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[Intervention Review]

Asthma education for school staff

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ABSTRACT

Background

Teachers and school staff should be competent in managing asthma in schools. Demonstrated low levels of asthma knowledge mean that staff may not know how best to protect a child with asthma in their care, or may fail to take appropriate action in the event of a serious attack. Education about asthma could help to improve this knowledge and lead to better asthma outcomes for children.

Objectives

To assess the effectiveness and safety of asthma education programmes for school staff, and to identify content and attributes underpinning them.

Search methods

We conducted the most recent searches on 29 November 2016.

Selection criteria

We included randomised controlled trials comparing an intervention to educate school staff about asthma versus a control group. We included studies reported as full text, those published as abstract only and unpublished data.

Data collection and analysis

At least two review authors screened the searches, extracted outcome data and intervention characteristics from included studies and assessed risk of bias. Primary outcomes for the quantitative synthesis were emergency department (ED) or hospital visits, mortality and asthma control; we graded the main results and presented evidence in a 'Summary of findings' table. We planned a qualitative synthesis of intervention characteristics, but study authors were unable to provide the necessary information.

We analysed dichotomous data as odds ratios, and continuous data as mean differences or standardised mean differences, all with a random-effects model. We assessed clinical, methodological and statistical heterogeneity when performing meta-analyses, and we narratively described skewed data.

Main results

Five cluster-RCTs of 111 schools met the review eligibility criteria. Investigators measured outcomes in participating staff and often in children or parents, most often at between 1 and 12 months.

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All interventions were educational programmes but duration, content and delivery varied; some involved elements of training for pupils or primary care providers. We noted risk of selection, performance, detection and attrition biases, although to a differing extent across studies and outcomes.

Quanitative and qualitative analyses were limited. Only one study reported visits to the ED or hospital and provided data that were too skewed for analysis. No studies reported any deaths or adverse events. Studies did not report asthma control consistently, but results showed no difference between groups on the paediatric asthma quality of life questionnaire (mean difference (MD) 0.14, 95% confidence interval (CI) -0.03 to 0.31; 1005 participants; we downgraded the quality of evidence to low for risk of bias and indirectness). Data for symptom days, night-time awakenings, restricted activities of daily living and school absences were skewed or could not be analysed; some mean scores were better in the trained group, but most differences between groups were small and did not persist to 24 months.

Schools that received asthma education were more adherent to asthma policies, and staff were better prepared; more schools that had received staff asthma training had written asthma policies compared with control schools, more intervention schools showed improvement in measures taken to prevent or manage exercise-induced asthma attacks and more staff at intervention schools reported that they felt able to administer salbutamol via a spacer. However, the quality of the evidence was low; results show imbalances at baseline, and confidence in the evidence was limited by risk of bias and imprecision. Staff knowledge was higher in groups that had received asthma education, although results were inconsistent and difficult to interpret owing to differences between scales (low quality).

Available information about the interventions was insufficient for review authors to conduct a meaningful qualitative synthesis of the content that led to a successful intervention, or of the resources required to replicate results accurately.

Authors' conclusions

Asthma education for school staff increases asthma knowledge and preparedness, but studies vary and all available evidence is of low quality. Studies have not yet captured whether this improvement in knowledge has led to appreciable benefits over the short term or the longer term for the safety and health of children with asthma in school. Randomised evidence does not contribute to our knowledge of content or attributes of interventions that lead to the best outcomes, or of resources required for successful implementation.

Complete reporting of the content and resources of educational interventions is essential for assessment of their effectiveness and feasibility for implementation. This applies to both randomised and non-randomised studies, although the latter may be better placed to observe important clinical outcomes such as exacerbations and mortality in the longer term.

PLAIN LANGUAGE SUMMARY

Asthma education for school staff

Background to the question

Teachers and school staff need to know how to manage asthma in schools. If they have little knowledge of asthma, staff may not know how best to protect a child with asthma, or may fail to act in the event of a serious attack. We aimed to assess the benefits and possible harms of asthma education for school staff, and to explore how this education can best be delivered.

Study characteristics

We found five studies including more than 100 schools that compared an asthma education programme for school staff against a control. Researchers measured outcomes for teachers and staff, and often for children or parents as well, most often at between 1 and 12 months. We conducted the most recent search for studies on 29 November 2016.

Main results

We could not tell whether educating school staff reduced the number of children who needed to visit the emergency department (ED) or hospital, and no studies reported any deaths. Study authors measured asthma control in different ways but found little benefit, especially more than a year after the intervention was provided.

Schools that received asthma education stuck to asthma policies better and staff were better prepared; more schools that had received staff asthma training had written asthma policies compared with control schools, more intervention schools showed improvement in measures taken to prevent or manage exercise-induced asthma attacks and more staff at intervention schools felt that they were able to administer salbutamol using a spacer.

We wanted to assess what the education sessions should cover and how they could best be delivered, but we did not find enough information to do this.

To sum up, asthma education for school staff increases asthma knowledge and preparedness in the schools, but we do not know much about actual benefits of this education for children with asthma.

Quality of the evidence

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The small number of studies and the variation between them mean that we cannot be sure of the overall effect of educating school staff about asthma. The ways researchers allocated schools, teachers or children to groups may have caused some bias. Also, the fact that teachers knew whether they were in the active or control group may have affected how they behaved and answered questionnaires, and this may have led to overestimation of benefits. Lots of people who were included in the studies did not return questionnaires at the end of the study, which means that we do not have a full picture of the results of asthma education interventions.