**Appendix Table 1**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Studies Evaluating the Use of Systemic Corticosteroids (SCS) for Preschoolers with Viral Wheezing** | | | | | | |
| **Study main author**  **(Year)** | **Study design**  **Number of patients** | **Population** | **Exclusion criteria** | **Setting** | **Medications** | **Results** |
| ***Studies that do not support SCS*** | | | | | | |
| Oommen  (2003) | Double-blind, randomized, placebo-controlled trial  N = 217 | Children 1-5 years with viral wheezing, stratified based upon systemic eosinophilic priming | History of chronic lung disease  Upper respiratory tract structural abnormality  Substantial non-respiratory tract disease needing continuous systemic pharmacological treatment  Clinical suspicion of active systemic bacterial infection  History of prematurity or neonatal respiratory distress disease  History of chronic rhinitis  Oral prednisolone give 1-14 days before admission. | Outpatient (parent-initiated) | Prednisolone (20mg) for 5 days versus placebo | Mean daytime and night-time respiratory symptoms scores and need for hospital admission did not differ between treatment groups.  Serum eosinophilic stratification did not show a difference in outcome between the treatment groups. |
| Panickar  (2009) | Randomized, double-blind, placebo-controlled trial  N = 687 | Children ages 10 months to 60 months with wheezing secondary to viral infection | Shock  Bacterial sepsis  Known heart or lung disease  Immunosuppressive therapy  Immunodeficiency  Active varicella infection or recent exposure to varicella | Emergency department and inpatient | Prednisolone (10mg or 20mg based on age) for 5 days versus placebo | No significant difference in duration of hospitalization between placebo group and treatment group.  No significant difference between the two groups for secondary outcomes (PRAM score, albuterol use, 7 day symptom score) or adverse outcomes in the two groups. |
| ***Studies with mixed results*** | | | | | | |
| Tal  (1990) | Randomized, double-blind, placebo-controlled trial  N = 74 | Ages 6 to 60 months with 3 or more wheezing episodes | Bronchopneumonia  Congestive heart failure  Cystic fibrosis  Foreign body aspiration  Bronchopulmonary dysplasia  Use of corticosteroid (inhaled or systemic) within 1 month of study | Emergency department | Methylprednisolone (4mg/kg) IM once versus placebo | Overall reduction in admission rates for steroid group  However, in patients 24-54 months old, there was no statistical difference between groups |
| Jartti  (2007) | Randomized, placebo controlled trial  N = 266 | Ages 3 months to 15.2 years (median 1.6 years) with wheezing resulting in hospitalization | Systemic steroids in the past 4 weeks  Chronic disease (aside from atopy)  ICU admission for wheezing | Inpatient | Prednisolone (2mg/kg/day) for 3 days versus placebo | Overall prednisolone did not improve time until ready for discharge or the occurrence of relapses in the following two months.  However, prednisolone significantly decreased the time until ready for discharge in children with a positive modified asthma predictive index, children on inhaled corticosteroids, children who were RSV negative or rhinovirus positive, and those not treated with antibiotics (e.g. azithromycin). Prednisolone also decreased relapses in children with eczema, nasal eosinophilia, and rhinovirus infection. |
| ***Studies that support SCS*** | | | | | | |
| Foster (2018) | Non-inferiority, randomized, double-blinded, placebo-controlled trial  N = 605 | Ages 24-72 months with virus-associated wheeze | Pulse oximetry <92%  Critical wheeze  Shock or sepsis  Active varicella  Suspect alternate diagnosis  Previous ICU admission for wheezing  <34 weeks gestational age  Cardiac or pulmonary disease  Immunosuppressed  Upper airway abnormality  Oral corticosteroids in the past 2 weeks  Prednisolone allergy | Emergency department and Inpatient | Prednisolone (1mg/kg) for 3 days versus placebo | Oral prednisolone had a clear benefit over placebo at reducing length of stay for children being evaluated for viral induced wheezing in the emergency department  This difference remained significant only in subgroups with severe disease and those with a previous diagnosis of asthma |