

Characterization of Oral Corticosteroid Use for Respiratory Indications in the Pediatric Emergency Department at Surrey Memorial Hospital

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Background

- Respiratory conditions are a common reason for hospitalization in children and infants
- Oral corticosteroids are used to decrease respiratory symptoms and morbidity
- Although oral corticosteroids play a significant role in the management of various pediatric respiratory conditions, the optimal dosing regimen remains unclear

Objectives

- To identify which oral corticosteroids and regimens are used in the pediatric Emergency Department at Surrey Memorial Hospital for respiratory conditions
- To compare the regimens for different respiratory indications and illness severity
- To identify patient-specific factors that may influence prescribing trends in steroid or dose selection

Methods

- Chart Review**
 - Sample size of convenience
- Inclusion:**
 - Pediatric ED visit at SMH prior to April 1, 2014
 - Suspected/confirmed primary diagnosis of a respiratory illness
 - Received ≥ 1 dose of oral corticosteroid
- Exclusion:**
 - Neonates (<45 weeks post-menstrual age)
 - Adult patients (≥ 17 years of age)

Results

Figure 1: Patient inclusion and exclusion flow chart

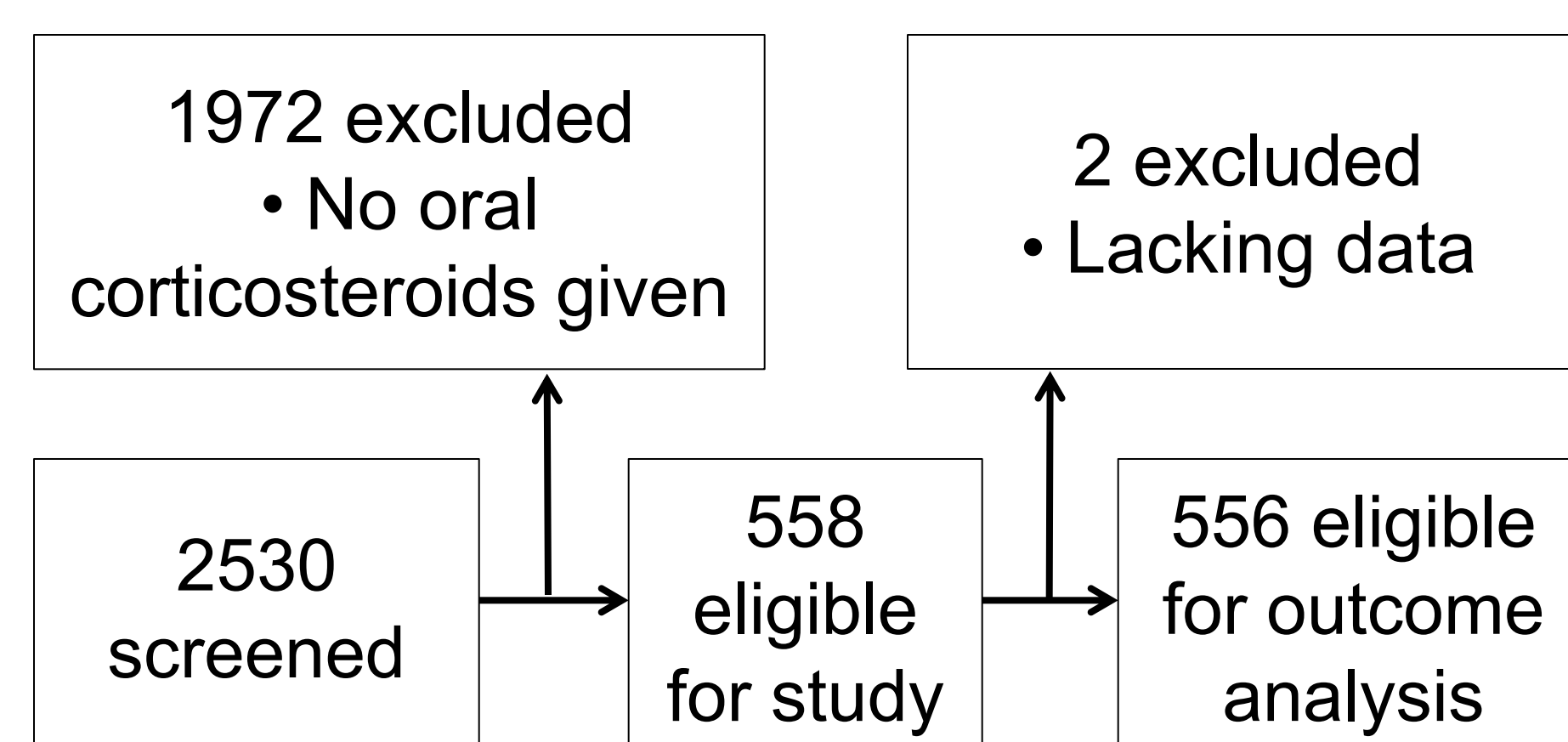


Table 1: Patient characteristics (n=556)

Average age (years) \pm SD	3.6 \pm 3.1
Male (%)	69.6
Average weight (kg) \pm SD	19.0 \pm 12.8
ED visit reason, n (%)	
Croup	277 (49.8)
Asthma/RAD	208 (37.4)
Asthma/RAD + Croup	5 (0.9)
Other respiratory infections	66 (11.9)
CTAS score, n (%)	
CTAS 1	1 (0.2)
CTAS 2	162 (29.1)
CTAS 3	363 (65.3)
CTAS 4	30 (5.4)

CTAS: Canadian Triage and Acuity Scale

Figure 2: Overall oral corticosteroid use (n=556)

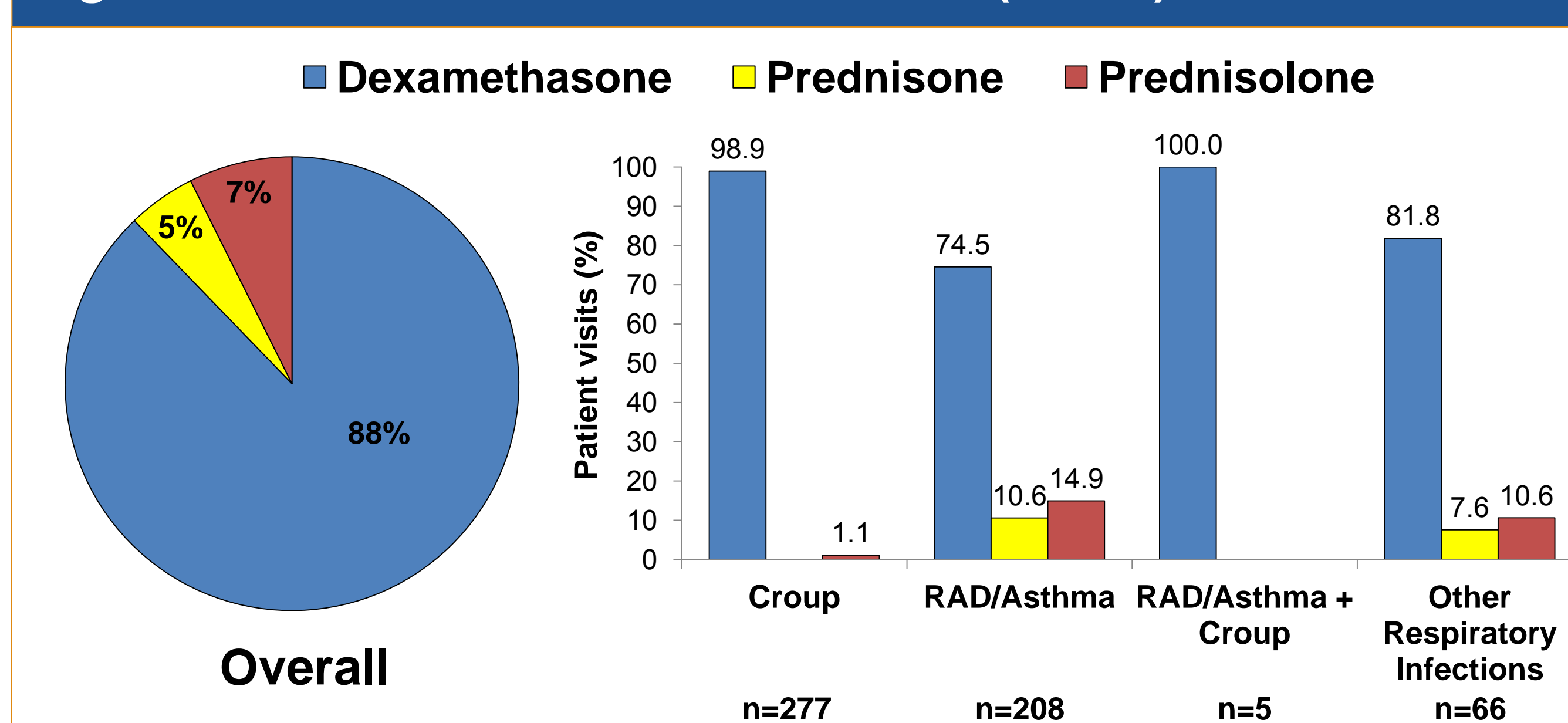
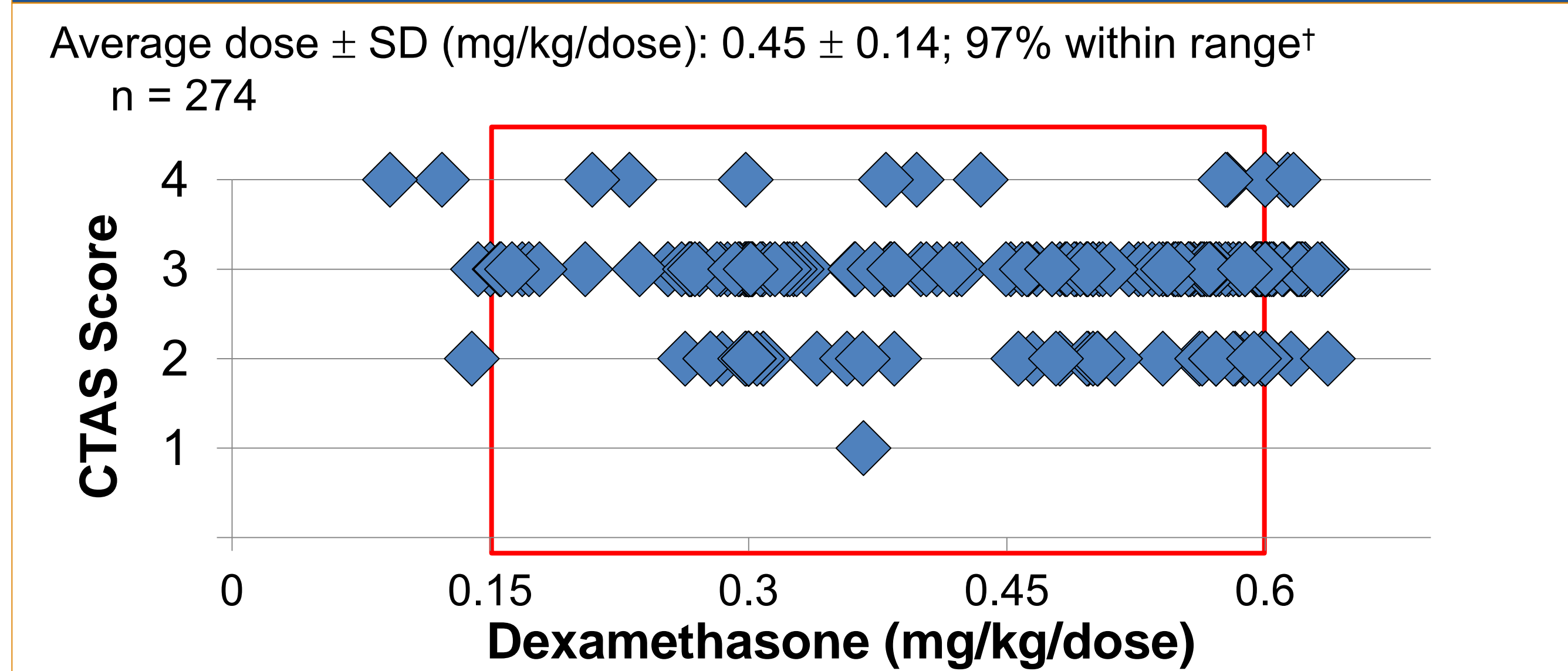


Table 2: Oral corticosteroid dosing regimens prescribed (n=556)

	Dexamethasone (n=488)	Prednisone (n=27)	Prednisolone (n=41)
Usual regimen (mg/kg/dose)	0.15 – 0.6	0.5 – 1*	0.5 – 1*
Average dose \pm SD (mg/kg/dose)	0.42 \pm 0.15	1.01 \pm 0.32	1.08 \pm 0.26

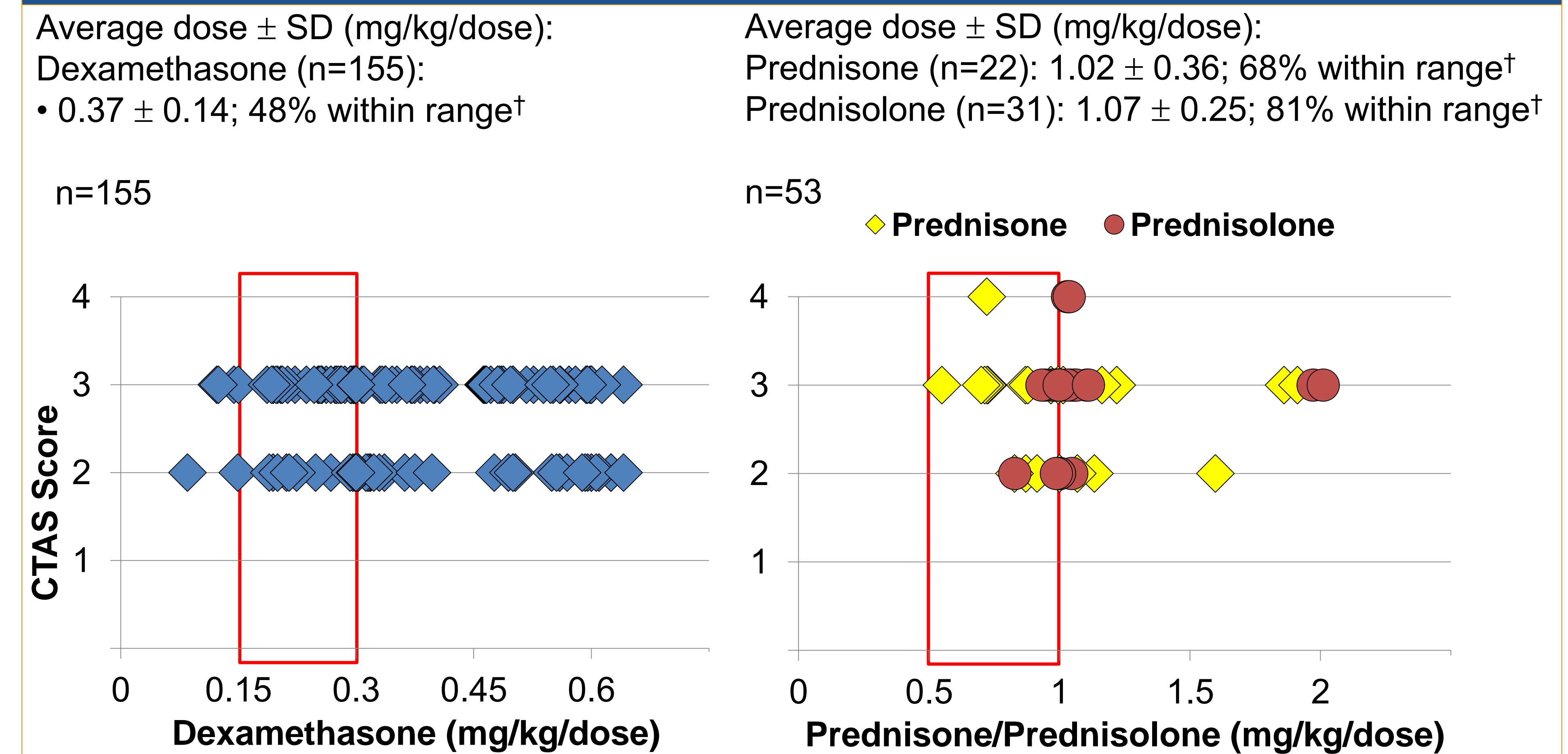
*Doses typically BID

Figure 3: Distribution of dosing regimens for croup (n=277)



† 3 patients were prescribed prednisolone with an average dose of 1.03 \pm 0.05 mg/kg/dose
† Usual dosing range indicated by red box

Figure 4: Distribution of dosing regimens for asthma/RAD (n=208)



† Usual dosing range indicated by red box

Additional Information

- 62% of patients with ED revisits (≤ 14 days) who received the same corticosteroid had a higher dose than that received in the initial visit
- Patients prescribed prednisone had a greater average age and weight than those prescribed dexamethasone or prednisolone
- Dosing regimens for croup + asthma/RAD; average \pm SD (mg/kg/dose):
 - Dexamethasone (n=5): 0.46 \pm 0.15
- Dosing regimens for other respiratory infections; average \pm SD (mg/kg/dose):
 - Dexamethasone (n=54): 0.38 \pm 0.16
 - Prednisone (n=5): 0.97 \pm 0.03
 - Prednisolone (n=7): 1.14 \pm 0.35

Limitations

- Retrospective design
- Some patients had multiple diagnoses

Conclusions

- Dexamethasone was the most commonly used oral corticosteroid
- % of regimens within recommended dosing range:
 - Croup
 - Dexamethasone: 97%
 - Asthma/RAD
 - Dexamethasone: 48%; Prednisone: 68%; Prednisolone: 81%
- No correlation observed between dose and illness severity
- Further studies are warranted to assess efficacy or optimal dosing of current regimens used