Effective Health Care

School-Centered Asthma Programs

Results of Topic Selection Process & Next Steps

The nominator, a pediatric asthma specialist and researcher, is interested in using a new systematic review to inform clinical practice pertaining to the evaluation of the success, limitations and need for expansion of school-centered asthma programs to the national level.

We identified 4 reviews covering the scope of the key question, therefore, a new review would be duplicative of an existing product. No further activity on this topic will be undertaken by the Effective Health Care (EHC) Program.

Topic Brief

Topic Name: School-Centered Asthma Programs, #781

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Authors:
David W. Niebuhr

Conflict of Interest: None of the investigators have any affiliations or financial involvement that conflicts with the material presented in this report.

Introduction

Asthma is a chronic lung condition that can cause wheezing, difficulty breathing, chest tightness, and coughing.[1] Because most children aged 5–17 years spend about 25% of their day in school,[2] the school setting is pertinent to the care (including care coordination) of the 5.4 million U.S. children aged 5–17 years with asthma[3] as well as children with other health conditions. National asthma guidelines support implementation of effective, school-based asthma self-management education programs; also, school personnel (such as school nurses) have roles in ensuring students have asthma emergency care when needed and in reducing students' exposure to environmental triggers that can cause asthma attacks.[4]

There are a number of programs developed over the years in order to work with schools to support students with asthma. It would be useful to obtain a description along with the goals of the programs, structures, and important outcomes, along with the limitations and needs for future development. There is a great need for harmonization of approaches to management of asthma in schools. A careful review could go a long way in evaluating the success, limitations and need for expansion of such programs to a national level. A systematic review could provide supportive evidence to foster the development of even better programs and help further reduce school absence and hospitalizations due to asthma.

The questions are:

Key Question 1. In children and adolescents with asthma what is the effectiveness of school-centered programs compared to other programs, usual or standard care or active comparators on

a. Asthma-related activity restriction
b. School absence
c. Emergency department visits
d. Hospitalizations

Key Question 2. In children and adolescents with asthma, do school-centered programs differ in effectiveness on asthma-related outcomes for the following subgroups of patients?

a. Age
b. Race/ethnicity
c. Socioeconomic status
d. Severity of asthma

Key Question 3. In children and adolescents with asthma, does the effectiveness of school-centered programs on asthma-related outcomes differ based on the following factors?

a. Program components (e.g. education, care coordination, skills, and behaviors)
b. Levels of communication (e.g. school to family, school to provider)
c. Staffing (e.g. nurse health educator, clinical provider)
d. Source of program funding (e.g. public (Federal, State or local), private)

Contextual Question: What are common metrics used to measure performance of school-centered programs for children with asthma?

In Table 1 we define the population, interventions, comparators, outcomes, timing, setting and study designs (PICOTSS) for each Key Question.

Table 1. Key Questions and PICOTs

Key Questions	In children and adolescents with asthma what is the effectiveness of school-centered programs compared to other programs, usual or standard care or active comparators on: a. Asthma-related activity restriction? b. School absence? c. Emergency department visits? d. Hospitalizations?	In children and adolescents with asthma do school-centered programs differ in effectiveness on asthma-related outcomes for the following subgroups of patients: a. Age? b. Race/ethnicity? c. Socioeconomic status? d. Severity of asthma?	In children and adolescents with asthma does the effectiveness of school-centered programs on asthma-related outcomes differ based on the following factors: a. Program components (e.g. education, care coordination, skills, and behaviors)? b. Levels of communication (e.g. school to family, school to provider)? c. Staffing (e.g. nurse health educator, clinical provider)? d. Source of program funding (e.g. public (Federal, State or local), private)?
Population	Children and adolescents with asthma	Children and adolescents with asthma	Children and adolescents with asthma
Interventions	School-centered programs	School-centered programs	School-centered programs -components, levels of communication, staffing, source of funding
Comparators	Other programs, usual or standard care or active comparators	Other programs or usual or standard care or active comparators	Other programs or usual or standard care or active comparators
Outcomes	Asthma-related activity restriction, school absence, emergency department visits, hospitalizations	Asthma-related activity restriction, school absence, emergency department visits, hospitalizations	Asthma-related activity restriction, school absence, emergency department visits, hospitalizations
Timing	All	All	All
Setting	Schools	Schools	Schools
Study Design	Intervention Trials	Intervention Trials	Intervention Trials

Methods

To assess topic nomination School-Centered Asthma Programs, #781, for priority for a systematic review or other AHRQ EHC report, we used a modified process based on established criteria. Our assessment is hierarchical in nature, with the findings of our assessment determining the need for further evaluation. Details related to our assessment are provided in Appendix A.

1. Determine the *appropriateness* of the nominated topic for inclusion in the EHC program.
2. Establish the overall *importance* of a potential topic as representing a health or healthcare issue in the United States.
3. Determine the *desirability of new evidence review* by examining whether a new systematic review or other AHRQ product would be duplicative.
4. Assess the *potential impact* a new systematic review or other AHRQ product.
5. Assess whether the *current state of the evidence* allows for a systematic review or other AHRQ product (feasibility).
6. Determine the *potential value* of a new systematic review or other AHRQ product.

Appropriateness and Importance

We qualitatively assessed the nomination for appropriateness and importance.

Desirability of New Review/Duplication

We searched for relevant high quality, completed or in-process evidence reviews from the last three years. Databases searched included AHRQ Effective Health Care Program website, Pubmed, Cochrane Collaboration Library, York Center for Reviews and Dissemination (CRD), Joanna Briggs Institute (JBI), Campbell Collaboration, and PROSPERO register of systematic reviews.

Compilation of Findings

We constructed a table outlining the selection criteria (Appendix A).

Results

Appropriateness and Importance

This is an appropriate and important topic. The CDC estimated in 2018 that 5.4 million U.S. children aged 5–17 years have asthma. Asthma costs the nation >$81 billion annually.[5] Asthma attacks are a substantial source of asthma morbidity including school absences, emergency department (ED) visits, hospitalizations, or death. Often, asthma attacks are preventable with proper asthma management and control. However, an estimated 40% of children have uncontrolled disease.[6]

Desirability of New Review/Duplication

A new evidence review examining school-centered asthma programs would be duplicative of an existing product. We identified four completed reviews on the topic of school-based asthma programs. All four reviews covered the effectiveness of these programs (KQ#1) and effects of various program components, staffing and funding (KQ#3).[7, 8, 9, 10] One review addressed how the effectiveness of these programs varies by sub-populations.[7] See Table 2, Duplication column for the systematic review citations that were determined to address the key questions.

Table 2. Key questions and relevant evidence reviews

Key Question	Duplication (Completed or In-Process Evidence Reviews)
KQ 1: In children and adolescents with asthma what is the effectiveness of different types of school-centered programs compared to other programs or no programs on asthma-related outcomes?	Total number of completed or in-progress systematic reviews – 4 [7, 8, 9, 10]
KQ 2: In children and adolescents with asthma what are the key program components (e.g. education, care coordination, skills, behaviors) associated with effectiveness of different types of school-centered programs compared to other programs or no programs on asthma-related outcomes?	Total number of completed or in-progress systematic reviews – 1 [7]
KQ 3: In children and adolescents with asthma what are the key levels of communication program components (e.g. school to family and school to provider) associated with effectiveness of different types of school-centered programs compared to other programs or no programs on asthma-related outcomes?	Total number of completed or in-progress evidence reviews – 4 [7, 8, 9, 10]

Abbreviations: AHRQ=Agency for Healthcare Research Quality; RCT=Randomized Controlled Trial; SOE=Strength of Evidence;

Summary of Findings

- Appropriateness and Importance: Criteria met by this topic
- Duplication: A new systematic review on this topic would be duplicative of published and current systematic reviews

References

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10. Mosnaim GS, Pappalardo AA, Resnick SE, et al. Behavioral Interventions to Improve Asthma Outcomes for Adolescents: A Systematic Review. J Allergy Clin Immunol Pract. 2016 Jan-Feb;4(1):130-41. doi: 10.1016/j.jaip.2015.09.011. PMID: 26563672

Appendices

Appendix A: Selection Criteria Summary

Appendix B: Search for Systematic Reviews (Duplication)

Appendix A. Selection Criteria Summary

Selection Criteria	Supporting Data
1. Appropriateness	
1a. Does the nomination represent a health care drug, intervention, device, technology, or health care system/setting available (or soon to be available) in the U.S.?	Yes, this topic represents a health care intervention available in the U.S.
1b. Is the nomination a request for a systematic review?	Yes, this topic is a request for a systematic review.
1c. Is the focus on effectiveness or comparative effectiveness?	The focus of this review is on both effectiveness and comparative effectiveness.
1d. Is the nomination focus supported by a logic model or biologic plausibility? Is it consistent or coherent with what is known about the topic?	Yes, it is consistent with what is known about the topic.
2. Importance	
2a. Represents a significant disease burden; large proportion of the population	Yes, this topic represents a significant burden. The CDC estimated in 2018 that 5.4 million U.S. children aged 5–17 years have asthma (Nurmagambetov 2018; CDC 2018, "Most Recent Asthma Data"). Asthma attacks are a substantial source of asthma morbidity including school absences, emergency department (ED) visits, hospitalizations, or death. Often, asthma attacks are preventable with proper asthma management and control. However, an estimated 40% of children have uncontrolled disease (CDC 2014).
2b. Is of high public interest; affects health care decision making, outcomes, or costs for a large proportion of the US population or for a vulnerable population	Yes, this topic affects heath care decisions for a large, vulnerable population.
2c. Represents important uncertainty for decision makers	Yes, this topic represents important uncertainty for decision makers.
2d. Incorporates issues around both clinical benefits and potential clinical	Yes, this nomination addresses both benefits and potential harms of school-centered asthma programs.
2e. Represents high costs due to common use, high unit costs, or high associated costs to consumers, to patients, to health care systems, or to payers	Yes asthma costs the nation >$81 billion annually (Nurmagambetov 2018; CDC 2018, "Most Recent Asthma Data").
3. Desirability of a New Evidence Review/Duplication	
3. Would be redundant (i.e., the proposed topic is already covered by available or soon-to-be available high-quality systematic review by AHRQ or others)	We identified four completed reviews on the topic of school-based asthma programs. All four reviews covered the effectiveness of these programs (KQ#1) and effects of various program components, staffing and funding (KQ#3). One review addressed how the effectiveness of these programs varies by sub-populations.

Abbreviations: AHRQ=Agency for Healthcare Research and Quality; CDC=Centers for Disease Control and Prevention; KQ=Key Question

Appendix B. Search for Systematic Reviews (Duplication)

Listed below are the sources searched

PTSD in Children and Adolescents
Source
Search for Duplication: June 8, 2016
AHRQ and Other Products
AHRQ: Evidence reports and technology assessments, USPSTF recommendations
Cochrane Systematic Reviews http://www.cochranelibrary.com/
York Center for Reviews and Dissemination (CRD)
Joanna Briggs Institute (JBI)
PROSPERO Database (international prospective register of systematic reviews and protocols) http://www.crd.york.ac.uk/prospero/
Campbell Collaboration http://www.campbellcollaboration.org/
PubMed Health http://www.ncbi.nlm.nih.gov/pubmedhealth/