th>CM only (Mean, sd)</th>
<th>PA + CM (Mean, sd)</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Child abuse and neglect</strong></td>
<td>8.62 (6.30)</td>
<td>8.36 (6.26)</td>
<td>$r = 0.21$, $p = 0.83$</td>
</tr>
<tr>
<td>CTS: psychological aggression</td>
<td>5.18 (4.52)</td>
<td>5.31 (4.85)</td>
<td>$r = 0.09$, $p = 0.89$</td>
</tr>
<tr>
<td>CTS: physical assault</td>
<td>6.62 (4.19)</td>
<td>5.77 (1.50)</td>
<td>$r = 0.28$, $p = 0.20$</td>
</tr>
<tr>
<td>CWBS: household inadequacy</td>
<td>98.34 (25.48)</td>
<td>99.29 (26.07)</td>
<td>$r = 0.18$, $p = 0.85$</td>
</tr>
<tr>
<td>Maternal risk factors</td>
<td>12.70 (6.59)</td>
<td>10.96 (4.65)</td>
<td>$r = 1.49$, $p = 0.14$</td>
</tr>
<tr>
<td>Maternal depression</td>
<td>12.66 (5.92)</td>
<td>11.52 (5.12)</td>
<td>$r = 1.00$, $p = 0.31$</td>
</tr>
<tr>
<td>Maternal anxiety</td>
<td>9.02 (3.81)</td>
<td>9.05 (3.71)</td>
<td>$r = 0.04$, $p = 0.97$</td>
</tr>
<tr>
<td>Maternal hostility</td>
<td>0.17 (0.52)</td>
<td>0.23 (0.63)</td>
<td>$r = 0.51$, $p = 0.61$</td>
</tr>
<tr>
<td>Drug use, mom</td>
<td>0.44 (1.02)</td>
<td>0.61 (1.40)</td>
<td>$r = 0.53$, $p = 0.60$</td>
</tr>
<tr>
<td>Maternal protective factors</td>
<td>23.90 (4.11)</td>
<td>23.63 (3.82)</td>
<td>$r = 0.34$, $p = 0.74$</td>
</tr>
<tr>
<td>Parental mastery</td>
<td>58.15 (14.18)</td>
<td>62.17 (15.58)</td>
<td>$r = 1.34$, $p = 0.18$</td>
</tr>
</tbody>
</table>

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examining significant within- and between-group differences in the scores of these measures from baseline to the six-month follow-up point. Group membership was dummy-coded, with CM + PM serving as the reference group. Because of the study’s modest sample size and given this study represents the first randomized trial examining parent aide services, we reported significant results at p ≤ .10 as well as at p ≤ .05. For the CTS-PC child neglect scale and the self-reported maternal neglect scale, independent sample t-tests were conducted to compare the mean difference between the two groups at six months, as the two scales were only measured at this follow-up point. Finally, to assess the magnitude of clinical effects, Cohen’s D-scores were calculated of observed effect sizes across the groups. For measures assessed at both baseline and at six-months follow-up, Cohen’s D scores were calculated to compare the effect size changes within each group, correcting for dependence among means by including correlation (r) among them (Morris & DeShon, 2002):

$$D-score = \frac{\text{Mean}_{\text{month-followup}} - \text{Mean}_{\text{baseline}}}{\sigma_{\text{pooled}} \sqrt{2(1 - r)}}$$

Next, the difference in D scores observed across PA + CM versus CM-only groups were calculated by subtracting the PA + CM D score from the CM-only D score. For measures that were employed only at six-months follow up (CTS-PC Neglect scale and the Maternal Neglect Scale), we calculated D scores according to the conventional D score formula comparing means and standard deviations across groups (Cohen, 1988). The summary of these D score analyses across groups is reported in Table 4, with statistically significant differences found within and between groups via two-factor ANOVA’s highlighted. All analyses were conducted using SAS version 9.2.

### Results

Results of the two-factor mixed ANOVA models show statistically significant changes in the slopes of self-reported psychological aggression and physical assault toward the child as well as CWBS scale from baseline to six months in the full sample ($F = 3.55$, $p = .06$ for psychological aggression; $F = 3.93$, $p = .05$ for physical assault; $F = 7.12$, $p = .01$ for CWBS household inadequacy). Mothers receiving PA + CM services reported a marginally significant decline in self-reported psychological aggression ($t = -1.09$, $p = .10$) and a statistically significant decline in physical assault toward the child ($t = -1.23$, $p = .05$) from baseline to the six-month follow-up point whereas mothers in the CM-only group did not. However the slopes of psychological and physical aggression in CM + PA group were not found to be significantly different from the slopes of CM-only group. On the CWBS observational scale assessing household inadequacy as a proxy for child neglect, data collectors reported a significant increase in observed household inadequacy in families receiving PA + CM services ($t = 1.34$, $p = .00$) and the increase is significantly greater in CM + PA group compared to CM-only group ($t = -1.24$, $p = .02$). No differences were observed comparing families receiving PA + CM services versus families receiving only CM services on the self-reported CTS-PC neglect scale or the self-reported maternal neglect scale, observed after six months of services.

Examining proximal maternal risk and protective factors associated with physical child abuse and neglect, mothers in the study reported overall significant changes from baseline to six-month follow-up in self-reported parenting stress, depression, anxiety, and parental sense of mastery ($F = 8.84$, $p = .00$ for parenting stress; $F = 5.10$, $p = .03$ for maternal depression; $F = 8.40$, $p = .00$ for maternal anxiety).
p = .01 for maternal anxiety; F = 3.30, p = .07 for parental sense of mastery). Mothers receiving PA + CM services reported a significant decline in self-reported parenting stress (time = −7.80, p = .00), depression (time = −1.37, p = .02), and anxiety (time = −1.56, p = .01), and a significant increase in their parental sense of mastery (time = 1.4, p = .02) from baseline to six months while no such improvements were observed in the CM-only group. However, the changes in maternal depression, anxiety, and parental sense of mastery do not significantly differ in magnitude between the two groups, while the decline in parenting stress (group × time = 5.54, p = .10) in the PA + CM group was significantly greater than the CM-only group. No other significant changes were observed either within or between the CM-only and the PA + CM group from baseline to the six-month follow-up point on other proximal factors including mothers’ hostility, mothers’ drug use, mothers’ reported social support, or mothers’ male partner’s drug use. As shown in Table 4, the magnitude of observed within and between groups effect sizes found to be statistically significant ranged from small (−0.259) to medium (0.665), according to conventional standards (Cohen, 1988).

Discussion

This study offers the first well-controlled glimpse into the potential effectiveness of parent aide services, a physical child abuse and neglect prevention strategy that has been widely implemented but as yet, not rigorously evaluated. Due to their widespread implementation, their low cost, and their longer history, the need to understand their potential preventive benefit is significant. Thus, this first randomized trial of parent aide services offers some important advances in knowledge about these services.

Because of ethical and feasibility concerns, the present randomized trial was not able to examine the outcomes of parent aide services, either after the full dosage of such services was delivered, or when it was compared against an inert control group of high-risk families receiving no services. Such real-world concerns limited the observation of outcomes to what is likely a midpoint (i.e., after six months of service provision) in the progression of what typically is approximately one year of service delivery to reduce physical child abuse and neglect risk. Further, the control group against which parent aide services were compared consisted of families receiving case management services that, in their real-world delivery, included primarily case management activity but also entailed a small dose of parenting guidance support. This small amount of leakage across conditions in the randomized trial, however, should have served to suppress observed differences across groups, conservatizing any inferences about the potential benefits of parent aide services. Thus, it is important to underscore that the statistical tests reported in this study are not a test of the overall effectiveness of the full dosage of typical parent aide services delivered, or a sole test of the efficacy of parent aide services. With these real-world limitations taken into account, rather, this study compares outcomes in families receiving higher intensity parent aide and case management services against a lower intensity of primarily case management services.

Mindful of these limitations and with only approximately half of the typical parent aide service dosage delivered, the design of this study nonetheless was able to discern some promising trends suggesting the benefit of parent aide services, particularly with respect to physical child abuse risk reduction and associated risk and protective factors of parental stress (cf. Guterman, Lee, Taylor, & Rathouz, 2009; Rodriguez, 2010), parental depression and anxiety (Stevens, Ammerman, Putnam, & Van Ginkel, 2002), and parental sense of control (cf. Rodriguez, 2010). The findings reported here indicate significant improvements in each of these domains over six months of service only for families receiving both parent aide and case management services, although the magnitude of observed improvements appears to be modest, according to conventional D score standards, and the between groups ANOVA analyses do not indicate such improvements as statistically significant when compared to those families randomly assigned to receive case management services. Nonetheless, the modest observed magnitude of these trends, as assessed by D scores, are similar to those observed across a variety of randomized trials of early home visitation programs, now more widely disseminated than parent aide programs (cf. effect size trends reported in Sweet & Appelbaum, 2004 or James Bell Associates, 2012). Concerning child neglect, families receiving parent aide plus case management services were observed to have greater household inadequacy at six months after services, when compared to those only receiving case management services, and no differences at six months were found across groups using two separate measures of self-reported maternal child neglect. Both measures were assessed only at follow-up, so changes over time that could be linked with service provision could not be ascertained. Overall, no discernable favorable trends were observed with measures of child neglect risk.

The findings reported here are suggestive of some modest positive benefit for families who are at risk of physical child abuse per se and indicate that additional longer-term studies that deploy the full dosage of parent aide services are warranted to support or clarify this trend. Further, the present findings also raise several important questions with regard to the degree to which parent aide services (at least as they are currently configured) might promote improvements with respect to child neglect risk as an outcome of concern. The findings in Table 4 indicate that families receiving parent aid and case management services showed a statistically significant decline in household adequacy over the six months of services (as observed by data collectors in such domains as physical safety, household sanitation and furnishings, and availability of utilities). Such a finding does not suggest that the lack of positive findings with respect to child neglect risk are an artifact of a relatively modest study sample size. Rather these findings raise questions about the design of parent aide services, which, while attending to parenting discipline in the home (which could lead to abusive behavior), may face greater challenges when addressing the broader, and perhaps more intractable terrain of child neglect, a problem that has also been more directly associated with poverty. Recent findings of the SafeCare model of home-based prevention services (Chaffin et al., 2012) suggest that curricular
design of home-based preventive services may be important in the degree to which direct services in the home can deliver preventive benefit with respect to child neglect. Nonetheless, given that now over 75% of reports to child protective service systems in the USA involve the presence of child neglect (U.S. Department of Health and Human Services, 2012), the findings reported here suggest important limitations to the parent aide approach and suggest important considerations with regard to if and how such services can be appropriately adapted, and/or reconfigured to address cases in which child neglect risk is suspected. The study’s small final sample size and relatively short follow-up period precluded meaningful examinations of longer-term impact or post hoc subgroup comparisons to examine, for example, whether service delivery may have differed for those cases facing physical child neglect risk, or whether some subgroups of cases facing child neglect risk may have fared better than others. Taking into consideration the relative prevalence of child neglect and the lack of positive trends observed for parent aide services on this outcome, however, the findings reported here do underscore a pressing need to sharpen our understanding of the risks, etiological elements, and effective intervention components (whether curricular or otherwise) so that paraprofessional home-based models may deliver preventive benefit with respect to child neglect.

The present study was limited by the relatively small number of participating mothers (101), yielding limitations in statistical power, generalizability, and our capacity to disaggregate findings and examine service dosage and components that might most predict outcomes. It might be possible that the excluded mothers (e.g., those who refused to participate or did not meet inclusion criteria) were different in unmeasured ways from mothers who participated in the study. This is an inevitable weakness given participants’ rights of refusal. It is also possible that mothers in CM only group and those in CM + PA group may have differed in unmeasured ways other than those examined in the study. It is likely, however, that such differences would be quite small, given the overall similarity in demographic and other baseline variables assessed across the groups. Also, although random assignment was blocked by program site and all workers were intensively trained using the same protocol to eliminate potential site-level bias in the delivery of services, the modest sample size precluded tracing potential systematic differences across the program sites in the present study.

Despite these limitations, however, the findings from this study are clearly promising with respect to the capacity of parent aide services to reduce risk of subsequent child physical abuse, support continued examination of parenting skill guidance for high risk families (comprising over one third of the parent aide service activities in the home according to worker’s self-reports), and provide a fresh measure of empirical scrutiny undergirding the rationale for the continued delivery of such services, most notably in cases where physical child abuse is suspected. Given that parent aide services have been in operation in the USA for over 4 decades, the present findings provide hope for their continued delivery, as well as raise additional questions regarding their sustained impact, progressive improvement in design, and especially with respect to considering a more carefully tailored fit to the relatively larger proportion of child neglect cases now facing the scrutiny of child protective services.

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