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Factors associated with future hospitalization among children with asthma: a systematic review

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Review

Factors associated with future hospitalization among children with asthma: a systematic review

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Abstract

Objective

Asthma is a leading cause of emergency department (ED) visits and hospitalizations in children, though many could be prevented. Our study objective was to identify factors

from the published literature that are associated with future hospitalization for asthma beyond 30 days following an initial asthma ED visit.

Data Sources

We searched CINAHL, CENTRAL, MEDLINE, and Embase for all studies examining factors associated with asthma-related hospitalization in children from January 1, 1992 to February 7, 2022. **Selecting Studies:** All citations were reviewed independently by two reviewers and studies meeting inclusion criteria were assessed for risk of bias. Data on all reported variables were extracted from full text and categorized according to identified themes. Where possible, data were pooled for meta-analysis using random effects models.

Results

Of 2262 studies, 68 met inclusion criteria. We identified 28 risk factors and categorized these into six themes. Factors independently associated with future hospitalization in meta-analysis include: exposure to environmental tobacco smoke (OR = 1.94 95%CI 0.67–5.61), pets exposure (OR = 1.67 95%CI 1.17–2.37), and previous asthma hospitalizations (OR = 3.47 95% CI 2.95–4.07). Additional related factors included previous acute care visits, comorbid health conditions (including atopy), allergen exposure, severe-persistent asthma phenotype, inhaled steroid use prior to ED visit, poor asthma control, higher severity symptoms at ED presentation, warmer season at admission, longer length of stay or ICU admission, and African-American race/ethnicity.

Conclusions

We identified multiple factors that are consistently associated with future asthma hospitalization in children and could be used to identify those who would benefit from targeted preventative interventions.

Q Keywords: Child risk factors readmission future risk predictors

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Disclosure statement

The authors have no conflicts of interest relevant to this article to disclose.

Systematic review registration

PROSPERO #CRD42017060934

Prior presentation

The findings of this study were presented as a poster at the Canadian Respiratory Conference on 8–10 April, 2021

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Data availability statement

The data supporting the findings of this study are available within the article and its [supplementary material](#).



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