The effects of self-management education for school-age children on asthma morbidity: a systematic review
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CRD summary
This review found that self-management education for school-aged children with asthma resulted in a decrease in missed school days. Limitations in the conduct of the review and the unclear quality of the included studies mean that the results should be treated with caution.

Authors’ objectives
To examine the effectiveness of school-based asthma education programs.

Searching
PubMed and CINAHL Plus databases were searched. Search terms were reported. Search dates were limited to 1995 to 2010. References of identified articles and systematic reviews were scanned. The review was restricted to studies published in English.

Study selection
Studies that included students from six to 18 years old with asthma, that focused on self-care/self-management interventions of asthma delivered at least partially at school via any methods of delivery were eligible for inclusion. Studies had to report one or more of the following interventions: teaching and reinforcement of proper inhaler technique; instruction to expand and improve working knowledge of asthma; reinforcement and training on following written action (treatment plans); and/or maintenance therapies, emphasis and teaching on monitoring lung function. Studies that involved parents or caregivers during interventions or studies that were intended to screen students for asthma were excluded.

The outcomes of interest were the number of missed school days, and the number of emergency department visits and/or hospital admissions within one year of study completion.

Included studies were conducted the USA, China, Australia and Canada. Some studies targeted lower elementary students only and some studies only targeted older high-school students. The type of intervention and duration of the education session varied between studies. The interventions were delivered in multiple sessions over short consecutive time periods that ranged from one month to one and a half months. Half of the studies used some variation of Open Airways for Students asthma education program as their intervention.

The authors did not state how many reviewers selected studies for inclusion.

Assessment of study quality
The authors did not state that they assessed study quality.

Data extraction
The authors did not state how many reviewers extracted the data.

Methods of synthesis
Studies were synthesised narratively, detailing the number of studies with significant outcomes.

Results of the review
Nine studies were included in the review (n=3,432, range 18 to 990 students). Follow-up ranged from two weeks to 12 months post-intervention.

All nine studies evaluated the number of school days missed; six studies showed a statistically significant decrease. Seven studies showed a decrease in asthma-related emergency department visits; four studies were statistically...
significant. Two studies reported a statistically significant decrease in the number of hospital admissions for asthma-related morbidity.

**Authors' conclusions**

Results indicated that a decrease in missed school days could be expected from asthma self-management education for school-age children. Any programmes offered for asthma education and care should be considered a benefit.

**CRD commentary**

The review question and inclusion criteria of this review were clear. A limited search of relevant sources was undertaken with appropriate search terms. Only studies published in English were included, so there was possibility of both language and publication bias. The authors did not state whether study selection and data extraction were undertaken in duplicate, so reviewer error and bias could not be ruled out.

The absence of any formal quality assessment of included studies limited interpretation of the reliability of the findings. A narrative synthesis was appropriate given the diversity of the included studies.

In the light of the limitations in the conduct of the review and unclear quality of the included studies, the results should be interpreted with caution.

**Implications of the review for practice and research**

**Practice:** The authors stated that, although there were some weaknesses in the included studies, they noted a strong finding which showed a decrease in missed school days, the number of emergency department visits and hospital admissions. Asthma education and treatment should always include the child (if developmentally appropriate). The authors recommended that asthma programs should be offered in more schools as the location was convenient for healthcare educators to reach the children with asthma. Regular follow-up sessions were needed and school nurses should emphasise asthma education for children.

**Research:** The authors advised that medication compliance would be a good indicator of success to measure school-based asthma programmes in future research.

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