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# Improving bronchiolitis care across multiple care settings using a deimplementation bundle

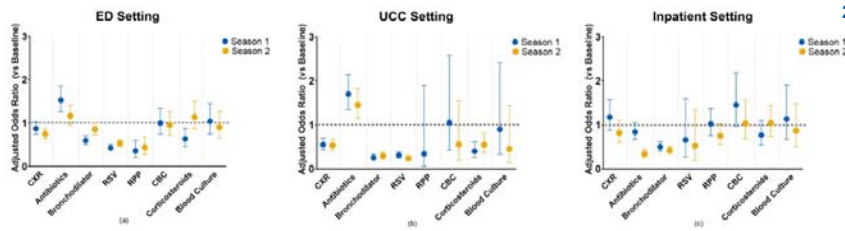
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## Background/Aim

- Despite the availability of a bronchiolitis CPG; variation in care practices still existed at our institution.
- The aim of our quality improvement (QI) project was to increase overall adherence with our institutional CPG in patients 60 days to 24 months of age diagnosed with bronchiolitis in the urgent care centers (UCC), emergency departments (ED), and general inpatient units from a baseline of 40.9% to 60% by the end of two bronchiolitis seasons.**
- Management of each patient encounter was considered adherent if none of the following tests or medications were ordered: respiratory pathogen PCR panel (RPP), respiratory syncytial virus antigen (rapid RSV) complete blood count (CBC), blood culture, chest x-ray (CXR), bronchodilators, antibiotics, or systemic steroids.

## Results



- The most significant improvements in specific care settings were bronchodilator utilization in the UCC and inpatient settings and RSV antigen utilization in the UCC and ED settings.
- Provision of care was more likely to be adherent to the CPG for children 2 to 6 months of age than for those greater than 7 months of age ( $p < 0.001$ )
- Direct cost (95% CI) per encounter decreased from \$277 (\$267, \$286) to \$227 (\$217, \$237) in the UCC ( $p < 0.001$ ) and from \$429 (\$409, \$450) to \$348 (\$320, \$375) in the ED ( $p = 0.001$ ).
- Inpatient length of stay decreased from a baseline 45.7 hours to 40.7 hours. There were no statistically significant increases in 72-hour readmissions

## Methods

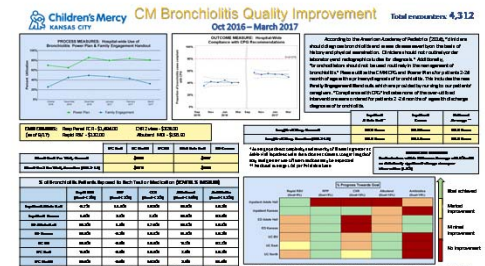
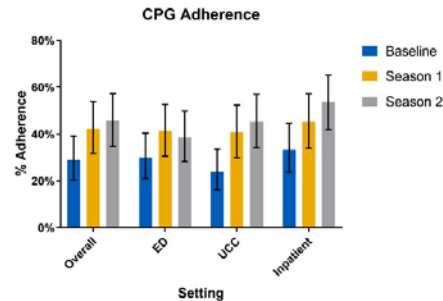
A multidisciplinary group of pediatric nurses, respiratory therapists, a hospitalist, and an urgent care physician used QI methodology to identify drivers of poor adherence with the AAP recommendations including 1) outdated order sets with extraneous tests and medications 2) the availability of nurse standing orders for viral testing 3) discomfort with watchful waiting and supportive care alone 4) caregivers' expectations or requests 5) variability in the message providers, nurses, and respiratory therapists were giving to caregivers.

### Season 1 (Oct 2016-Mar 2017) Interventions

- developing an updated institutional CPG reflecting the newest AAP guidelines
- updating the UC/ED and inpatient order sets consistent with this CPG
- removing standing orders for viral testing
- multidisciplinary education
- implementation of standardized family education.

### Season 2 (Oct 2017-Mar 2018) Interventions

- expanded multidisciplinary education
- distributed metrics dashboard to improve transparency



## Discussion

A bundle in which CPG adherence was defined by not ordering any of eight tests or medications created a challenging goal for medical providers. We approached our aim, reaching hospital-wide adherence of 54.6% by the end of Season 2. By following these components across the continuum of patient care (UCC, ED, and inpatient), we were able to monitor for unintended consequences. Improvements in resource use in the UCC or ED were not accompanied by increased use of those resources or decline in CPG adherence in the inpatient setting. Cost per encounter in the UCC and ED decreased. Inpatient LOS decreased with no significant increase in 72-hour readmission.

Measuring use of individual CPG components in each clinical care setting exposed setting-specific gaps and opportunities for future PDSA cycles to attain even greater improvement.