

Specific Question:

In children under 7 years of age does the administration of Dexamethasone result in better outcomes for Croup than the administration of Prednisolone?

Clinical bottom line

Dexamethasone is not statistically or clinically superior to Prednisolone in reducing Croup symptom scores at 6 hours after admission but is superior to Prednisolone at reducing the risk of re-consultation for the same episode of Croup. Dependent on consultation patterns, and whether multiple doses can be used from the same bottle of Dexamethasone, there may also be cost savings associated with a switch to Dexamethasone administration.

Why is this important?

There is variability in current practice on the treatment for the childhood condition 'Croup'. Clinicians suggest the use of prednisolone is often based on the ease of availability rather than evidence of clinical effectiveness

Search time frame (e.g. 2006-2016)

Inception of searched databases to March 2016

Inclusion Criteria

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Date CAT completed: July 2016
Date CAT to be reviewed: July 2018

Getting Evidence into Clinical Practice:
 General Practice Nurse Evidence Based Practice (CAT Group)
 Date: July 2016

	Description	Search terms (In the final document this should be a combination of your clinical and librarian search terms)
Population and Setting	Children 0-6 years of age	CROUP OR (laryngotracheitis OR laryngitis OR croup)
Intervention or Exposure	Oral Dexamethasone (single dose)	DEXAMETHASONE OR dexamethasone
Comparison, if any	Oral Prednisolone (single dose or with second dose if residual symptoms of stridor are still present).	PREDNISOLONE OR prednisolone
Outcomes of interest	Reduction of Croup symptom scores at 6 hours, reduced rates of consultation, reduced hospital admission.	HOSPITAL READMISSION OR (readmission OR readmitted OR re-admission OR re- admitted ("re consultation" OR "re-consultation") OR exp CONSULTATION
Types of studies	RCTs or Systematic Reviews	

Routine Databases Searched

Web of Science, Clinical Knowledge Summaries, Cochrane and EMBASE, Medline, CINAHL

Date of search- Searches undertaken by Andrew Finney and Rachel Lewis (Librarian).
 March 2016

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Results of the search

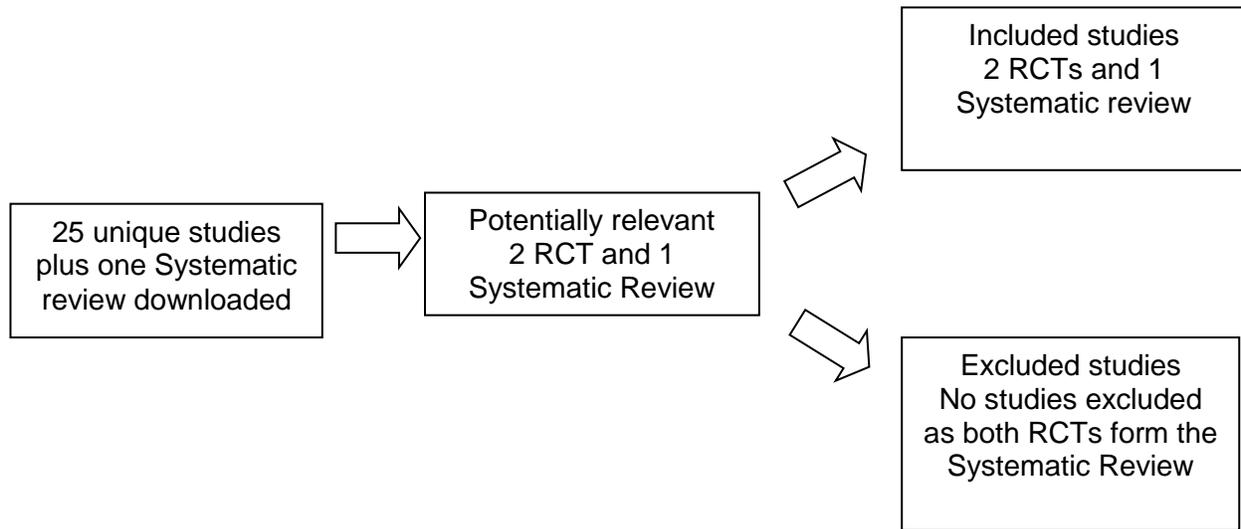


Table 1- Detail of included studies

First Author, year and type of study	Population and setting	Intervention or exposure tested	Study results	Assessment of quality and comments
Sparrow and Geelhoed, 2006, Australia	Convenience sample of 133 children presenting to a single emergency department with mild to moderate croup. Exclusion criteria included prior administration of steroids, non-English speakers and no access to	Double-blind, randomised equivalence study. Patients received a single dose of 0.15 mg/kg dexamethasone or 1 mg/kg prednisolone	Five out of 68 (7%) children who had received dexamethasone returned vs 19/65 children who had received prednisolone. No statistical difference between groups in terms of time spent in the emergency department, number admitted, use of epinephrine, duration of croup or viral symptoms	Satisfactory RCT Included patients up to the age of 12 years, although very uncommon for older children to be affected

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	telephone			
Fifoot and Ting, 2007. Australia	N = 99 Aged 6 months to 6 years (mean 1.7 years) Mild to moderate croup Excluded if: chronic respiratory disease, steroids contraindicated, recent treatment with steroids or adrenaline	Double-blind, randomised trial. Patients were randomised to receive 1 mg/kg prednisolone, 0.15 mg/kg dexamethasone or 0.6 mg/kg dexamethasone	No significant difference between the three groups in magnitude or rate of Westley score reduction. No significant difference in admission rates, duration of symptoms or reattendances	Satisfactory RCT Small sample size. Large number of eligible patients not recruited. Primary outcome over short time period
Russell et al, 2011, International	Systematic review and meta-analysis incorporating the two papers listed above	Meta-analysis	No significant difference between treatment groups RR 0.32 (95% CI 0.17 to 0.60) favouring dexamethasone	Analysis based on two studies only

Summary

Two studies compared Dexamethasone to Prednisolone. While there was no significant difference in Croup score, children randomized to Dexamethasone were significantly less likely to have a return visit.

Dependent on consultation patterns, and whether multiple doses can be used from the same bottle of Dexamethasone, there may also be cost savings associated with a switch to Dexamethasone administration.

Implications for Practice/research

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Clinical Commissioning Groups should assess the feasibility of use of multiple doses of Dexamethasone from a single container and consider local guidelines to promote its use in preference to Prednisolone.

What would you tweet? (140 characters)

Using Dexamethasone in place of Prednisolone for Croup can potentially reduce re-consultations and provide cost savings.

References

1. Fifoot AA, Ting JYS. Comparison between single-dose oral prednisolone and oral dexamethasone in the treatment of croup: a randomized, double-blinded clinical trial. *Emerg Med Australas*. 2007; 19(1):51-8.
2. Sparrow A, Geelhoed G. Prednisolone versus dexamethasone in croup: a randomised equivalence trial. *Arch Dis Child*. 2006; 91(7):580-3.
3. Russell K, Wiebe N, Saenz A et al. Glucocorticoids for croup. *Cochrane Database Syst Rev*. 2011; (1):CD001955