

Dexamethasone for Acute Asthma Exacerbations in Children: A Meta-analysis

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dexamethasone, prednisone, prednisolone, asthma, status
asthmaticus

CI—confidence interval
ED—emergency department
IM—intramuscular
PO—per os
RR—relative risk

Dr Gorelick conceptualized the study; Drs Gray, Keeney,
Morrison, Levas, Kessler and Hill conceptualized and designed
the study, designed the data collection instruments, coordinated
and supervised data collection, and drafted the initial
manuscript; Dr Jackson participated in study design, carried
out the initial analyses, and reviewed and revised the
manuscript; and all authors approved the final manuscript as
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Dexamethasone has been proposed as
an equivalent therapy to prednisone/prednisolone for acute asthma
exacerbations in pediatric patients. Although multiple small trials
exist, clear consensus data are lacking. This systematic review and
meta-analysis aimed to determine whether intramuscular or oral
dexamethasone is equivalent or superior to a 5-day course of oral
prednisone or prednisolone. The primary outcome of interest was
return visits or hospital readmissions.

A search of PubMed (Medline) through October 19, 2013, by
using the keywords dexamethasone or decadron and asthma or status
asthmaticus identified potential studies. Six randomized controlled trials
in the emergency department of children ≤ 18 years of age comparing
dexamethasone with prednisone/prednisolone for the treatment of
acute asthma exacerbations were included. Data were abstracted by
4 authors and verified by a second author. Two reviewers evaluated
study quality independently and interrater agreement was assessed.

There was no difference in relative risk (RR) of relapse be-
tween the 2 groups at any time point (5 days RR 0.90, 95% confidence
interval [CI] 0.46–1.78, $Q = 1.86$, $df = 3$, $I^2 = 0.0\%$, 10–14 days RR 1.14,
95% CI 0.77–1.67, $Q = 0.84$, $df = 2$, $I^2 = 0.0\%$, or 30 days RR 1.20, 95% CI
0.03–56.93). Patients who received dexamethasone were less likely to
experience vomiting in either the emergency department (RR 0.29,
95% CI 0.12–0.69, $Q = 3.78$, $df = 3$, $I^2 = 20.7\%$) or at home (RR 0.32, 95%
CI 0.14–0.74, $Q = 2.09$, $df = 2$, $I^2 = 4.2\%$).

Practitioners should consider single or 2-dose regi-
mens of dexamethasone as a viable alternative to a 5-day course of
prednisone/prednisolone. *Pediatrics* 2014;133:493–499

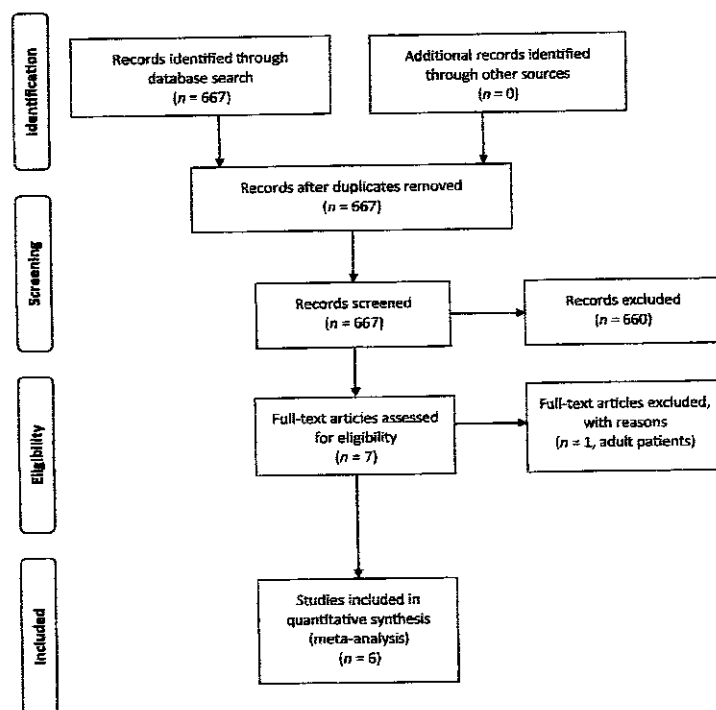


FIGURE 1
Study selection.