

Preventive health care, 2000 update: prevention of child maltreatment

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on Preventive Health Care*

Abstract

Objectives: To update the 1993 report from the Canadian Task Force on the Periodic Health Examination (now the Canadian Task Force on Preventive Health Care) by reviewing the evidence for the effectiveness of interventions aimed at preventing child maltreatment described in the scientific literature over the past 6 years.

Options: Screening: a variety of techniques including assessment of risk indicators. Prevention: programs including home visitation; comprehensive health care programs; parent education and support, combined services and programs aimed specifically at preventing sexual abuse.

Outcomes: Occurrence of one or more of the subcategories of physical abuse, sexual abuse, neglect and emotional abuse in childhood.

Evidence: MEDLINE, PSYCINFO, ERIC and several other databases were searched, experts were consulted, and published recommendations were reviewed. Original research articles and overviews that examined screening for or prevention of child maltreatment were included in the update. No meta-analysis was performed because the range of manoeuvres precluded comparability.

Benefits, harms and costs: Because of the high false-positive rates of screening tests for child maltreatment and the potential for mislabelling people as potential child abusers, the possible harms associated with these screening manoeuvres outweigh the benefits. Two randomized controlled trials showed a reduction in the incidence of childhood maltreatment or outcomes related to physical abuse and neglect among first-time disadvantaged mothers and their infants who received a program of home visitation by nurses in the perinatal period extending through infancy. It is expected that a reduction in incidence of child maltreatment and other outcomes will lead to substantial government savings. Evidence remains inconclusive on the effectiveness of a comprehensive health care program, a parent education and support program, or a combination of services in preventing child maltreatment. Education programs designed to teach children prevention strategies to avoid sexual abuse show increased knowledge and skills but not necessarily reduced abuse.

Values: The systematic review and critical appraisal of the evidence were conducted according to the evidence-based methodology of the Canadian Task Force on Preventive Health Care.

Recommendations: There is further evidence of fair quality to exclude screening procedures aimed at identifying individuals at risk of experiencing or committing child maltreatment (grade D recommendation). There is good evidence to continue recommending a program of home visitation for disadvantaged families during the perinatal period extending through infancy to prevent child abuse and neglect (grade A recommendation). The target group for this program is first-time mothers with one or more of the following characteristics: age less than 19 years, single parent status and low socioeconomic status. The strongest evidence is for an intensive program of home visitation delivered by nurses beginning prenatally and extending until the child's second birthday. There is insufficient evidence to recommend a comprehensive health care program (grade C recommendation), a

Research

Recherche

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**Formerly the Canadian Task Force on the Periodic Health Examination. The list of task force members appears at the end of the article.*

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parent education and support program (grade C recommendation) or a combination of home-based services (grade C recommendation) as a strategy for preventing child maltreatment, but these interventions may be recommended for other reasons. There is insufficient evidence to recommend education programs for the prevention of sexual abuse (grade C recommendation); whether such programs reduce the incidence of sexual abuse has not been established.

Validation: The members of the Canadian Task Force on Preventive Health Care reviewed the findings of this analysis through an iterative process. The task force sent the final review and recommendations to selected external expert reviewers, and their feedback was incorporated.

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Since the last update from the Canadian Task Force on the Periodic Health Examination (now the Canadian Task Force on Preventive Health Care) on the primary prevention of child maltreatment, published in 1993,¹ there have been continuing efforts to evaluate a range of strategies aimed at reducing physical abuse, sexual abuse, neglect and emotional abuse in childhood.^{2,3} This article reviews the evidence for the effectiveness of interventions aimed at preventing child maltreatment described in the scientific literature over the past 6 years.

Confusion persists regarding use of the terms “primary” and “secondary” with respect to the prevention of child maltreatment.⁴ Many authors use the phrase “secondary prevention” when referring to interventions offered to a subgroup of the population, predicted to be at risk.⁵⁻⁷ This contrasts with the definition of secondary prevention used by the Canadian Task Force on Preventive Health Care, which is to identify asymptomatic individuals in the early stage of a condition. To avoid this problem in terminology, some mental health specialists have advocated use of the terms “universal” to refer to interventions that focus on communities and “targeted” for programs aimed at high-risk individuals.⁸ This update includes a review of any intervention focused on preventing child maltreatment, whether directed at the general population or at high-risk individuals or groups. It does not include programs aimed at “tertiary prevention,” also referred to as clinical services, for cases in which the child or family has experienced abuse and the emphasis is on preventing recurrence or progression.

Burden of suffering

No national data on official reports of child maltreatment to child protection agencies are available at this time. The Canadian Incidence Study, currently underway, should have estimates of the annual incidence of reported child maltreatment some time early in 2001.⁹ At the provincial level, a 1993 study showed that the incidence of child maltreatment investigations was 21 per 1000 children in Ontario; in close to 60% of these cases, maltreatment

was suspected or substantiated upon completion of the investigation. Among the substantiated cases, 36% were neglect, 34% physical abuse, 28% sexual abuse and 8% emotional maltreatment (one or more types of maltreatment could be identified per case).¹⁰

Data from Quebec child welfare services indicated an overall incidence of child sexual abuse of 0.87 per 1000 children in 1995/96.¹¹ This compares with a 1993 Ontario rate of 1.57 per 1000. The authors attribute the differences to institutional response rather than to lower rates of child sexual abuse in Quebec.¹¹

One prevalence survey has been conducted in Canada since 1993.¹¹ The Mental Health Supplement to the Ontario Health Survey was a general population survey involving a random sample of almost 10 000 residents aged 15 years and older.¹² Using a self-administered questionnaire, 31.2% of males and 21.1% of females reported a history of child physical abuse; sexual abuse in childhood was reported by 4.3% and 12.8% respectively.

Methods

A search for studies on the prevention of child maltreatment published between 1993 and February 1999 was conducted using the following databases: MEDLINE, HealthSTAR, PSYCINFO and ERIC. For MEDLINE and HealthSTAR the search terms included “child abuse,” “incest” and “battered child syndrome” with “prevention and control” as well as “child abuse” combined with “statistics and numerical data,” “etiology” and “epidemiology.” The type of publication was limited to original research articles, reviews, meta-analyses and practice guidelines. For PSYCINFO the search terms included “child abuse,” “child neglect,” “battered child syndrome” or “incest” combined with “prevention” or “screening” and limited to “experimental design,” “meta-analysis” or “literature review.” ERIC was searched with the terms “child abuse” and “child neglect” and limited to “literature review.”

Additional literature searches were conducted using the database Current Contents (1993–1999) using the key word “child abuse,” “child neglect,” “battered child syndrome” or “incest” combined with “prevention” or “screening.”

No meta-analysis was performed because of the range of manoeuvres examined; even across studies evaluating the same inter-

vention the differences in individual study designs precluded combining of results.

The retrieved articles were systematically reviewed using the methodology of the Canadian Task Force on Preventive Health Care. The task force, comprising expert clinicians and methodologists from a variety of medical specialties, used a standardized evidence-based method for evaluating effectiveness. Appendix 1 describes the methodology and review process in more detail and provides definitions of the levels of evidence and grades of recommendations.

Results

Screening for risk of child maltreatment

Since 1993, 3 studies have attempted to screen for risk of child maltreatment using a variety of techniques.^{5,13,14} One study examined the correlation between staff assessment of a participant's risk for committing abuse based on familial and personal characteristics (e.g., economic difficulties) and a self-report measure, the Child Abuse Potential Inventory (CAP),¹³ The predictive validity of this approach for incidents of abuse was not determined. Two investigations focused on risk assessment of future maltreatment and followed families prospectively.^{5,14} The ability of such risk screens to predict future maltreatment continues to be a problem. For example, the interview used by the first group of authors had a positive predictive value of 6.6% and a sensitivity of 55.6% for physical abuse.⁵ As discussed in the previous update,¹ the main difficulty with approaches to screen for risk of child maltreatment continues to be the unacceptably high false-positive rate.¹⁵ Several authors have emphasized that prediction of individuals at risk for child maltreatment is not possible.^{15,16}

Risk indicators

One systematic review and 4 well-designed observational studies about risk indicators have been published since the 1993 task force report (Appendix 2). Risk "indicator" was used rather than risk "factor," because most of the information about associations with child maltreatment comes from cross-sectional surveys. Such studies provide data about correlates of child maltreatment but cannot inform us about the temporal or causal relation between associated factors and child abuse and neglect. Several rigorous longitudinal studies of child maltreatment are currently underway and should provide important information about the relation between risk indicators and child abuse and neglect.¹⁷

In summary, new risk indicators for physical abuse identified with this update include male sex, recent life stressors, maternal psychiatric impairment, low maternal education level, lack of attendance at prenatal classes, substance abuse and low religious attendance. Risk indicators for neglect include parental sociopathic behaviour and substance abuse. Two new risk indicators for sexual abuse include low maternal age and parental death.

Perinatal and early childhood programs for the prevention of physical abuse and neglect

Since 1993, 4 reviews have examined the effectiveness of perinatal and early childhood programs in preventing child physical abuse and neglect.^{2-4,18} A systematic review in 1994 concluded that, although many programs did not show reduction in these 2 subcategories of child maltreatment, there was evidence that extended home visitation was effective in preventing physical abuse and neglect among disadvantaged families.⁴ A 1997 review of controlled trials of early interventions that targeted prevention of child physical abuse and neglect suggested that, for high-risk families, "early intervention does indeed hold the potential to avert physical child abuse and/or neglect before it occurs."² However, the author summarized his findings by focusing on the key elements of effective services rather than by identifying the level of evidence for the effectiveness of different types of intervention. Wekerle and Wolfe³ concluded that studies of programs for competency enhancement among high-risk parents showed "fairly consistent gains" in outcomes directly and indirectly related to the prevention of child abuse and neglect, but they cautioned that firm conclusions awaited further evaluation. A meta-analysis by Roberts and colleagues¹⁸ showed that home visitation had a significant preventive effect on the occurrence of childhood injury. They did not calculate pooled effect estimates for the outcomes of child abuse because of concern about the potential for bias in outcome reporting.

Home visitation

Two recent studies have evaluated home visitation by nurses. In 1994 Olds and colleagues¹⁹ published the 4-year follow-up results of their randomized controlled trial (the Elmira study). The design and early findings of their trial were reviewed in the 1993 task force report.¹ The interventions were as follows: (1) developmental screening at 1 and 2 years of age; (2) the preceding intervention plus free transportation to prenatal and well-child care until the child reached 2 years of age; (3) the preceding 2 interventions plus prenatal home visits; and (4) all of the preceding interventions plus home visits until the child reached 2 years of age (infancy-visited group). The 4-year data suggested that the differences in rates of child abuse and neglect between the control group (interventions 1 and 2) and the infancy-visited group (intervention 4) seen at 2 years were not observed during the 2 years after the program ended, although children in families visited by nurses had a 40% reduction in injuries and ingestions.

Most recently, however, the 15-year follow-up results from the Elmira study showed that reports of child abuse and neglect among women visited by a nurse prenatally and through infancy (intervention 4) were fewer in number than those among women in the control group (incidence

0.29 v. 0.54; $p < 0.001$).²⁰ Eighty-one per cent of the sample were followed up.

The Elmira trial was replicated with a sample of 1139 primarily African-American, low-income and unmarried first-time mothers in Memphis, Tennessee.²¹ At 2 years (follow-up rate of 90%), children whose mothers were visited at home had fewer health care encounters for injuries and ingestions than those whose mothers were not visited at home (0.43 v. 0.56; $p = 0.05$). The number of days that children were in hospital because of injuries or ingestions was also lower in the intervention 4 group (0.04 v. 0.18; $p < 0.001$).

Three recent randomized controlled trials examined the effectiveness of paraprofessional home visitors (sometimes referred to as lay home visitors).^{14,22-24} Johnson and colleagues²² evaluated the effectiveness of monthly home visits provided by nonprofessional volunteer community mothers to 262 disadvantaged first-time mothers. A total of 11 children suffered an injury: 3 in the home-visited group and 8 in the control group; this difference was not statistically significant.

Marcenko and colleagues^{23,24} evaluated the effectiveness of pre- and postnatal home visits by lay home visitors in reducing out-of-home placements among 225 women identified prenatally as being at risk for having a newborn removed from their care. Women assigned to the control group received the regular services of the outpatient obstetrics and gynecology clinic; women in the experimental group received about 16 months of exposure to a program of home services provided by a peer home visitor, in conjunction with a nurse and social worker, beginning at the first prenatal visit. Follow-up assessment at 16 months involved 88% of the sample. There was no statistically significant difference between the experimental and control groups among children living in out-of-home placements.

A third trial assessed the effectiveness of Hawaii's statewide child abuse prevention program (Hawaii Healthy Start) provided by paraprofessionals using 2 community sites on Oahu.¹⁴ The sample involved 372 primarily low-income, multiethnic families with 2 children on average. Visits began within the first 3 months of the child's birth; home visits could potentially continue until the child's fifth birthday. At 1 year, there was a 30% drop-out rate. Differences in reports of child maltreatment between the experimental and control groups were not statistically significant.

Methodologic problems that included inappropriate randomization methods, limited follow-up periods and non-blind assessment of outcomes preclude drawing conclusions about the effectiveness of home visitation by paraprofessionals in preventing child maltreatment.

Comprehensive health care program

One study has evaluated the effectiveness of a program of comprehensive health services in preventing child maltreatment.⁵ Comprehensive health services included prenatal, postnatal and pediatric care by a multidisciplinary team

provided through a clinic setting until children were 2 years of age. Mothers in the intervention group received prenatal counselling with a psychologist and participated in support groups. Of 1089 women receiving prenatal care at an urban hospital, 314 identified as high risk were randomly assigned to either comprehensive services or standard care services. At 3 years' follow-up, information was available for 88% of the experimental group and 79% of the control group. Review of public agency documents showed reports of physical abuse for 9.2% of the children in the intervention group, as compared with 6.6% of those in the control group (difference not statistically significant); reports for neglect were 10.6% and 4.1% respectively (relative risk estimate 2.79; $p < 0.05$). After analyzing the source of child protection referrals, the authors concluded that a surveillance bias — the intervention group made twice as many pediatric visits on average as the control subjects — produced this result.

Parent education and support program

Britner and Reppucci²⁵ evaluated a 12-week group parenting program conducted for primarily African-American unmarried teenaged mothers in an urban setting.²⁵ The study was not a randomized controlled trial, and information on subject entry into each group was not provided, so no conclusions can be drawn about prevention of child maltreatment.

Combination of services

Huxley and Warner²⁶ examined the effectiveness of the Community Infant Project (CIP), in which nurse-clinician teams gave families a range of home-based services, including case management, psychotherapy and education on maternal and child health. The methodologic weaknesses in this trial, in addition to the ambiguity about the actual goal of the program, preclude drawing conclusions about the effectiveness of the intervention.

Summary of key evidence

In summary, among the perinatal and early childhood programs, there is additional evidence that frequent home visitation by nurses beginning prenatally and extending until the child is 2 years of age can prevent child maltreatment and associated outcomes (e.g., injuries and health care encounters) among first-time disadvantaged mothers (Table 1). The 2 most rigorously designed trials demonstrated the effectiveness of home visitation when applied as a targeted intervention to high-risk families.¹⁹⁻²¹ Although 3 of the 5 studies did not show evidence of effectiveness in preventing child abuse and neglect, there were major methodologic weaknesses in these trials. Moreover, home visitation in the 2 former studies was provided by nurses; in the 3 trials with less positive results, the primary intervener was a parapro-

fessional or lay home visitor. However, methodologic weaknesses in these 3 trials preclude attributing worse outcomes to the use of paraprofessionals. Olds and colleagues have recently conducted a randomized controlled trial to evaluate the effectiveness of home visitation by nurses compared with paraprofessionals; the results are forthcoming.

Findings from the Elmira and Memphis trials cannot be extrapolated to other interventions that differ substantially from this model. In both studies, home visitation occurred frequently, extended from the prenatal period to the child's second birthday, used a theoretical model and was provided by nurses. A central issue in dissemination will be ensuring a high level of congruence between the original protocol of the intervention and the actual model of service delivery.²⁰ This is particularly important at a time when home visitation programs are being disseminated in both Canada and the United States on the basis of a model using lay home visitors,^{27,28} when to date the strongest evidence from the most rigorous trials is for a program of home visitation by nurses.

With regard to the 3 other types of perinatal and early childhood programs — a comprehensive health care program,⁵ a parent education and support program²⁵ and a combination of home-based services including case management, education and psychotherapy²⁶ — there is insufficient evidence to recommend inclusion or exclusion of these interventions from consideration in a periodic health examination; the evidence remains inconclusive.

Education programs for children to prevent sexual abuse

Since the task force's 1993 update, 2 systematic reviews have examined the effectiveness of education programs in preventing sexual abuse.^{36,37} One review concluded that education programs aimed at preventing child sexual abuse and abduction can improve knowledge and prevention skills of children under experimental conditions.³⁶ However, whether education of children can lead to a reduction in the incidence of child sexual abuse and abduction re-

Table 1: Summary table of recommendations for the prevention of child maltreatment

Manoeuvre	Effectiveness	Level of evidence*	Recommendation*
Screening			
Approaches used to identify families at high risk for child maltreatment	High false-positive rates; high risk of mislabelling people as potential child abusers	Cohort study ^{5,14} (II-2), cross-sectional survey ¹³ (III)	No additional evidence to alter recommendation (D) in 1993 update ¹
Prevention			
<i>Programs aimed primarily at preventing physical abuse or neglect, or both</i>			
Home visitation by nurses during perinatal period through infancy for first-time mothers of low socioeconomic status, single parents or teenaged parents	Decreased number of reports of child abuse and neglect and of health care encounters for injuries and ingestions in intervention group	RCTs ¹⁹⁻²¹ (I)	Good evidence to include referral in the periodic health examination for home visitation by nurses (A)
Comprehensive health care program†	Increased number of reports of neglect in intervention group; no effect on number of reports of child physical abuse	RCT ⁵	Insufficient evidence to include referral in the periodic health examination for prevention of child maltreatment (C)
Parent education and support program†	Decreased number of reports of child abuse and neglect in intervention group	Controlled trial ²⁵	Insufficient evidence to include referral in the periodic health examination for prevention of child maltreatment (C)
Combination of home-based services, including case management, education and psychotherapy†	Decreased number of visits to emergency department in intervention group	Controlled trial ²⁶	Insufficient evidence to include referral in the periodic health examination for prevention of child maltreatment (C)
<i>Programs aimed primarily at preventing sexual abuse</i>			
Programs for children aimed at preventing sexual abuse and abduction	Improved knowledge of sexual abuse and enhanced awareness of safety skills; no studies have determined effectiveness of programs in reducing incidence of sexual abuse or abduction	RCTs ²⁹⁻³⁵ (I)	No additional evidence to alter recommendation (C) in 1993 update ¹

Note: RCT = randomized controlled trial.

*See Appendix 1 for definitions of the levels of evidence and grades of recommendations.

†This report examined use of the manoeuvre in relation to the prevention of child maltreatment and associated outcomes. There may be other health conditions for which this intervention is effective, or other reasons for recommending its use.

mains to be established. Results of a meta-analysis by Rispen and colleagues³⁷ indicated that victimization prevention programs are successful in teaching children sexual abuse concepts and self-protection skills, but the authors emphasized that transfer of these skills to real-life situations has not been shown.

Since the 1993 update, several additional studies evaluating the effectiveness of programs for the prevention of child sexual abuse have been published (Table 1).²⁹⁻³⁵ None of these randomized controlled trials addressed the outcome of reduction in occurrence of sexual abuse, and so they will not be reviewed in detail. A unique cohort study with a nationally representative sample of 2000 youths and their caretakers showed that, at 1-year follow-up, children exposed to school-based prevention programs reported that they were more likely to disclose an incident of victimization than those not exposed to such programs.^{38,39} However, exposure to such prevention programs was not associated with any decrease in self-reported victimization.

Recommendations

The recommendations of the Canadian Task Force on Preventive Health Care are summarized in Table 1. Since the task force's 1993 update, there is further evidence against screening approaches for child maltreatment and in favour of home visitation for first-time high-risk mothers, although the actual level of evidence for these manoeuvres has not changed. There are 3 additional manoeuvres that have been assessed for prevention of physical abuse and neglect; however, there is insufficient evidence to recommend the inclusion of any of these strategies in a periodic health examination.

There is additional evidence of fair quality to strengthen the 1993 recommendation to exclude screening procedures for predicting whether children will experience or adults will commit child maltreatment. There is further evidence to strengthen the earlier recommendation of a referral for home visitation during the perinatal period through infancy for first-time mothers of low socioeconomic status, single parenthood or teenaged parenthood to prevent child abuse and neglect. The strongest evidence is for home visitation by nurses, but the most important factor is to maintain the elements of the original prevention program described by Olds and colleagues when it is disseminated.¹⁹⁻²¹ Unfortunately, most home visitation programs that have been developed in Canada bear little resemblance to the model shown to be effective by Olds and colleagues. If such a program is not available in the community, physicians and allied health professionals can advocate for the development of such a program. The eligibility criteria for the Elmira and Memphis studies were demographically based and did not involve any active screening strategy. Presumably most primary care physicians are familiar with the age, socioeconomic and marital status of their patients. Olds and Kitzman⁴⁰ advocated targeting communities with high rates of

poverty and of single and teenaged parenthood. Making this program widely available in such communities could reduce the problem associated with labelling a person as in need of the program.

There is no good evidence to include or exclude a referral for a comprehensive health care program, a parent education and support program or a combined service program that includes case management, education and psychotherapy in the prevention of child maltreatment. These interventions may be beneficial for other reasons and should be assessed on an individual basis.

There is no new evidence to justify a change in the recommendations regarding programs for the prevention of sexual abuse and victimization. As outlined in the 1993 update, health professionals making recommendations regarding such programs during a periodic health examination must do so on other grounds.

Research agenda

Since the task force's 1993 update, some progress had been made in determining the distribution and determinants of child physical and sexual abuse in the general population. However, developing approaches to measuring the prevalence and correlates of 2 major categories of child maltreatment — neglect and emotional abuse — remains an important area for future investigation.

A crucial research question is the extent to which the effectiveness of the program described by Olds and colleagues can be replicated in populations with different characteristics (e.g., multiparous women). In addition, it is unclear to what degree modifications to the program of home visitation by nurses (e.g., duration, frequency and content of the visits) alter the effectiveness of the intervention.

In the area of sexual abuse, it is still unknown whether education programs actually prevent its occurrence. Research in this area needs to focus on approaches to protecting children that do not put the onus for prevention on the child.

Finally, further effort should be directed to identifying other promising interventions aimed at preventing one or more types of child maltreatment, since a combination of approaches (universal and targeted) will likely be required in reducing this serious public health problem.

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References

1. MacMillan HL, MacMillan JH, Offord DR, with the Canadian Task Force on the Periodic Health Examination. Periodic health examination, 1993 update:

1. Primary prevention of child maltreatment. *CMAJ* 1993;148(2):151-63.
2. Guterman NB. Early prevention of physical child abuse and neglect: existing evidence and future directions. *Child Maltreatment* 1997;2:12-34.
3. Wekerle C, Wolfe DA. Prevention of child physical abuse and neglect: promising new directions. *Clin Psychol Rev* 1993;13:501-40.
4. MacMillan HL, MacMillan JH, Offord DR, Griffith L, MacMillan A. Primary prevention of child physical abuse and neglect: a critical review: Part I. *J Child Psychol Psychiatry* 1994;35:835-56.
5. Brayden RM, Altemeier WA, Dietrich MS, Tucker DD, Christensen MJ, McLaughlin EJ, et al. A prospective study of secondary prevention of child maltreatment. *J Pediatr* 1993;122:511-6.
6. Dubowitz H. Prevention of child maltreatment: what is known. *Pediatrics* 1989;83:570-7.
7. Adler NA, McCain JL. Prevention of child abuse: issues for the mental health practitioner. *Child Adolesc Psychiatr Clin North Am* 1994;3:679-93.
8. Offord DR, Kraemer HC, Kazdin AE, Jensen PS, Harrington R. Lowering the burden of suffering from child psychiatric disorder: trade-offs among clinical, targeted, and universal interventions. *J Am Acad Child Adolesc Psychiatry* 1998;37:686-94.
9. Phaneuf G, Tonmyr L. National incidence study of child abuse and neglect. [letter]. *CMAJ* 1998;159(5):446. Available: www.cma.ca/cmaj/vol-159/issue-5/0446a.htm
10. Trocme N, McPhee D, Tam KK, Hay T. *Ontario incidence study of reported child abuse and neglect*. Toronto: Institute for the Prevention of Child Abuse; 1994.
11. Tonmyr L. *International studies on the incidence and prevalence of child maltreatment: selected bibliography*. Ottawa: Child Maltreatment Division, Bureau of Reproductive and Child Health, Health Protection Branch, Health Canada; 1998. Cat no H21-143/1998E.
12. MacMillan HL, Fleming JE, Trocme N, Boyle MH, Wong M, Racine YA, et al. Prevalence of child physical and sexual abuse in the community: results from the Ontario Health Supplement. *JAMA* 1997;278:131-5.
13. McCurdy K. Risk assessment in child abuse prevention programs. *Soc Work Res* 1995;19:77-87.
14. Center on Child Abuse Prevention Research, National Committee to Prevent Child Abuse. *Intensive home visitation: a randomized trial, follow-up and risk assessment study of Hawaii's Healthy Start Program* (Final report, prepared for the National Center on Child Abuse and Neglect). Chicago: National Committee to Prevent Child Abuse; 1996.
15. Caldwell RA, Bogat GA, Davidson WS II. The assessment of child abuse potential and the prevention of child abuse and neglect: a policy analysis. *Am J Community Psychol* 1988;16:609-24.
16. Kotelchuck M. Child abuse and neglect: prediction and misclassification. In: Starr RH, editor. *Child abuse prediction: policy implications*. Cambridge (MA): Ballinger; 1982. p. 67-104.
17. Bertolli J, Morgenstern H, Sorenson SB. Estimating the occurrence of child maltreatment and risk-factor effects: benefits of a mixed-design strategy in epidemiologic research. *Child Abuse Negl* 1995;19:1007-16.
18. Roberts I, Kramer MS, Suissa S. Does home visiting prevent childhood injury? A systematic review of randomised controlled trials. *BMJ* 1996;312:29-33.
19. Olds DL, Henderson CR Jr, Kitzman H. Does prenatal and infancy nurse home visitation have enduring effects on qualities of parental caregiving and child health at 25 to 50 months of life? *Pediatrics* 1994;93:89-98.
20. Olds DL, Eckenrode J, Henderson CR Jr, Kitzman H, Powers J, Cole R, et al. Long-term effects of home visitation on maternal life course and child abuse and neglect: fifteen-year follow-up of a randomized trial. *JAMA* 1997;278:637-43.
21. Kitzman H, Olds DL, Henderson CR Jr, Hanks C, Cole R, Tatelbaum R, et al. Effect of prenatal and infant home visitation by nurses on pregnancy outcomes, childhood injuries, and repeated childbearing: a randomized controlled trial. *JAMA* 1997;278:644-52.
22. Johnson Z, Howell F, Malloy B. Community mothers' programme: randomised controlled trial of non-professional intervention in parenting. *BMJ* 1993;306:1449-52.
23. Marcenko MO, Spence M. Home visitation services for at-risk pregnant and postpartum women: a randomized trial. *Am J Orthopsychiatry* 1994;64:468-78.
24. Marcenko MO, Spence M, Samost L. Outcomes of a home visitation trial for pregnant and postpartum women at-risk for child placement. *Child Youth Serv Rev* 1996;18:243-59.
25. Britner PA, Reppucci ND. Prevention of child maltreatment: evaluation of a parent education program for teen mothers. *J Child Family Stud* 1997;6:165-75.
26. Huxley P, Warner R. Primary prevention of parenting dysfunction in high-risk cases. *Am J Orthopsychiatry* 1993;63:582-8.
27. Else P, Williams RC, Wilson I, Watson B, Bradley S. Healthy babies, healthy children: an early intervention/prevention program for Ontario. *Ont Med Rev* 1998;July/Aug:20-1.
28. Donnelly AC. Healthy families America. *Child Today* 1992;21:25-8.
29. Wurtele SK, Owens, JS. Teaching personal safety skills to young children: an investigation of age and gender across five studies. *Child Abuse Negl* 1997;21:805-14.
30. Telljohann SK, Everett SA, Price JH. Evaluation of a third grade sexual abuse curriculum. *J Sch Health* 1997;67:149-53.
31. Bogat GA, McGrath MP. Preschoolers' cognition of authority, and its relationship to sexual abuse education. *Child Abuse Negl* 1993;17:651-62.
32. Sarno JA, Wurtele SK. Effects of a personal safety program on preschoolers' knowledge, skills, and perceptions of child sexual abuse. *Child Maltreatment* 1997;2:35-45.
33. Tutty LM. Child sexual abuse prevention programs: evaluating Who Do You Tell. *Child Abuse Negl* 1997;21:869-81.
34. Randolph MK, Gold CA. Child sexual abuse prevention: evaluation of a teacher training program. *School Psychol Rev* 1994;23:485-95.
35. Oldfield D, Hays BJ, Megel ME. Evaluation of the effectiveness of Project Trust: an elementary school-based victimization prevention strategy. *Child Abuse Negl* 1996;20:821-32.
36. MacMillan HL, MacMillan JH, Offord DR, Griffith L, MacMillan A. Primary prevention of child sexual abuse: a critical review: Part II. *J Child Psychol Psychiatry* 1994;35:857-76.
37. Rispens J, Aleman A, Goudena PP. Prevention of child sexual abuse victimization: a meta-analysis of school programs. *Child Abuse Negl* 1997;21:975-87.
38. Finkelhor D, Asdigian N, Dziuba-Leatherman J. The effectiveness of victimization prevention instruction: an evaluation of children's responses to actual threats and assaults. *Child Abuse Negl* 1995;19:141-53.
39. Finkelhor D, Asdigian N, Dziuba-Leatherman J. Victimization prevention programs for children: a follow-up. *Am J Public Health* 1995;85:1684-9.
40. Olds DL, Kitzman H. Can home visitation improve the health of women and children at environmental risk? *Pediatrics* 1990;86:108-16.
41. Stier DM, Leventhal JM, Berg AT, Johnson L, Mezger J. Are children born to young mothers at increased risk of maltreatment? *Pediatrics* 1993;91:642-8.
42. Kelleher K, Chaffin M, Hollenberg J, Fischer E. Alcohol and drug disorders among physically abusive and neglectful parents in a community-based sample. *Am J Public Health* 1994;84:1586-90.
43. Wilson LM, Reid AJ, Midmer DK, Biringir A, Carroll JC, Stewart DE. Antenatal psychosocial risk factors associated with adverse postpartum family outcomes. *CMAJ* 1996;154(6):785-99. Abstract available: www.cma.ca/cmaj/vol-154/0785e.htm
44. Brown J, Cohen P, Johnson JG, Salzinger S. A longitudinal analysis of risk factors for child maltreatment: findings of a 17-year prospective study of officially recorded and self-reported child abuse and neglect. *Child Abuse Negl* 1998;22:1065-78.

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Appendix 1: Methodology of the Canadian Task Force on Preventive Health Care

Critical appraisal

A manuscript providing critical appraisal of the evidence for this topic was prepared by the lead author. This included identification and critical appraisal of key studies, and ratings of the quality of this evidence using the task force's established methodological hierarchy (below), which resulted in a summary of proposed conclusions and recommendations for consideration by the task force.

Consensus development

Evidence for this topic was presented by the lead author and deliberated upon during a task force meeting in October 1998. Expert panelists addressed critical issues, clarified ambiguous concepts and analyzed the synthesis of the evidence. At the end of this process, the specific clinical recommendations proposed by the lead author were discussed, as were issues related to clarification of the recommendations for clinical application and any gaps in evidence. The results of this process are reflected in the description of the decision criteria presented with the specific recommendations. Final decisions on recommendations were arrived at unanimously by the group and lead author.

Procedures to achieve adequate documentation, consistency, comprehensiveness, objectivity and adherence to the task force methodology were maintained at all stages during review development, the consensus process and beyond to ensure uniformity and impartiality throughout.

Levels of evidence

- I Evidence from at least one well-designed randomized controlled trial
- II-1 Evidence from well-designed controlled trials without randomization
- II-2 Evidence from well-designed cohort or case-control analytic studies, preferably from more than one centre or research group
- II-3 Evidence from comparisons between times or places with or without the intervention; dramatic results from uncontrolled studies could be included here
- III Opinions of respected authorities, based on clinical experience; descriptive studies or reports of expert committees

Grades of recommendations

- A Good evidence to support the recommendation that the condition or manoeuvre be specifically considered in a periodic health examination (PHE)
 - B Fair evidence to support the recommendation that the condition or manoeuvre be specifically considered in a PHE
 - C Insufficient evidence regarding inclusion or exclusion of the condition or manoeuvre in a PHE, but recommendations may be made on other grounds
 - D Fair evidence to support the recommendation that the condition or manoeuvre be specifically excluded from a PHE
 - E Good evidence to support the recommendation that the condition or manoeuvre be specifically excluded from a PHE
-

Appendix 2: Summaries of studies assessing risk indicators since the task force's 1993 update¹

Stier et al, 1993^{41*}

- Longitudinal cohort design examining relation between child maltreatment and low maternal age in a sample of children born to inner-city mothers
- The rate of child maltreatment, which included physical abuse, sexual abuse and neglect, was increased two-fold in a group of children born to mothers 18 years of age or younger

Kelleher et al, 1994⁴²

- Case-control study with a community-based sample
- Respondents reporting either physical abuse or neglect of their children were more likely than control subjects to report substance abuse or dependence
- Authors overcame potential for referral bias by taking into account confounding factors, thus providing good evidence of a strong association between parental substance abuse and child maltreatment

Wilson et al, 1996⁴³

- Systematic review of strength of association between antenatal psychosocial variables and child abuse (articles published between 1980 and 1993)
- Indicators for which there was the strongest evidence of an association with child abuse: recent life stressors, lack of social support, maternal psychiatric impairment, history of childhood violence in the mother or her partner, partner suspected of child abuse, poor parent-child relationship in the mother's childhood, low self-esteem in the mother, unwanted pregnancy, lack of attendance at prenatal classes
- Indicators for which there was fair evidence of an association with child abuse: poor marital adjustment or satisfaction, abuse of the mother by her partner, substance abuse by the mother or her partner

MacMillan et al, 1997¹²

- Cross-sectional survey (Ontario Health Supplement)
- Males were found to be at increased risk for child physical abuse
- The risk of physical abuse was increased further for males raised in families in which the parent providing primary financial support had not finished high school
- Growing up in a rural area of less than 3000 residents was found to be a correlate of child physical abuse among females but not males
- The evidence supported previous findings that child sexual abuse is more common among females than among males

Brown et al, 1998⁴⁴

- Longitudinal study: data on child maltreatment from New York State records and retrospective self-reports were used to identify demographic, familial and parenting characteristics prospectively associated with risk for physical abuse, sexual abuse and neglect
 - Variables that showed significant association with combined official reports and self-reports of child physical abuse: low maternal education, low religious attendance, low maternal age, welfare dependence, single parent status, measures of impairment in parenting (e.g., low paternal warmth), maternal impairment (e.g., sociopathy including substance abuse or problems with police; serious illness), poor marital quality
 - Variables associated with combined reports of child neglect were similar as those above; however, both maternal and paternal sociopathy as well as paternal psychopathology were significant correlates of neglect
 - Variables that showed significant association with combined reports of child sexual abuse included: low maternal age, parental death, presence of a stepfather, negative life events, maternal sociopathy, harsh punishment, unwanted pregnancy
-

*Data from this study were published after submission of the 1993 task force report.