

# A Systematic Review of Community Interventions for Reducing Pediatric

## Asthma Exacerbations

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### Background

- Structural and social determinants of asthma disparities often will manifest within certain geographic regions
- Community level environmental health interventions have a unique capability to improve health outcomes of children with asthma.
- Purpose of this review is to examine how effective community level environmental interventions are in reducing adverse health outcomes among pediatric asthma patients
- Findings will be used to inform the C-AIR model
  - Team of clinicians and community stakeholders who will work together to implement interventions to reduce pediatric asthma exacerbations (measured through ER visits and hospitalizations)

### Population

- The C-AIR project will serve the pediatric asthma community in Northeast Ohio, with a focus on the Clark-Fulton neighborhood and two additional hotspots
- For the purposes of the systematic review, we limited our population to asthmatic children between the ages of 0-18. There were no limitations on location, and the study includes children in the US, Australia, and Canada

### Learning Objectives

1. Understand community-level interventions in the context of preventing asthma exacerbations
2. Examine existing literature surrounding environmental interventions and reduction in exacerbations of pediatric asthma
3. Work in a team-based setting to produce a systematic review of interventions to reduce asthma in the pediatric population

### Activities

- Conducted initial title and abstract search of CINAHL and ScienceDirect
- Conducted full text review
- Created summary of findings table
- Conducted risk of bias assessment for final papers and created risk of bias table
- Assisted with development of final manuscript and abstract

[https://youtu.be/tJkMN\\_v4wnw](https://youtu.be/tJkMN_v4wnw)

### Methods

- Searched PubMed, CINAHL, ScienceDirect, Web of Science, and Cochrane
- Included studies published after 2010 that included a community level environmental intervention among children ages 0-18
- Main health outcomes ED visits/hospitalizations
- Excluded drug therapies, animal-based studies, and non-clinical outcomes
- Two reviewers independently assessed eligibility for full text review and final inclusion
- 1,570 records initially identified with 29 others identified through systematic reviews
- 41 full text records assessed for eligibility
- 14 studies ultimately included

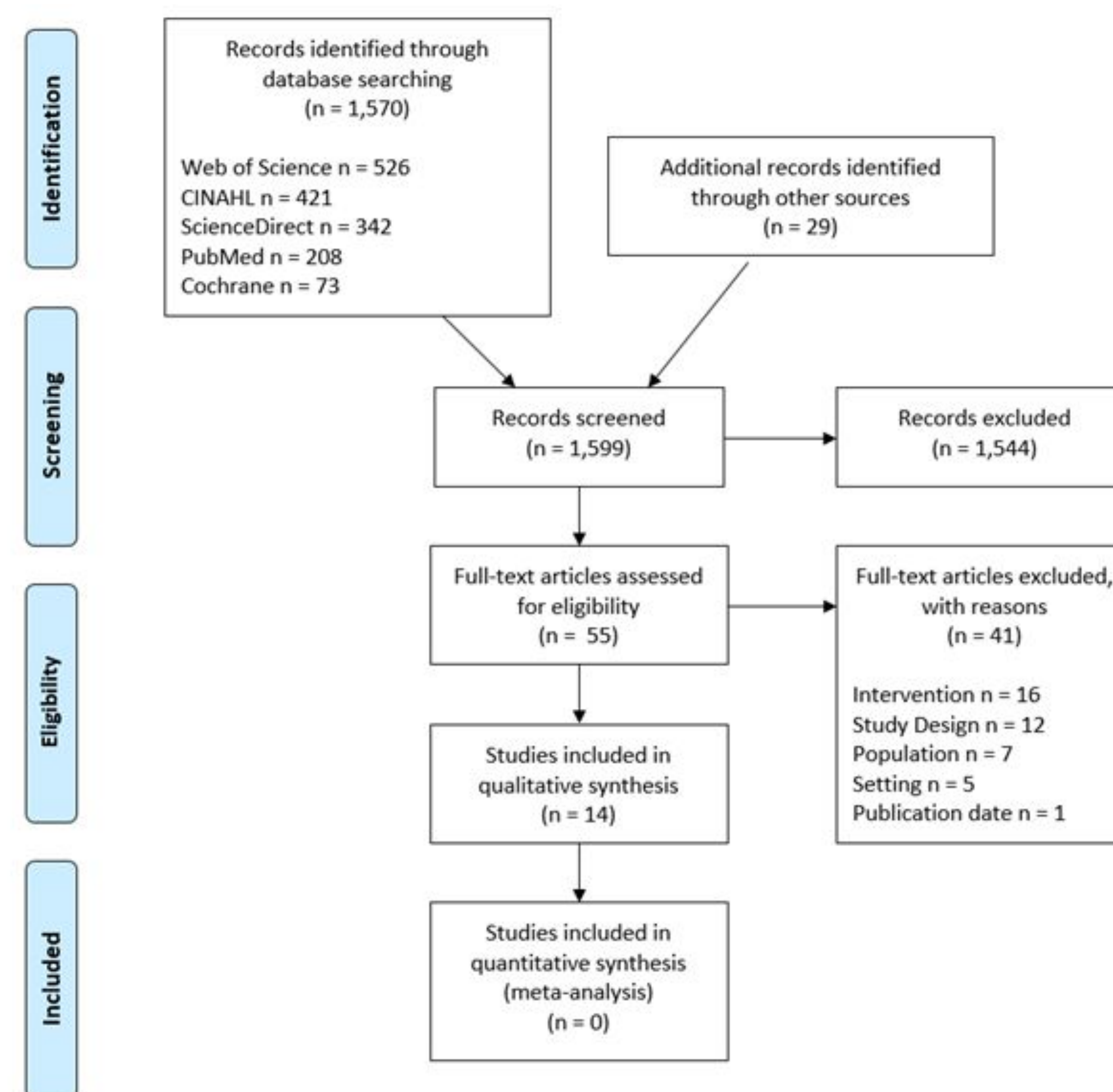


Figure 1. PRISMA flow diagram

### Deliverables

1. Summary of findings table for final papers
2. Risk of bias table based on ROBINS-1 assessment for non-randomized studies and ROBINS-2 assessment for randomized studies

### Conclusions

- Final studies were grouped into four domains:
  1. Collective action & community partnerships
  2. Community access to care
  3. Outdoor and indoor environmental changes
  4. Local policies affecting communities
- Significant associations between community interventions and asthma exacerbation reduction
- Many included studies were conducted in communities with predominantly underrepresented minorities- could have implications in addressing disparities

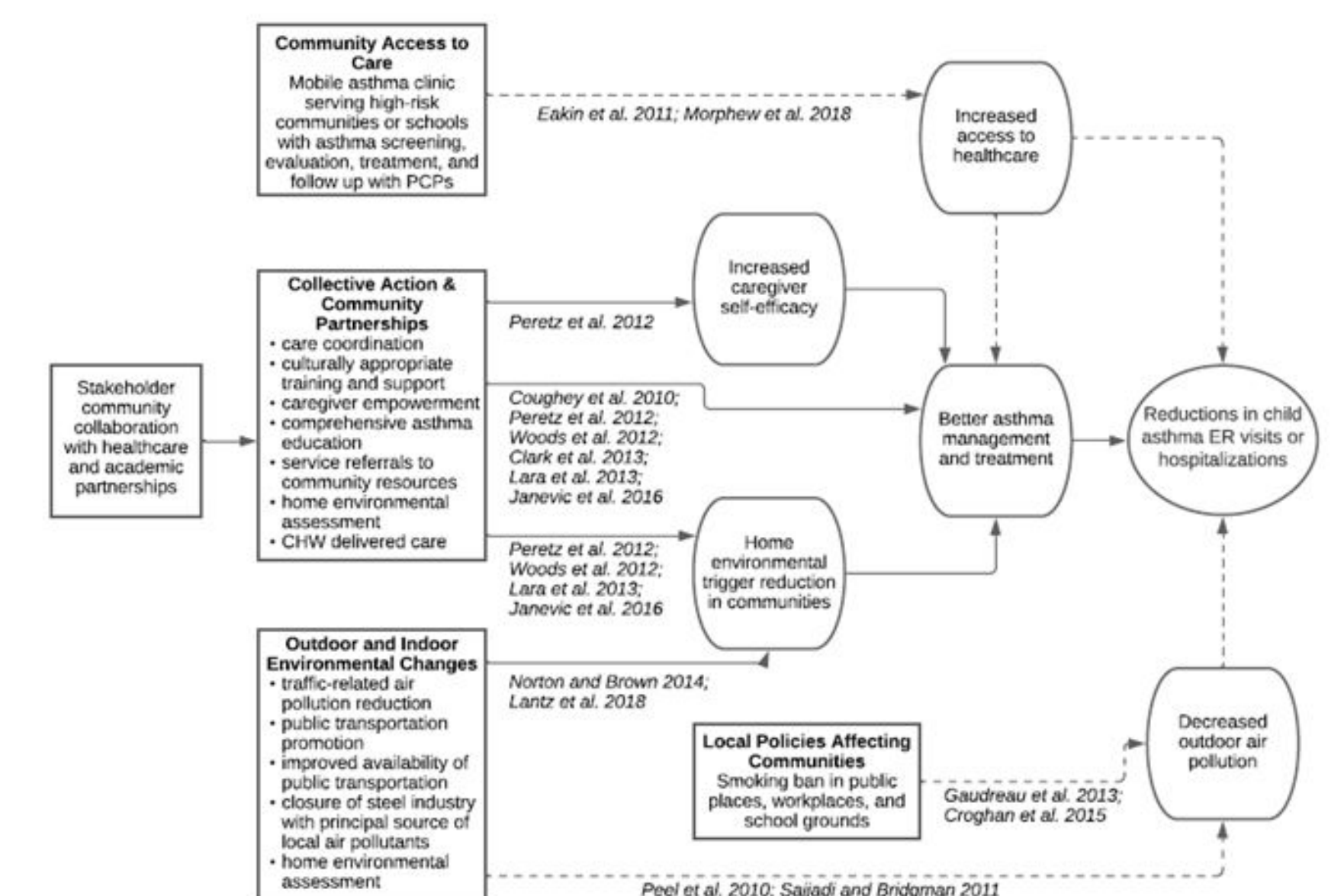


Figure 2. Conceptual model of community interventions

### Public Health Implications

- Show a need to treat asthma at the community level
- Benefits of these strategies in addressing racial disparities in asthma
- Findings can be used to design effective interventions for communities
- Provide evidence for models that are reproducible in low-income communities

### Lessons Learned

1. How to conduct systematic review of literature
2. The importance of community level interventions in addressing pediatric asthma
3. The process of conducting research in a team setting

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