

Mohammed R. Jendi, MD; Quincy O. Scott, DO; Sharon A. Smaga, MD  
Southern Illinois University, Carbondale

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Karlynn Sievers, MD  
University of Wyoming  
Casper Family Medicine  
Residency

## Q / Do corticosteroids reduce bronchiolitis hospitalizations?

### EVIDENCE-BASED ANSWER

**A** / No. Corticosteroids alone don't decrease hospital admissions or length of stay among children with bronchiolitis (strength of recommendation [SOR]: A, meta-analysis of randomized controlled trials [RCTs]).

Combining oral dexamethasone and inhaled epinephrine appears to prevent one hospital admission for every 11 patients treated (SOR: B, single large RCT).

### Evidence summary

A 2013 Cochrane review of 17 RCTs with 2596 patients compared corticosteroids with placebo for treating bronchiolitis in children younger than 2 years.<sup>1</sup> The studies used dexamethasone, prednisolone, prednisone, and budesonide delivered by oral, inhaled, intravenous (IV), or intramuscular (IM) routes, ranging between a one-day dose to a 5-day taper. Doses ranged from 0.5 to 2 mg/kg/d for oral and parenteral routes and 0.2 to 1 mg for inhalation. Outcomes were rate of admissions at Days 1 and 7 from outpatient trials and length of stay among inpatients.

Investigators found no significant difference in admission rates at Day 1 and Day 7 between children treated with corticosteroids compared with placebo (Day 1: 8 trials, 1762 patients; relative risk [RR]=0.92; 95% confidence interval [CI], 0.78-1.1; Day 7: 5 trials, 1530 patients; RR=0.86; 95% CI, 0.70-1.1). Length of hospital stay didn't differ between children treated with corticosteroids and children who received placebo (8 trials, 633 patients; mean difference= -0.18 days; 95% CI, -0.39 to 0.04).

### Corticosteroid + epinephrine can lower hospital admissions

A 2009 multicenter, double-blind RCT with 800 patients (infants 6 weeks to 12 months of age with a first episode of bronchiolitis) that was included in the 2013 Cochrane review also compared the combination of epinephrine and corticosteroid with placebo and either agent alone.<sup>2</sup>

Infants were assigned to 4 groups: oral dexamethasone alone (1 mg/kg in the emergency room [ER] on Day 1, followed by 0.6 mg/kg daily for 5 days); nebulized epinephrine alone (2 treatments of 3 mL epinephrine 1:1000 solution); combined dexamethasone and epinephrine; and placebo. The primary outcome was hospital admission as long as 7 days after being seen in the ER.

Rates of admission were similar for the dexamethasone and placebo groups (25.6% vs 26.4%, respectively; RR=0.96; 95% CI, 0.69-1.3). The epinephrine group's rate of admission was 23.7% (RR=0.88; CI, 0.63-1.23). Only the dexamethasone-epinephrine group had a lower rate of admission compared with placebo (17% vs 26%; RR=0.65; 95% CI, 0.45-0.95). The number needed to treat with dexamethasone-epinephrine to prevent one hospital admission was 11.

### Review prompts revised recommendations

Based on the Cochrane review, the American Academy of Pediatrics (AAP) revised its evidence-based clinical practice guideline in 2014 to recommend that clinicians not administer systemic corticosteroids to infants with a diagnosis of bronchiolitis in any set-

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ting (evidence quality **B**, strong recommendation, based on results of multiple RCTs).<sup>3</sup> The AAP advocates additional large trials to

clarify whether combination therapy (corticosteroids plus agents with  $\alpha$  or  $\beta$  agonist activity) is effective.

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References

1. Fernandes RM, Bialy LM, Vandermeer B, et al. Glucocorticoids for acute viral bronchitis in infants and children. *Cochrane Database Syst Rev*. 2013;(6):CD004878.
2. Plint AC, Johnson DW, Patel H, et al. Epinephrine and dexamethasone in children with bronchiolitis. *N Engl J Med*. 2009;360:2079-2089.
3. Ralston SL, Lieberthal AS, Meissner HC, et al. Clinical practice guideline: the diagnosis, management, and prevention of bronchiolitis. *Pediatrics*. 2014;134:e1474-e1502.

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# Major Depressive Disorder in the Primary Care Setting

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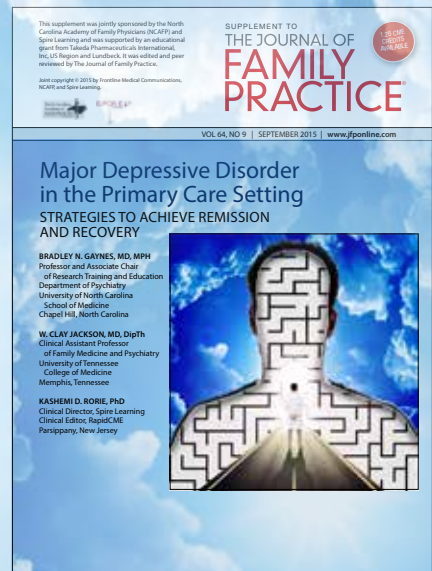
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1.25 CME CREDITS AVAILABLE

### Discussion includes:

- Diagnosis of depression in the primary care setting
- Treatment of depression
- Measurement-based care for major depressive disorder



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