

Method of bronchodilator trial impacts steroid use and length of hospital stay

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BACKGROUND

As children get older, suspicion raises for reactive airway disease over bronchiolitis as the pathogenesis for respiratory infections. A bronchodilator (BD) trial is a way to differentiate the two, though there is no validated method of trial or interpretation. We hypothesize that insufficient BD dosing may lead to presumed ineffective trials, causing providers to withhold treatment in children with reactive pathophysiology that would otherwise result in more rapid clinical improvement.

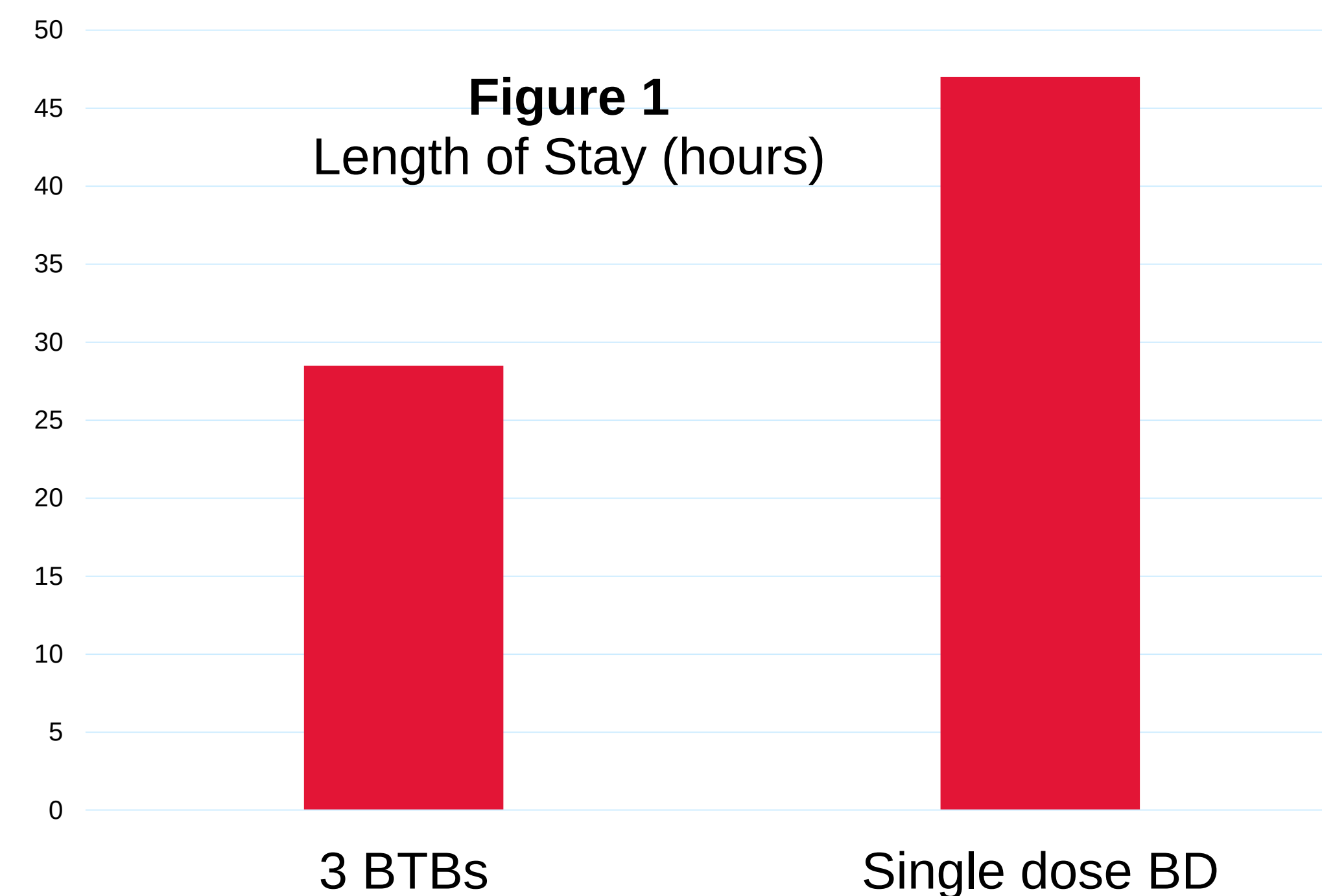
The purpose of our study is to evaluate if, compared to a single dose BD, the use of 3BTBs is a more effective way to conduct a BD trial in children age 12-23 months with viral-associated wheeze

METHODS

We performed a retrospective chart review on children aged 12-23 months (n=169) admitted to Denver Health Medical Center with a diagnosis of lower respiratory tract infection between 2016-2018. Among patients who received a BD trial in the emergency department (n=87), we compared the method of trial to length of stay (LOS) as our primary outcome.

RESULTS

53 patients received a single dose BD (albuterol or albuterol/ipratropium), whereas 34 patients received 3BTBs. Providers interpreted a trial of 3BTBs as effective in 93% of cases compared to 50% of cases of a single dose BD (p=0.001). There was significant variation in how trials were interpreted (see figure 2). Steroids were administered in 77% of patients with an effective trial, compared to 8% of patients with a not effective/equivocal trial. Median LOS in children who received a trial of 3BTBs was 28.5 hours compared to 47.0 hours in children who received a single dose BD (p=0.0033).



CONCLUSIONS

In children aged 12-23 months presenting to the ED with viral-associated wheeze, compared to a single dose BD, 3BTBs were more likely to be interpreted as an effective trial and were associated with a higher frequency of steroid use, along with a clinically and statistically significant shorter LOS. Our data suggests that providers should use 3BTBs when considering a BD trial.

