

Evidence summary Title:

Parenting interventions for prevention of childhood injuries: Evidence and implications for public health

Review Quality Rating: 8 (strong)

Review on which this evidence summary is based:

Kendrick, D., Barlow, J., Hampshire, A., Polnay, L., Stewart-Brown, S. (2007). **Parenting interventions for the prevention of unintentional injuries in childhood.** *The Cochrane Database of Systematic Reviews*, Issue 4. Art. No.: CD006020. DOI: 10.1002/14651858.CD006020.pub2..

The Cochrane review that this evidence summary is based on has been updated. This evidence summary summarizes the above-cited version of this review, not the updated version. An updated evidence summary will be provided as soon as possible.

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This is an evidence summary written to condense the work of the authors of this systematic review, referenced above. The intent of this summary is to provide an overview of the findings and implications of the full review. For more information on individual studies included in the review, please see the review itself.

Review content summary

This systematic review of 14 studies (randomized control trials (RCTs), non-randomized controlled trials (non-RCTs), and controlled before and after studies) aimed to determine the effectiveness of parenting interventions aimed at changing caregiver knowledge, skills or attitudes related to a variety of parenting topics in preventing medically attended or self-reported unintentional injuries in children (0-18 years), the possession of home safety equipment, or a change in caregiver safety practices. Participants studied were: mostly families 'at risk' for adverse child health outcomes, child abuse and neglect. To be included, studies had to: have a control group, and be individual or group based parenting interventions which were defined by a specific protocol, manual or curriculum. Interventions described in this review included: multi-faceted home visiting programs; pediatric practice-based interventions; educational interventions in the home; and other multi-faceted parenting programmes including community programmes and support groups. Outcomes measured include: self-reported or medically attended unintentional injury; possession and use of home safety equipment; and safety practices. Authors report that parenting interventions, most commonly provided within the home, using multi-faceted interventions may be effective in reducing childhood injury. They suggest that further research should explore the mechanisms by which these interventions reduce injury, the necessary and sufficient parenting interventions that reduce injury, and the generalizability of these interventions to different populations.

Comments on this review's methodology

This is a methodologically strong systematic review. A focused clinical question was clearly identified. Appropriate inclusion criteria were used to guide the search. A comprehensive search was employed using health, social, psychological, and educational databases; reviewing reference lists of primary studies; handsearching key relevant journals; and reviewing grey literature sources that include various relevant websites and conference abstracts. The search was not limited by language. Primary studies were assessed for methodological quality using the following criteria: allocation concealment, blinding of outcome assessment and completeness of follow-up; but did not include: possible confounding, or reliability and validity of outcome assessment. The methods were described in sufficient detail so as to allow replication and two reviewers were involved in quality appraisal. Any discrepancies in appraisal results were rectified by discussion. The results of this review were transparent. Results were clearly presented in graphical form so as to allow for comparisons across studies. Heterogeneity was assessed. Appropriate analytical methods (fixed effects, random effects) were employed to enable the synthesis of study results. Results of the meta-analysis must be interpreted with caution due to the methodological quality of the RCTs. Sensitivity analysis conducted by excluding studies without adequate allocation concealment, resulted in no statistically significant difference between groups, which limits confidence in the findings.

Why this issue is of interest to public health

Unintentional injury remains the leading cause of death in children under the age of 14 and Canada ranks 22nd in the world for preventable childhood injuries and death¹. Between 1994 and 2003, an estimated average of 390 Canadian children age 14 and under, died from unintentional injuries each year². In a report regarding the health and wellness of Canadian children and youth, Leitch recommended a national strategy for injury prevention for children¹. Parents have a major role in preventing childhood injury, by creating a safe environment and modeling safe practices. In a case-control study including five centres across Canada, LeBlanc and colleagues investigated homes of children who had attended the emergency department with an injury

compared to homes of those who did not attend for injury³. They found that homes of children attending the emergency department for an injury had a greater proportion of hazards specifically related to falls, choking, poisoning and burns; and that families with any hazard could benefit from education about all hazards³. Effective interventions are needed to increase family awareness and change behaviour in relation to child safety.

Evidence and implications

Evidence points are in order of the strength of evidence

What's the evidence?	Implications for practice and policy:
1. Medically attended or self-reported injury (nine studies) 1.1. Intervention families had a lower risk of at least one self-reported or medically attended injury than controls (RR 0.82; CI 0.71 to 0.95), meaning intervention families were 18% less likely to have injury than controls, with the true population effect ranging between 5-29% less likely. Most studies were of multi-faceted interventions and all but one study included in this meta-analysis involved home visiting.	1. Medically attended or self-reported injury 1.1. The delivery of safety interventions to families is recommended for reducing unintentional injuries among children. Furthermore, home visiting programs that include multi-faceted interventions are an important component of safety interventions for reducing risk of unintentional injuries, particularly in families at risk for adverse child health outcomes, child abuse and neglect.
2. Home safety 2.1. Three studies used trained observers to assess the home environment (HOME inventory). All three found statistically significant effects of the intervention versus the control at $P < 0.05$. Meaning parents receiving the intervention had better scores indicating a safer home environment. 2.2. Five studies reported on safety practices or use of safety equipment. 2.2.1. No effect on extent to which mothers kept poisonous substances out of reach of children or safe-sleep practices, use of car seats or smoke detectors. 2.2.2. Mixed results with use of safety gates and electrical socket covers, and lowering temperature of water heater. 2.3. Two studies reported measures of home hazards. They found fewer observed hazards in the home of the intervention groups; parents were able to identify more hazards. 2.3.1. Parents who received home visits with parental education were able to identify more hazards in the home and actually implement precautions to reduce the risk of injury, than those who had home visits without the specific parental education or usual care group. 2.4. Intervention families scored higher (indicating safer practices) on a composite score of home safety measure of items regarding car seats, storage of firearms, functioning smoke detectors, scald prevention, and infant sleep safety.	2. Home safety 2.1. Home safety interventions are recommended for improving scores on the HOME inventory which assesses safety in the home. 2.2. The intervention needs focused attention on safety practices and use of safety equipment in order to reduce hazards and improve parental ability to recognize hazards. 2.3. Parental safety education needs to be an explicit part of the content of home visits.
3. Methodological Issues with the Primary Studies in the Review 3.1. While most of the evidence include in the review came from randomized controlled trials; an important limitation of these studies was maintaining adequate follow-up of participants over longer periods of time. 3.2. Some studies used parent self-report of practices as the outcome measure. 3.3. Most studies recruited families considered to be 'at risk'.	3. Implications for Future Research 3.1. Develop strategies to improve follow-up of families. 3.2. The measurement of outcomes should involve direct observation and measurement of safety practices by a blinded outcome assessor rather than parental self-report. 3.3. There is a need to assess generalizability beyond the "at risk" families, and to test with different populations. 3.4. The next step for research would be to refine the intervention to ensure that safety issues are specifically addressed within the home visiting intervention.
4. Cost Benefit or Cost-effectiveness Information 4.1. No cost related information was included in the review	4. Cost Benefit or Cost-effectiveness Information 7.1. Future research should assess cost benefit or cost-effectiveness of the interventions
General Implications Multifaceted home visiting interventions with the goal to improve a range of outcomes related to child health (and in some cases targeting maternal health as well), can have an effect on improving childhood safety. While previously studied with families 'at risk' for adverse child development outcomes, there is a need to study explicit safety components within home visiting and to test the generalizability of these interventions to different populations.	

Legend: CI – Confidence Interval; OR – Odds Ratio; RR – Relative Risk

****For definitions see the [healthevidence.org](http://www.healthevidence.org/glossary) glossary <http://www.healthevidence.org/glossary.aspx>**

References used to outline issue

1. Leitch, K. (2007). Reaching for the Top: A Report by the Advisor on Healthy Children and Youth. Ottawa: Health Canada. <http://www.hc-sc.gc.ca/hl-vs/pubs/child-enfant/advisor-conseillere/index-eng.php>
2. Safe Kids Canada (2007) Children & Youth Unintentional Injury. 1994-2003: Ten Years in Review. <http://www.sickkids.ca/SKCForPartners/custom/SKW06NationalReportENG.pdf>
3. LeBlanc, J.C., Pless, I.B., King, W.J., Bawden, H., Bernard-Bonnin, A., Klassen, T., & Tanenbein, M. (2006). Home safety measures and the risk of unintentional injury among young children: a multicentre case-control study. *CMAJ*, 175 (8), 883-887.

Other quality reviews on this topic

- Barlow, J., Simpkins, D., Stewart-Brown, S. (2003). Interventions to prevent or ameliorate child physical abuse and neglect: Findings from a systematic review. *Journal of Children's Services*. 1, 6-28.
- Ciliska, D., Hayward, S., Thomas, H. (1998). A systematic overview of the effectiveness of home visiting as a delivery strategy for public health nursing interventions. *Canadian Journal of Public Health*. 3, 193-198.
- Gardner, M.R., Deatrick, J.A. (2006). Understanding interventions and outcomes in mothers of infants. *Issues in Comprehensive Pediatric Nursing*. 1, 25-44.
- Kendrick, D., Coupland, C., Mulvaney, C., Simpson, J., Smith, S.J., Sutton, A., Watson, M., & Woods, A. (2007). Home safety education and provision of safety equipment for injury prevention. *Cochrane Database of Systematic Reviews*, Issue 1. Art. No.: CD005014. DOI: 10.1002/14651858.CD005014.pub2.
- Magill-Evans, J., Harrison, M.J., Rempel, G., Slater, L. (2006). Interventions with fathers of young children: Systematic literature review. *Journal of Advanced Nursing*. 2, 248-264.
- Roberts, I., Kramer, M.S., Suissa, S. (1998). Does home visiting prevent childhood injury? A systematic review of randomized controlled trials. *BMJ*, 312 (7022), 29-33.

Related links

- Safe Kids Canada: <http://www.sickkids.ca/safekidsCanada/>
- Public Health Agency of Canada, Injury Prevention: Childhood and Adolescence: <http://www.phac-aspc.gc.ca/inj-bles/index-eng.php>
- Health Canada, Childhood Health and Safety: <http://www.hc-sc.gc.ca/hl-vs/child-enfant/securit/index-eng.php>
- Canada Safety Council, Child Safety: <http://www.safety-council.org/info/child/children.htm>

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Muresan, J., Ciliska, D., Dobbins, M. (2008). Parenting interventions for prevention of childhood injuries: Evidence and implications for public health. Hamilton, ON: McMaster University. Retrieved from [healthevidence.org](http://www.healthevidence.org): http://www.healthevidence.org/documents/byid/17900/Kendrick2007_EvidenceSummary_EN.pdf

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