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Behavioral Interventions and Counseling to Prevent Child Abuse and Neglect: A Systematic Review to Update the U.S. Preventive Services Task Force Recommendation

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Background: In 2004, the U.S. Preventive Services Task Force determined that evidence was insufficient to recommend behavioral interventions and counseling to prevent child abuse and neglect.

Purpose: To review new evidence on the effectiveness of behavioral interventions and counseling in health care settings for reducing child abuse and neglect and related health outcomes, as well as adverse effects of interventions.

Data Sources: MEDLINE and PsycINFO (January 2002 to June 2012), Cochrane Central Register of Controlled Trials and Cochrane Database of Systematic Reviews (through the second quarter of 2012), Scopus, and reference lists.

Study Selection: English-language trials of the effectiveness of behavioral interventions and counseling and studies of any design about adverse effects.

Data Extraction: Investigators extracted data about study populations, designs, and outcomes and rated study quality using established criteria.

Data Synthesis: Eleven fair-quality randomized trials of interventions and no studies of adverse effects met inclusion criteria. A trial of risk assessment and interventions for abuse and neglect in pediatric clinics for families with children aged 5 years or younger indicated reduced physical assault, Child Protective Services (CPS) reports, nonadherence to medical care, and immunization delay among screened children. Ten trials of early childhood home visitation reported reduced CPS reports, emergency department visits, hospitalizations, and self-reports of abuse and improved adherence to immunizations and well-child care, although results were inconsistent.

Limitation: Trials were limited by heterogeneity, low adherence, high loss to follow-up, and lack of standardized measures.

Conclusion: Risk assessment and behavioral interventions in pediatric clinics reduced abuse and neglect outcomes for young children. Early childhood home visitation also reduced abuse and neglect, but results were inconsistent. Additional research on interventions to prevent child abuse and neglect is needed.

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In 2004, the U.S. Preventive Services Task Force (USPSTF) found, on the basis of the results of a previous review (1, 2), insufficient evidence to recommend for or against routine screening of parents or caregivers for abuse or neglect of children (3, 4). This systematic review is an update for the USPSTF that focuses on studies published since the previous recommendation and addresses the effectiveness and adverse effects of behavioral interventions and counseling to prevent child abuse and neglect for children at potentially increased risk. Separate reviews examine screening women for intimate partner violence (5, 6) and elderly and vulnerable adults for abuse (6).

Approximately 695 000 children in the United States were victims of child abuse and neglect in 2010, and 1537 died (7). Most of these deaths were in infants and toddlers (7). Additional immediate health consequences of abuse and neglect include injuries and emotional and behavioral problems (8, 9). Associated long-term physical conditions include neurologic and musculoskeletal disorders; gastrointestinal problems; metabolic conditions, including diabetes; autoimmune disorders (10, 11); obesity (12, 13); chronic pain (14, 15); teen pregnancy and pregnancy complications (16); and others (17). Chronic mental health conditions include psychosis, anxiety and posttraumatic stress disorder, alcohol and substance abuse, risky sexual behaviors, depression and suicide, eating disorders, attention problems, and personality disorders (12, 18–25).

In the United States, child abuse and neglect have legal as well as medical implications. Federal legislation defines child abuse and neglect as any recent act or failure to act on the part of a parent or caregiver that results in death, serious physical or emotional harm, sexual abuse, or exploitation, or an act or failure to act that presents an imminent risk for serious harm (26–28). Although laws vary, states are required to include the minimum standards of the federal law (29). All states have laws that require physicians and other health care workers, as well as other professionals who interact with children, to report suspected child abuse and neglect to Child Protective Services (CPS) (30), part of the larger U.S. Department of Health and Human Services that specifically responds to child abuse reports (28).

See also:

Web-Only
CME quiz (preview on page I-22)

Physicians and other health care providers who care for children and families are uniquely situated to identify children at risk for abuse and neglect during well-child and other visits and to initiate interventions to prevent harm. Although pediatricians consider screening for abuse and neglect one of their important roles (31), it is rarely done in practice (32, 33). Barriers to screening include lack of experience, training, and confidence in handling abuse cases (32, 34–36).

Methods

We developed and followed a standard protocol. A technical report that includes additional methods, search strategies, evidence tables, and descriptions of earlier trials is available at www.uspreventiveservicestaskforce.org (37). The USPSTF and Agency for Healthcare Research and Quality (AHRQ) determined the key questions for this update by using the methods of the USPSTF (38). Investigators created an analytic framework incorporating the key questions and outlining the patient population, interventions, outcomes, and potential adverse effects (**Appendix Figure 1**, available at www.annals.org).

The target population includes children from birth to age 18 years and their caregivers who interact with health care providers in clinical settings where primary care is delivered to children. This review does not include studies of children with signs, symptoms, or complaints of abuse or neglect because those findings would elicit evaluation outside the scope of primary prevention recommendations. Outcomes included in this review incorporate currently accepted definitions of child abuse and neglect, an understanding of a continuum of potential outcomes, and an acknowledgment that only some outcomes are actually measurable in research studies. Intermediate outcomes, such as referral rates, use of counseling services, or measures of parent–child bonding, are outside the scope of this review. Main outcomes include measures of reduced exposure to abuse and neglect (CPS reports, removal of the child from the home, and caregiver self-reports of abuse or assault), measures of health outcomes related to abuse (physical injuries, death, emergency department visits, and hospitalizations), and measures of child neglect (adherence with immunizations and well-child visits).

Search Strategies

In conjunction with a research librarian, we used the National Library of Medicine's Medical Subject Headings keyword nomenclature to search the Cochrane Central Register of Controlled Trials and Cochrane Database of Systematic Reviews through the second quarter of 2012 and MEDLINE and PsycINFO from January 2002 to June 2012 for relevant English-language studies, systematic reviews, and meta-analyses. We also reviewed reference lists of papers and, using Scopus, reviewed citations of key studies.

Study Selection

Investigators developed inclusion and exclusion criteria for abstracts and articles based on the target population, key questions, and outcome measures. We included research that was done in the United States or in similar populations that receive services and interventions applicable to medical practice in the United States and was published in 2003 or later. After an initial review of abstracts, investigators reviewed full-text articles and conducted a second review to ensure eligibility. **Appendix Figure 2** (available at www.annals.org) shows the search and selection diagram.

We included trials of the effectiveness of behavioral interventions and counseling to reduce exposure to abuse or neglect or improve health outcomes. Studies were eligible for inclusion if they enrolled children without obvious signs or symptoms of abuse or neglect, used a method to identify families or children at risk that was applicable to primary care, evaluated an intervention that primary care clinicians could access or provide referral for, measured outcomes related to abuse or neglect, and compared outcomes between intervention and nonintervention groups. We included all types of CPS reports (confirmed and unconfirmed) because research indicates no association between substantiation status and behavioral and developmental outcomes (39). We excluded studies focused on clinician education, methods to increase screening rates, and perceptions and attitudes of physicians and other clinicians, as well as studies of public awareness campaigns or other interventions not applicable to primary care settings and studies of interventions directed at perpetrators. Studies of any design were included to describe potential adverse effects of behavioral interventions and counseling. Potential adverse effects include escalating levels of abuse and neglect; false-positive evaluations; adverse consequences as a result of the investigation process; labeling, stigmatizing, and psychological distress; dissolution of families; and legal issues.

Data Abstraction and Quality Rating

An investigator abstracted data about study design and setting; participant characteristics; data collection procedures; numbers enrolled and lost to follow-up; methods of exposure and outcome ascertainment; analytic methods, including adjustment for confounders; and outcomes. A second investigator confirmed the accuracy of data.

We used criteria developed by the USPSTF to assess the quality of studies (38, 40). We assessed the applicability of studies by using the PICOTS (population, intervention, comparator, outcomes, timing of outcomes measurement, and setting) framework adapted to this topic (41). Two investigators independently rated the quality and

applicability of each eligible study as good, fair, or poor. Final ratings were determined by consensus.

Data Synthesis

We assessed the aggregate quality of the body of evidence for each key question as good, fair, or poor by using methods developed by the USPSTF based on the number, quality, size, and applicability of studies and the consistency of results between studies (38). Studies were considered consistent if outcomes were generally in the same direction of effect and ranges of effect sizes were narrow. Consistency was determined by consensus of the investigators.

External Review

The draft report was reviewed by content experts, USPSTF members, AHRQ program officers, and collaborative partners.

Role of the Funding Source

The study was funded by AHRQ under a contract to support the work of the USPSTF. Staff at AHRQ and members of the USPSTF developed the scope of the work. Approval from AHRQ was required before the manuscript could be submitted for publication, but the authors are solely responsible for its content and the decision to submit it for publication.

Results

Key Question 1

For children without obvious signs and symptoms of abuse or neglect but potentially at increased risk, how well do interventions and counseling initiated in primary care settings reduce exposure to abuse or neglect, physical or mental harms, or mortality?

Eleven randomized trials evaluating the effectiveness of child abuse and neglect prevention interventions met inclusion criteria for this update (**Table 1**) (42–52). One trial evaluated a clinic-based intervention (44), and 10 trials evaluated early childhood home visitation, including the Healthy Start (43, 46), Early Start (49), Healthy Families (45, 47), Child First (51), and Family Partnership Model (42) programs; long-term follow-up of an early home visitation trial based in Memphis, Tennessee (52); and 2 other home visitation interventions (48, 50). All studies were rated fair-quality, rather than good-quality, because of specific methodological limitations or lack of information about methods. These included inadequate inclusion and exclusion criteria (42), randomization or allocation concealment (42, 43, 45, 47, 49–51, 53), or blinding (43, 48, 49); low adherence with the intervention (≤50%) (45, 47, 53); high loss to follow-up (>20%) (43–45, 48–51); dissimilar groups at baseline or follow-up (44, 47, 50, 51, 53); and lack of intention-to-treat analysis (42–45, 47–53).

All trials enrolled participants from primary care or maternity practices or settings. Although enrollment criteria for the trials varied, most included risk factors related to the child or parents (**Table 2**). Some trials used formal risk assessment instruments, such as the Kempe Family Stress Checklist (45–47), Parent Screening Questionnaire (44), or Parent Risk Questionnaire (51), as either a primary or secondary step in determining risk.

Clinic-Based Interventions

A trial based in a pediatric clinic compared outcomes of children whose parents had risk assessment followed by physician and clinic-based social work interventions, as needed, with outcomes of children receiving usual primary care (44). The trial was based on the Safe Environment for Every Kid (SEEK) model, which includes risk assessment during the course of usual primary care services, training physicians in addressing risk factors for abuse and neglect, providing informational resources for parents and physicians, and providing social work services to families desiring them. Outcome measures were obtained from CPS reports, children's medical charts, and parent responses on the Parent–Child Conflict Tactics Scale. Outcome data were collected at baseline and 3 years later.

The trial enrolled 729 participants from university-based, pediatric primary care resident continuity clinics serving low-income families in Baltimore, Maryland. Children were newborn to age 5 years, and most were African American with single mothers receiving Medicaid or aid from State Children's Health Insurance Programs. Clinics were randomly assigned in clusters to either the SEEK model or usual care on the basis of clinic day of the week. The usual care control group received standard pediatric care and services from an onsite human services worker with similar responsibilities as the social worker for the intervention group. For the intervention group, risk factor assessment was conducted using the Parent Screening Questionnaire, a 20-item, self-report questionnaire of safety issues that examines major risk factors for child abuse and neglect, such as parental depression and substance abuse. For participants with positive responses, trained physicians addressed concerns and provided educational materials, treatment, and referrals as needed. A social worker provided clinic-based interventions on a case-by-case basis (Dubowitz H. Personal communication.) (44).

Results indicated that, although 12% of families in both groups were involved with CPS before the trial, families in the intervention group had fewer CPS reports than did those in the usual care group as long as 44 months after the intervention (13% vs. 19%; $P = 0.03$) (**Table 3**). These findings represented all CPS reports, except for cases where abuse or neglect were explicitly ruled out. Also, parents in the intervention group reported fewer episodes of severe or very severe physical assault (average weighted Parent–Child Conflict Tactics Scale score, 0.11 vs. 0.33; $P = 0.04$), fewer instances of nonadherence to medical

Table 1. **Trials of Child Abuse and Neglect Prevention Interventions**

Study, Year (Reference)	Population	Duration	Risk Assessment	Intervention	Comparison	Mean Home Visits Completed, *n*	Outcomes	USPSTF Quality Rating
Clinic-based								
Dubowitz et al, 2009 (44)	558 parents of children aged ≤5 y at a university-based, pediatric primary care resident clinic serving a low-income urban population in Baltimore, Maryland	3 y	PSQ	Clinic-based screening using the PSQ, physician training, materials about child abuse, and social work services (SEEK model)	Usual care	Not applicable	CPS reports (reports excluded if abuse was ruled out) Problems related to neglect documented in medical charts Delayed immunizations Self-reported severe or very severe physical assault (CTS)	Fair*†‡
Home visitation								
Barlow et al, 2007 (42)	131 women with newborns, predominantly white and living in poverty, attending general practitioner practices in the United Kingdom	1 y	Midwives selected participants by using demographic and socioeconomic criteria	Weekly home visits from a trained health visitor for 18 mo (Family Partnership Model)	Usual care	Intervention, 41; usual care, 9	Placement on the child protection register or care proceedings Child removed from the home	Fair†§‖
Bugental and Schwartz, 2009 (43)	110 predominantly Latino families of newborns in Santa Barbara County, California	1 y	Mothers identified at moderate risk for abuse were referred by physicians, social workers, and public health nurses based on FSC (score, 25–40) or medical risk factors	Cognitive-based extension of the Healthy Start home visitation program (14–17 visits)	Standard Healthy Start home visitation program	Not reported	Self-reported physical abuse (CTS) Mean injury score (CIS) Self-reported spanking (FSS, CIS) Self-reported neglect (FSS) Mean home safety maintenance score (FSS)	Fair*†‖¶**
Duggan et al, 2004 (46)	730 Pacific Islander or Asian women with newborns, many living in poverty, in Hawaii	2 y	Referred by prenatal care providers and during birth hospitalization using risk factors and FSC (score ≥25)	Weekly home visits for 3–5 y by trained paraprofessionals (Healthy Families Hawaii)	Biweekly, monthly, or quarterly, with criteria for promotion	Not reported	CPS reports (confirmed reports) Child removed from the home	Fair†‡**††
Duggan et al, 2007 (45)	364 women with newborns, many living in poverty, with partner violence, depression, or substance abuse in Alaska	2 y	Healthy Families protocol and FSC (score ≥25)	Intensive home visits for 3–5 y, weekly for the first 6–9 mo and less frequent as family functioning improved (Healthy Families Alaska)	Usual care	First year, 22; second year, 20	CPS reports (confirmed reports) Hospitalizations for injury or ingestion ED visits	Fair*†**††
DuMont et al, 2008 (47)	1173 women with newborns at the University of Albany, New York	2 y	FSC	Home visits for 2 y by trained paraprofessionals (Healthy Families New York)	Usual care	First year, 22; second year, 14	CPS reports Self-reported serious physical abuse (CTS)	Fair†‡**††

Continued on following page

Table 1—**Continued**

Study, Year (Reference)	Population	Duration	Risk Assessment	Intervention	Comparison	Mean Home Visits Completed, *n*	Outcomes	USPSTF Quality Rating
El-Mohandes et al, 2003 (48)	286 women with newborns who received no or inadequate prenatal care, predominantly African American and living in poverty, in Washington, DC–area hospitals	1 y	Demographic factors, reproductive history, use of prenatal care, drug and alcohol use, and infant health at delivery	Home visits for 1 y, developmental play groups, parent support groups, and monthly support calls from a family resource specialist	Usual care	Not reported	Mean immunization visits (at 4 and 12 mo) Well-child visits (at least 1 at 4 mo; mean number at 9 mo)	Fair*†¶
Fergusson et al, 2005 (49)	433 families, predominantly welfare-dependent, in New Zealand	3 y	Nurse screening based on presence of 2 or more risk factors	Needs assessment, resources, support, problem solving (Early Start program)	Usual care	Not reported	Contact with agencies for child abuse/neglect (parent report) ED visits for injury or ingestion Hospitalizations for child abuse and neglect Current with immunizations Current with well-child visits Enrolled for dental care Self-reported severe physical punishment (CTS)	Fair*†¶**
Koniak-Griffin et al, 2003 (50)	101 pregnant adolescents aged 14–19 y at ≤26 wk gestation with first child obtaining care at the County Health Department, San Bernardino, California	2 y	Referral by Community Health Services Department	Case management by public health nurses providing continuous care from pregnancy through 1 y after birth with education, counseling, and home visits	Usual care	Prenatal, 2; postnatal, 10	ED visits Hospitalizations (number and days) Current with immunizations	Fair*†‡**
Lowell et al, 2011 (51)	157 families with children aged 6–36 mo, predominantly living in poverty, obtaining services in primary care clinics or WIC programs in Connecticut	22 wk	Positive scores for social, emotional, or behavioral problems on the BITSEA and/or parent scored high for psychosocial risk on the Parent Risk Questionnaire	Services delivered predominantly in the home by a clinical team on the basis of each family's needs (Child First program)	Usual care	12 (plus 12 telephone contacts)	CPS involvement (all types of reports at 36 mo)	Fair*†‡**

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care (5% vs. 8%; $P = 0.05$), and fewer delays in immunizations (3% vs. 10%; $P = 0.002$) than did parents in the usual care group.

Seventy-six percent of enrolled participants completed the study protocol. Factors that could have reduced differences between groups include diffusion of the SEEK model to the control group clinics when physicians changed clinic days or communicated with colleagues; similarity of services for intervention and control groups; and surveillance bias that increased detection of abuse and neglect, even in the absence of formal risk assessment. Applicability of the trial was limited by its being conducted in only 1 pediatric clinic setting serving a narrowly defined population but was enhanced by its use of existing health care services

Table 1—Continued

Study, Year (Reference)	Population	Duration	Risk Assessment	Intervention	Comparison	Mean Home Visits Completed, *n*	Outcomes	USPSTF Quality Rating
Olds et al, 2007 (52)	1139 pregnant, predominantly unmarried African American women aged <18 y in a public obstetric clinic in Memphis, Tennessee	Prenatal through 9 y	Pregnant women at <29 wk gestation with no other children and at least 2 risk factors (unmarried, <12 y of education, unemployed)	Transportation to clinic	Transportation to clinic plus developmental screening and referral services at 6, 12, and 24 mo Transportation to clinic plus 3 intensive home visitations Transportation to clinic plus intensive home visitation services through age 2 y	Prenatal, 7; postnatal, 26	Death	Fair†

BITSEA = Brief Infant–Toddler Social and Emotional Assessment; CIS = Child Injury Survey; CPS = Child Protective Services; CTS = Conflict Tactics Scale; ED = emergency department; FSC = Kempe Family Stress Checklist; FSS = Framingham Safety Survey; PSQ = Parent Screening Questionnaire; SEEK = Safe Environment for Every Kid; USPSTF = U.S. Preventive Services Task Force; WIC = Supplementary Nutrition Program for Women, Infants, and Children.
* Loss to follow-up was greater than 20% or not reported or follow-up differed between groups.
† Analysis was not an intention-to-treat analysis or was not described.
‡ Randomized groups were not similar at baseline or follow-up.
§ Inclusion/exclusion criteria were inadequate or not described.
‖ Randomization method was inadequate or not described.
¶ Blinding was inadequate or not described.
** Unclear methods of allocation concealment.
†† No more than 50% adherence with the intervention.

within primary care practices to integrate risk assessment into usual health care processes.

Home Visitation Interventions

Ten randomized trials evaluated the effectiveness of early childhood home visitation interventions to prevent child abuse and neglect and enrolled participants on the basis of risk assessment (42, 43, 45–52). Most trials were modeled after nurse home visitation interventions initiated more than 15 years ago in Elmira, New York (54), and Memphis, Tennessee (55). The primary intervention included visits to the participant's home by either a paraprofessional, such as a layperson who completed a 9-week training course, or by a professional, typically a nurse. Home visits occurred postnatally or both prenatally and postnatally for 3 to 36 months after birth. Although the trials used the same basic approach, they differed in enrollment criteria, duration of intervention and follow-up, type of provider, outcome measures, and other important factors (45, 46, 48, 50). Outcomes of trials reporting at least 50% adherence to the interventions, including death, CPS reports, and health care measures, are summarized in **Table 3**.

In a long-term follow-up study of the Memphis trial that included 743 children, those receiving home visits from a nurse as infants were less likely to die by age 9 years than those in the usual care control group, although results were of borderline statistical significance (1 vs. 10 deaths; $P = 0.08$) (52). In this study, the 1 death in the home visit group was the result of chromosomal abnormalities; of the 10 children who died in the control group, 3 died from complications of prematurity, 3 from the sudden infant death syndrome, 3 from injury (homicide by firearm, accidental injury from firearm, and motor vehicle accident), and 1 from an intestinal infection.

Five randomized, controlled trials provided CPS reports as an outcome, including confirmed CPS reports (45–47), all types of CPS reports (51), and parent descriptions of CPS reports (49). No trials found differences in rates of CPS reports between home-visited children and control children while the studies were ongoing (45–47, 49, 51). However, 1 trial found that children visited by a professional clinical team had decreased CPS involvement at 3 years after enrollment (odds ratio for effect of the intervention, 2.1 [95% CI, 1.0 to 4.4]) (51), whereas 2 others found no differences after 18 months (42) or 36 months (46). Two trials indicated that home-visited children were not removed from their homes at statistically significantly higher rates than control children (42, 46).

Three trials evaluated hospital emergency department visits by enrolled children (45, 49, 50). A trial specifically evaluating visits for injuries or ingestions reported reduced hospital visits for home-visited children (odds ratio, 0.59 [CI, 0.36 to 0.98]) (49). Two other trials reported no differences in emergency department visits for ambulatory

Table 2. **Enrollment Criteria for Trials of Child Abuse and Neglect Prevention Interventions**

Criterion	Study, Year (Reference)										
	Dubowitz et al, 2009 (44)	Barlow et al, 2007 (42)	Bugental and Schwartz, 2009 (43)	Duggan et al, 2004 (46)	Duggan et al, 2007 (45)	DuMont et al, 2008 (47)	El-Mohandes et al, 2003 (48)	Fergusson et al, 2005 (49)	Koniak-Griffin et al, 2003 (50)	Lowell et al, 2011 (51)	Olds et al, 2007 (52)
Pregnancy factors											
First pregnancy	–	–	–	–	–	–	–	–	REC	–	REC
Unplanned pregnancy	–	–	–	–	–	–	–	EC*	–	–	–
<26 or <29 wk gestation	–	–	–	–	–	–	REC	–	REC	–	REC
Late, no, or poor prenatal care	–	–	–	EC	–	–	–	–	–	–	–
History of unsuccessfully sought abortion	–	–	–	EC	–	–	–	–	–	–	–
Adoption sought	–	–	–	EC	–	–	–	–	–	–	–
Parent factors											
Aged <18, <19, or <20 y	–	–	–	–	–	EC†	–	EC*	REC	–	–
Single	–	–	–	EC	–	EC†	–	–	–	–	EC‡
Low income or low socioeconomic status	–	–	–	EC	–	–	–	EC*	–	–	–
<12 y education	–	–	–	EC	–	EC†	–	–	–	–	EC‡
Unemployed	–	–	–	EC	–	–	–	–	–	–	EC‡
Unstable housing	–	–	–	EC	–	EC†	–	–	–	–	–
Low social support	–	–	–	EC	–	–	–	EC*	–	–	–
History of substance abuse	–	–	–	EC	EC	–	–	EC*	–	–	–
In permanent caregiving environment	–	–	–	–	–	–	–	–	–	EC§	–
Requested participation	–	–	–	–	–	–	–	–	–	–	–
Poor mental health/ depression/psychiatric care	–	–	–	EC	EC	–	–	–	–	–	–
Domestic violence	–	–	–	–	EC	–	–	EC*	–	–	–
No telephone	–	–	–	EC	–	–	–	–	–	–	–
Marital or family problems	–	–	–	EC	–	–	–	–	–	–	–
Criteria not further described	–	EC	–	–	–	–	–	–	–	–	–
Child factors											
Aged 6–36 mo	–	–	–	–	–	–	–	–	–	REC	–
Aged 0–5 y	REC	–	–	–	–	–	–	–	–	–	–
Infant at medical risk (cesarean delivery, medical issue)	–	–	REC	–	–	–	–	–	–	–	–
Behavioral problem (BITSEA)	–	–	–	–	–	–	–	–	–	EC§	–
Health care factors											
Parental risk factors on hospital chart	–	–	–	REC	–	–	–	–	–	–	–
Nurse has concerns	–	–	–	–	–	–	–	EC	–	–	–
Screening instruments											
Kempe Family Stress Checklist score‖	–	–	–	EC¶	EC¶	EC**	–	–	–	–	–
Parent Screening Questionnaire	REC††	–	–	–	–	–	–	–	–	–	–
Parent Risk Questionnaire	–	–	–	–	–	–	–	–	–	EC§	–

BITSEA = Brief Infant–Toddler Social and Emotional Assessment; EC = enrollment criteria; REC = required enrollment criteria.
* Nurse had concerns if fewer than 2 criteria were met.
† These risk factors were given as an example; others may be used.
‡ In addition to required elements, 2 of 3 criteria must be met.
§ Child or adult may qualify. Child must be aged 6 to 36 mo with social, emotional, or behavioral problem or parent must screen as high-risk on the Parent Risk Questionnaire and be in a permanent caregiving environment.
‖ Checklist items include abuse history, prior Child Protective Services involvement, current crisis, history of partner violence, belief in harsh punishment, perception that the child is difficult, unrealistic child expectations, and parental ambivalence about the child.
¶ Kempe Family Stress Checklist score of 25 or greater.
** After meeting initial criteria, either parent must score 25 or greater.
†† Only the intervention group completed the Parent Screening Questionnaire.

Table 3. **Main Results of Trials With Greater Than 50% Adherence to the Intervention***

Outcome	Measure	Intervention	Comparison	Difference	Study, Year (Reference)
Child mortality at age 9 y	Number of deaths	1	10	$P = 0.08$	Olds et al, 2007 (52)
Child Protective Services reports					
Reports during study period	Percentage	13	19	$P = 0.03$	Dubowitz et al, 2009 (44)
Contact with agency	Percentage	20	21	$P = 0.39$	Fergusson et al, 2005 (49)
Placement on child protection register or care proceedings	Relative risk (95% CI)	–	–	2.02 (0.46–2.54)	Barlow et al, 2007 (42)
No report after the study period	Odds ratio (95% CI)	–	–	2.1 (1.0–4.4)	Lowell et al, 2011 (51)
Removal of child from home	Percentage	6	0	NS	Barlow et al, 2007 (42)
Use of health care services					
Emergency department visits for injuries and ingestions	Odds ratio (95% CI)	–	–	0.59 (0.36–0.98)	Fergusson et al, 2005 (49)
Emergency department visits	Percentage	64	89	NS	Koniak-Griffin et al, 2003 (50)
Hospitalizations for abuse and neglect	Percentage	1	2	NS	Fergusson et al, 2005 (49)
Hospitalizations	Percentage	21	36	NS	Koniak-Griffin et al, 2003 (50)
	Percentage	8	14	NS	Barlow et al, 2007 (42)
Well-child care					
Nonadherence to medical care	Percentage	5	8	$P = 0.05$	Dubowitz et al, 2009 (44)
Immunization clinic visits by age 9 mo	Mean number	2.20	1.64	$P = 0.0125$	El-Mohandes et al, 2003 (48)
Immunization clinic visits by age 1 y	Mean number	2.44	2.00	$P = 0.0867$	El-Mohandes et al, 2003 (48)
Current with immunizations at age 2 y	Percentage	77	87	NS	Koniak-Griffin et al, 2003 (50)
Current with immunizations at age 3 y	Percentage	93	92	$P = 0.83$	Fergusson et al, 2005 (49)
Delayed immunizations	Percentage	3	10	$P = 0.002$	Dubowitz et al, 2009 (44)
Well-child visits at age 1 y	Mean number	3.51	2.68	$P = 0.0098$†	El-Mohandes et al, 2003 (48)
Current with well-child visits at age 3 y	Percentage	42	30	$P < 0.05$	Fergusson et al, 2005 (49)
Enrolled for dental care at age 3 y	Percentage	72	63	$P < 0.05$	Fergusson et al, 2005 (49)

NS = not significant.
* Studies with less than 50% adherence not shown in this table include Duggan et al (45, 46) and DuMont et al (47).
† $P < 0.05$ for all periods (4, 6, 9, and 12 mo).

care–sensitive conditions (visits that might have been prevented if timely and appropriate care had been provided) (45) or for all types of indications (50).

Five trials reported no statistically significant effects of home visitation on the number or percentage of children hospitalized in general (42, 50), because of child abuse and neglect (49), or for ambulatory care–sensitive conditions (45, 46). A trial with a 12-month nurse visitation intervention and an additional 12-month follow-up found that nurse-visited children had fewer episodes of hospitalizations for all indications (19 vs. 36; $P < 0.01$) and fewer mean hospitalization days (143 vs. 211; $P < 0.001$) at 24 months than control children (50).

Three trials included measures of potential medical neglect, including nonadherence to recommended immunizations, well-child visits, or both (48–50). In 1 trial, home-visited children received immunizations at an earlier age than control children, resulting in significant differences between groups through age 9 months (2.20 vs. 1.64 mean visits; $P = 0.01$) but not at 12 months (48). Other trials indicated no differences in the second year with 24-month-old children (50) or in the third year (49). A trial reporting significant differences in the mean number of well-child visits at 9 months (3.14 vs. 2.18 mean visits; $P = 0.0098$) and 12 months (3.51 vs. 2.68 mean visits; $P = 0.0098$) also found that the more contact the children had with study personnel the more well-child visits they had at 12 months ($P = 0.036$) (48). In another trial, home-visited children were more likely to be up to date with well-child visits (42% vs. 30%; $P < 0.05$) and enrolled for dental care (72% vs. 63%; $P < 0.05$) over a 36-month period than children who were not in the program (49).

Studies using self-reported measures of abuse and neglect are subject to biased reporting, particularly because acknowledgment of child abuse and neglect is reportable to CPS. Five trials used the Parent–Child subscale of the Conflict Tactics Scale to assess mothers' self-reports of abusive and neglectful behaviors toward their children (43, 45–47, 49). One trial found a significant difference in self-reported severe physical assault at 36 months (4% of home-visited mothers vs. 12% of control mothers; $P < 0.01$) (49). Although another trial indicated no differences in the prevalence of abuse or neglect at 24 months, home-visited mothers reported one fourth as many acts of serious physical abuse, such as kicking or punching the child, compared with control mothers ($P = 0.03$) (47). Two other trials reported no differences in child maltreatment between groups (45, 46). In a trial comparing a cognitive-based extension of the Healthy Start home visitation program with the usual Healthy Start program, there were few instances of self-reported abuse on the Conflict Tactics Scale (43), although the prevalence of spanking or slapping

was lower in the enhanced group than in the unenhanced group (21% vs. 35%; $P = 0.03$).

Key Question 2

What are the adverse effects of behavioral interventions and counseling to reduce harm from abuse and neglect?

Adverse effects of interventions were not explicitly evaluated in the trials, and additional studies of adverse effects were not identified by the literature searches. Although not described in the publication, during the SEEK trial, investigators maintained regular contact with the pediatric primary care practices involved in the trial and actively monitored potential adverse effects. No adverse effects were reported by participants (Dubowitz H. Personal communication.).

Discussion

Table 4 summarizes the evidence reviewed for this update. A trial of risk assessment and behavioral interventions and counseling in a pediatric clinic showed statistically significantly reduced measures of abuse and neglect for young children and observed no adverse effects from the interventions. Outcomes included reduced physical assault, CPS reports, medical care nonadherence, and immunization delay. This trial is, to our knowledge, the first to determine the effectiveness of a clinic-based intervention in preventing child abuse and neglect, and it demonstrated the feasibility of the SEEK model by integrating it into usual care processes of the clinic. The applicability of these results was limited by the enrollment of participants from only a single clinical site with a narrowly defined high-risk population. A second trial using the SEEK model included 66 pediatricians and 24 nurse practitioners in 18 private practices in mostly suburban areas with primarily white, middle-class patients (56). Mothers in the SEEK practices reported less psychological aggression and minor physical assault than did mothers in usual care practices (56); however, additional outcomes have not yet been published (57).

Ten trials of early childhood home visitation indicated reduced death, CPS reports, emergency department visits, hospitalizations, and self-reports of abuse and neglect and improved adherence to immunizations and well-child care. However, some results were of borderline statistical significance or were inconsistent across trials. Although adverse effects of home visitation were not specifically stated, 2 trials indicated that home-visited children were not removed from their homes at statistically significantly higher rates than were control children (42, 46). These recent trials provide new information about the effectiveness of home visitation on long-term mortality, adherence with immunizations and well-child visits, and self-reported abuse and neglect.

The new trials also build on research considered in the previous USPSTF review (1, 2) and support findings of earlier trials (37). Although most trials indicated that home-visited children did not have fewer CPS reports than did usual care children during the course of the trial, CPS reports were statistically significantly reduced after 3 years of follow-up in a recent trial of the Child First program (51) and after 15 years of follow-up in the previously published Elmira trial (58). Also, recent trials showing reduced use of health care services for home-visited children, such as emergency department visits (49, 50) or hospitalizations

Table 4. **Summary of Evidence**

Key Question	Studies	Design	Limitation	Consistency	Applicability	Overall Quality	Findings
For children without obvious signs and symptoms of abuse or neglect but potentially at increased risk, how well do behavioral interventions and counseling initiated in primary care settings reduce exposure to abuse or neglect, physical or mental harms, or mortality?	1 trial of a clinic-based program and 10 trials of early childhood home visitation	RCT	Trials were limited by heterogeneity, low adherence, high loss to follow-up, and lack of standardized measures.	Inconsistent for some outcomes	Moderate	Fair	A trial in a pediatric clinic showed reduced physical assault, CPS reports, nonadherence to medical care, and immunization delay among screened children. Ten trials of early childhood home visitation reported reduced CPS reports, ED visits, hospitalizations, and self-reports of abuse and neglect, as well as improved adherence to immunizations and well-child care. Results were inconsistent.
What are the adverse effects of behavioral interventions and counseling to reduce harm from abuse and neglect?	1 trial of a clinic-based intervention	RCT	Studies of adverse effects were lacking.	Not relevant	Moderate	Not relevant	The clinic-based trial observed no adverse effects from the interventions.

CPS = Child Protective Services; ED = emergency department; RCT = randomized, controlled trial.

(50), are supported by previous trials also showing statistically significantly reduced use of these services (54, 55, 59). The consistency of these results strengthens the findings.

Although home visitation programs are widespread—for example, Healthy Families America, which has 383 sites in 35 states and the District of Columbia (60)—specific services vary widely. Consequently, results of trials may not translate to all programs. The trials themselves are highly heterogeneous. Interventions were provided by individuals of varying skill levels, ranging from paraprofessionals with a high school diploma and some additional training (47, 53) to experienced nurses or other health care professionals (52). Trials also differed in the number of home visitation sessions completed, from as few as 12 sessions (50) to as many as 41 sessions (42) over a period that ranged from 1 year (48, 50) to 3 years (49) after birth and was often unclear. Most of the statistically significant benefits of home visitation were demonstrated by trials with more intense interventions, suggesting that they are more effective (37). These include trials where children received home visitation services for longer periods, such as 24 months or more (49, 51, 54, 55, 61), or from higher-level providers, such as nurses rather than paraprofessionals (50, 51, 54, 55, 61).

The trials were limited by several factors, including an almost complete focus on home visitation, with only 1 trial evaluating a clinic-based intervention. Further research to develop and test approaches for clinical settings would address this important evidence gap. Trials often lacked predefined identification of primary and secondary outcomes. Outcome measures also differed, limiting comparisons between trials, and often included self-reported outcomes that are subject to bias. Surveillance bias confounded trials, as shown by CPS referrals from home visitors in 2 trials (45, 53). Definitions used in child abuse and neglect research also vary greatly (29) and lead to difficulty in determining and collecting accurate measurements (26, 62).

The relationship between harsh punishment, such as spanking, and child abuse needs to be further explored. Although spanking is common in the United States, it has been associated with higher odds of physical child abuse (63) and long-term developmental issues (64). Escalation of violence along this continuum could be prevented if harsh punishment practices are recognized and alternatives are considered. The relationship between intimate partner violence and child abuse also requires additional research. Child abuse is more likely to occur in households where partner violence exists (65). Interventions directed at identifying and reducing partner violence could potentially benefit children, although few studies have shown this effect (66–68).

Additional research is needed to determine effective methods for physicians and other health care clinicians to identify children at risk for abuse or neglect. Emerging areas include the use of biomarkers to detect subclinical abuse. Elevations in serum or cerebrospinal fluid levels of neuron-specific enolase and myelin-basic protein, for example, provide measures of inflicted traumatic brain injury in otherwise normal-appearing infants (69, 70). Use of pancreatic and liver enzymes to screen for occult abdominal trauma in situations of possible physical abuse has also been explored (71).

Approaches applicable to children of all ages need to be developed, validated, and tested. The lack of studies assessing older children, identified in the previous USPSTF review as an important evidence gap, has yet to be addressed. Efforts to improve identification of children at risk for abuse and neglect need to be coupled with development and evaluation of effective interventions to which they can be referred once identified. Additional research on the effectiveness of interventions is needed to support the results of current trials and expand their applicability. Standardization of interventions and outcomes would allow for quantitative meta-analysis. This research should also determine whether the interventions have unintended adverse effects.

In conclusion, trials of risk assessment and behavioral interventions and counseling in pediatric clinics and early childhood home visitation programs indicated reduced abuse and neglect outcomes for children, although all trials had limitations and trials of home visitation reported inconsistent results. Clinicians are well-positioned to identify children at risk for abuse and neglect and to connect families with appropriate prevention interventions. More research is needed in key areas to provide clinicians with effective methods of doing so.

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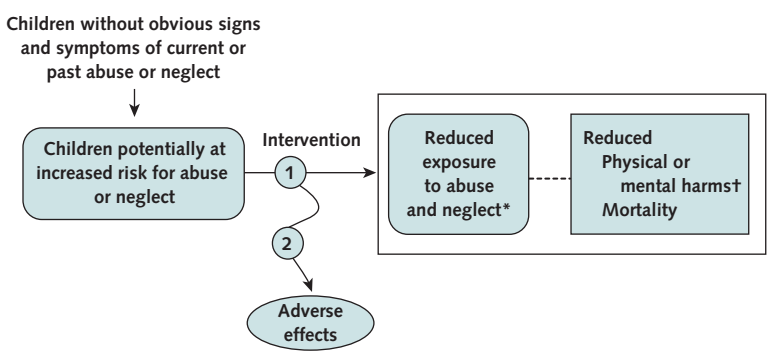
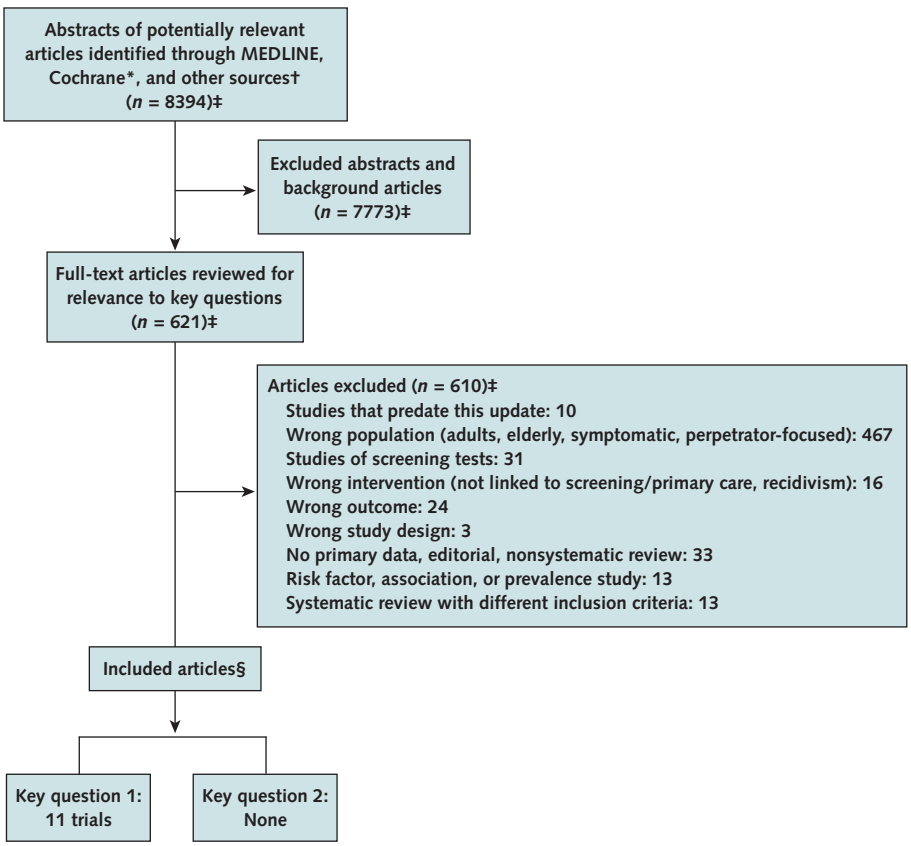
Appendix Figure 1. **Analytic framework and key questions.**



Key Questions:
1. **For children without obvious signs and symptoms of abuse or neglect but potentially at increased risk, how well do behavioral interventions and counseling initiated in primary care settings reduce exposure to abuse or neglect, physical or mental harms, or mortality?**
2. **What are the adverse effects of behavioral interventions and counseling to reduce harm from abuse and neglect?**

* Child Protective Services reports, removal of the child from the home, and reports of abuse or neglect.
† Physical injuries, mental health conditions, use of health care services, adherence to immunizations and well-child visits, and other relevant health measures.

Appendix Figure 2. **Summary of evidence search and selection.**



* Cochrane Central Register of Controlled Trials and Cochrane Database of Systematic Reviews.
† For example, identified by reference lists and suggested by experts.
‡ Includes search results for child, adult, and elderly populations. Studies of adults and elderly populations are included in a separate report (6), as are studies of children that predate this update (37).
§ Studies that meet inclusion criteria for key questions.