

FPIN's Help Desk Answers

School-Based Asthma Management Programs

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Clinical Question

Do school-based asthma management programs decrease emergency department (ED) visits for asthma?

Evidence-Based Answer

Comprehensive public school-based programs providing supervised administration of asthma medication and/or education for staff, children, and parents markedly decrease asthma-related ED visits for school-aged children. (Strength of Recommendation: A, based on a systematic review and two randomized controlled trials [RCTs].)

Evidence Summary

A 2018 systematic review of seven RCTs, one retrospective cohort study, and one pre-post design study (N = 1,716) evaluated the effects of school-based asthma therapy on asthma outcomes.¹ Participants were urban, school-aged U.S. children with mild intermittent to severe persistent asthma who received supervised doses of inhaled corticosteroids at school. Two of the studies specifically addressed asthma-related ED visits. In one of the RCTs (n = 400), 7% of children in the intervention group visited the ED compared with 15% in the control group (odds ratio = 0.52; 95% CI, 0.32 to 0.84). The retrospective cohort study (n = 84) found a preintervention mean of 0.8 asthma-

related ED visits per year vs. the postintervention mean of 0.3 ($P < .001$). Limitations of the systematic review included a lack of pooled data and inability to generalize results to nonurban schools.

A 2013 RCT (N = 1,316) compared school-based intervention with wait-list controls for asthma outcomes in elementary school children.² Children were in grades 1 to 5 (mean age = 8.2 years) at 130 public schools in areas with poor air quality in Ontario, Canada. All participants had a diagnosis of asthma and used asthma medications at least three times in the previous year. The asthma education program for the intervention group consisted of six 45- to 60-minute lunchtime sessions delivered by nurses and certified asthma educators, in addition to school-wide public health nurse-led initiatives (e.g., needs assessments, educational assemblies, workshops for school personnel, distribution of education folders to staff). The primary outcome was urgent health care use (same-day outpatient clinic, urgent care, and/or ED visits). The intervention group had a decreased rate of urgent health care use (relative risk [RR] = 0.80; $P = .0001$), decreased unscheduled physician visits (RR = 0.77; $P = .001$), and decreased ED visits (RR = 0.34; $P = .02$). This trial was limited by student and parent self-reported data, as well as nonblinded data collectors.

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This series is coordinated by John E. Delzell Jr., MD, MSPH, associate medical editor.

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A 2011 RCT (N = 345) compared the outcome of a school-based asthma management intervention with usual care.³ Participants were primarily black or Hispanic students (mean age = 15.1 years) from five urban high schools in New York City who had moderate to severe asthma. The treatment group received a two-part asthma self-management intervention designed for adolescents, which consisted of collaboration with a health care professional to develop an asthma action plan and provide bridging consultations with pediatric pulmonologists or adolescent specialists, plus an eight-week intensive educational program consisting of three 45- to 60-minute group sessions with individualized coaching by health educators once per week. The control group received no intervention. The primary outcome was urgent health care use over the previous two months (acute medical visits, ED visits, hospitalizations), measured at baseline and at one year. The

intervention reduced acute medical visits (RR = 0.72; 95% CI, 0.60 to 0.85), ED visits (RR = 0.52; 95% CI, 0.40 to 0.68), and hospitalizations (RR = 0.24; 95% CI, 0.09 to 0.66). This RCT was limited by the use of participant-reported data.

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