

# COCHRANE CORNER

## Prevention of injuries at home

The home is one of the most common settings in which injuries are sustained, with young children and the elderly being at most risk. In the UK, the number of deaths resulting from injuries in the home exceeds the number resulting from road-traffic crashes.<sup>1</sup> In Australia, it is estimated that for the year 2002, 41.5% of all fatal injuries occurred at home.<sup>2</sup> It is therefore unsurprising that the home environment receives attention as a setting for interventions in prevention of injuries, and subsequently there have been a number of Cochrane Systematic Reviews published on the topic, summarized below.

### MODIFICATION OF THE HOME ENVIRONMENT FOR THE REDUCTION OF INJURIES

This review by Lyons *et al*<sup>3</sup> examined all randomized controlled trials (RCTs) of interventions which focus on reducing physical hazards within the home. The authors identified 19 eligible trials, two of which investigated a home environment modification as the sole intervention with the remaining 17 using a combined approach with other strategies. Overall, the authors found the trials to be of insufficient size and quality to obtain confident findings, concluding that "there is little high-level scientific evidence for the modification of the built home environment as a method of reducing injury risk". The review authors highlight the current poor evidence-base on which to devise policy and determine relative cost-effectiveness, and call for the conduct of better quality and adequately powered studies of such interventions.

### HOME SAFETY EDUCATION AND PROVISION OF SAFETY EQUIPMENT FOR PREVENTION OF INJURIES

This review by Kendrick *et al*<sup>4</sup> is a large review containing 80 controlled intervention studies. All the studies examined a home safety education intervention (with or without the provision of safety equipment) on the occurrence of child injury, safety practices or possession of safety equipment. Twenty-three of the included studies were RCTs. The review team found evidence that home safety education is effective in increasing a range of safety practices, such as safe storage of

medicines, safe hot water temperatures and fitted stair gates. However, there is a lack of evidence to indicate whether such interventions are effective in actually reducing the number of injuries. The authors suggest that there is a need for further large or multiple smaller trials, which are sufficiently homogeneous to enable pooling of data.

### INTERVENTIONS FOR PROMOTING SMOKE ALARM OWNERSHIP AND FUNCTION

This review by DiGuseppi *et al*<sup>5</sup> examined controlled studies that evaluated the effect of any intervention designed to increase the prevalence of owned or properly functioning smoke alarms on the risk of fire-related injuries, fires, and smoke alarm ownership or function. Thirteen RCTs and eight non-randomized studies were identified. The results indicate that counselling and educational interventions have a modest effect on the likelihood of owning an alarm and having a functional alarm; however, the results were sensitive to the quality of the trial. There were no data from RCTs on fire-related injuries, although evidence from non-randomized studies suggested that community smokealarm give-away programmes reduce fire-related injuries. The authors call for further trials that investigate fire-related injuries as an outcome, and use adequate allocation concealment and blinded-outcome assessment. An update of this review is in progress.

### POOL FENCING FOR PREVENTING DROWNING IN CHILDREN

This review by Thompson *et al*<sup>6</sup> examined all controlled studies examining pool fencing with a comparison group, on the risk of drowning in children under 14 years of age. The authors found no eligible trials but three case-control studies meeting the inclusion criteria. The results of these studies indicate that pool fencing significantly lowers the risk of drowning, preventing approximately three-quarters of all child drownings in pools. Isolation fencing (enclosing the pool only) was found to be more effective than perimeter fencing (enclosing property and pool). The authors conclude that legislation should require isolation fencing with secure self-latching gates for all

pools, both public and privately owned. Additional studies would also be useful to obtain a more precise estimate of the protective effect of fencing.

These four systematic reviews indicate that there are some promising interventions for prevention of injury in the home. However, it was difficult for any of the reviews to draw confident conclusions regarding the effectiveness of the interventions in reducing injuries. Each review calls for the conduct of further, methodologically stronger studies to enable more confident statements of effectiveness and to provide greater precision of effect estimates. In particular, there is a need for further studies with adequate allocation concealment and blinding, and those that measure injury occurrence as an outcome instead of relying on behavioural data, which are difficult to translate into actual injury risk. Finally, it would be preferable for future studies to be designed with the aim of contributing to the wider evidence-base, and not solely as stand-alone evaluations.

The full text of these reviews and systematic reviews on other injury prevention topics are available on the *Cochrane Database of Systematic Reviews* (<http://www.thecochranelibrary.com>). For further information about the Cochrane Injuries Group, visit <http://www.cochrane-injuries.lshtm.ac.uk>.

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