

# Evaluating the real-time identification of children with bronchiolitis using an automated EHR-based process

Benjamin Bodnar, MD; Johns Hopkins University

## Background:

- Bronchiolitis is the most common cause of hospitalization in the first 2 years of life, though automated real-time patient identification remains difficult
- As part of a prospective randomized trial evaluating the impact of EHR alerts on the use of a clinical pathway and patient outcomes in bronchiolitis, we created an automated process to identify patients with suspected bronchiolitis (Figure 1)
- Providers for some study patients receive EHR alerts from which they may a) open the pathway b) state that bronchiolitis is not present, or c) acknowledge and/or pause the alert

**Methods:** We performed a descriptive analysis of patient volume and EHR alert responses by site and care context during the first 5.5 months of our study and compared this with retrospective ICD-based data on bronchiolitis volume. We hypothesized that an EHR alert which resulted in the provider opening the pathway indicates accurate patient identification, and selection of “Bronchiolitis NOT Present” indicates inaccurate identification.

Figure 1

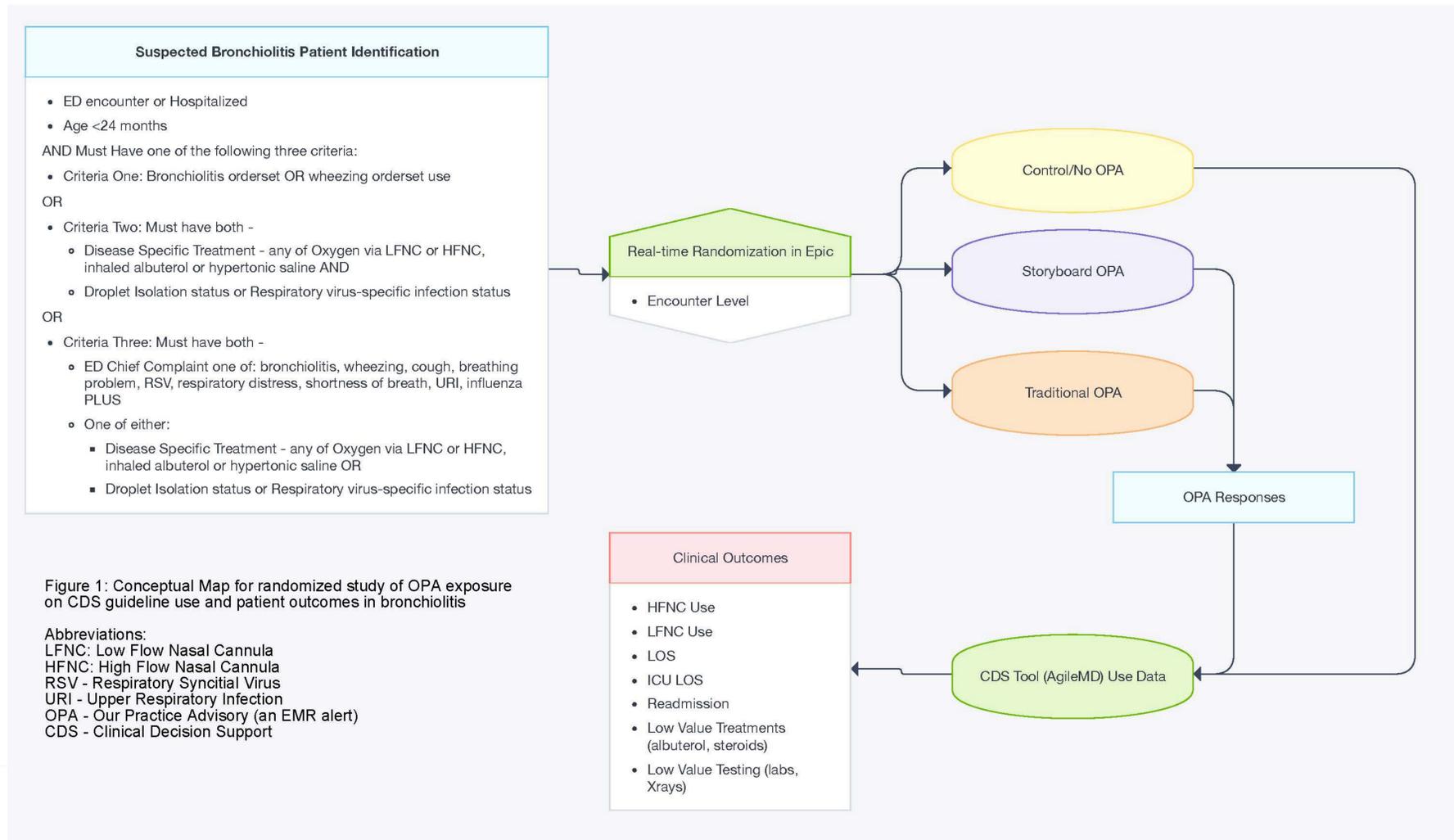
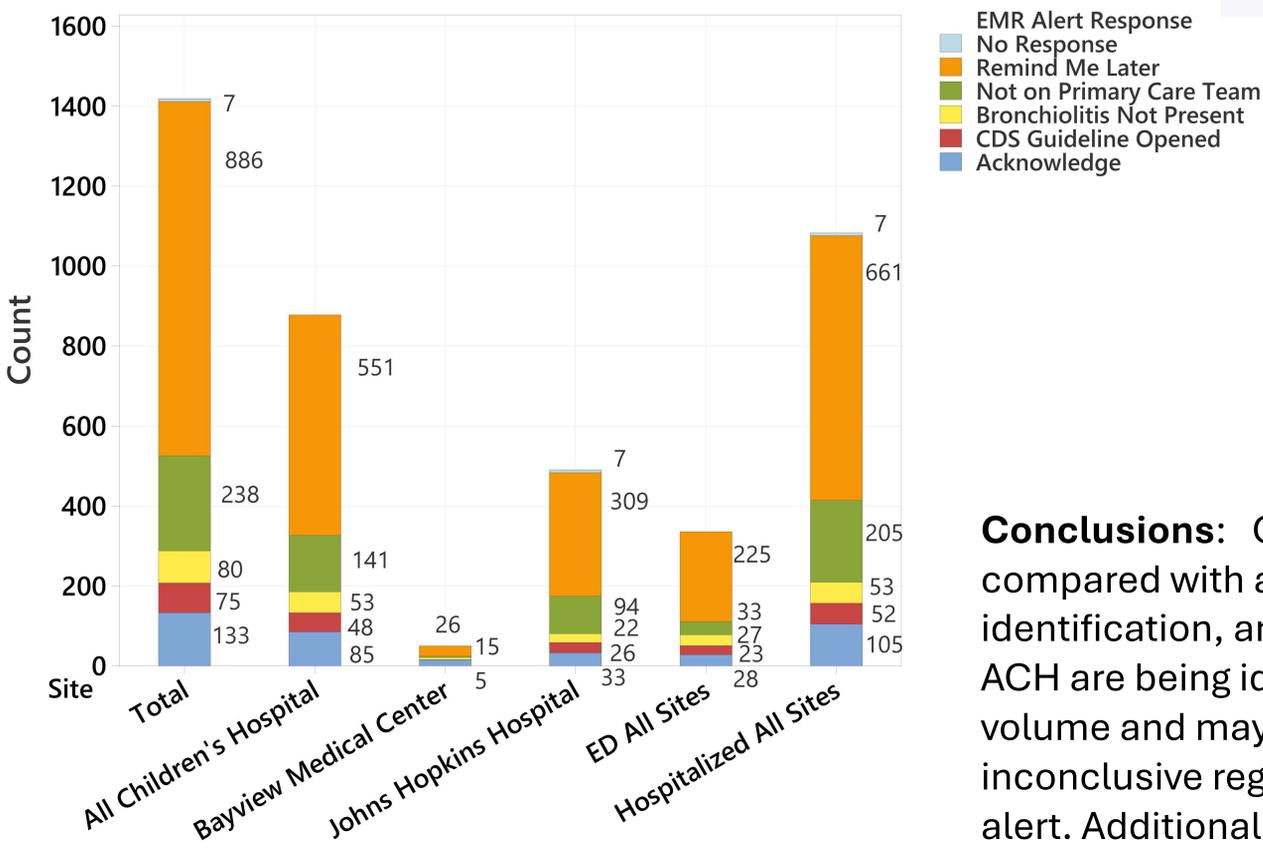


Figure 2 Interruptive EMR Alert Response by Site and Context



**Results:** From 5/5/2025 through 10/19/2025, the EHR process found 1466 patient encounters:

- 953 at All Children’s (ACH), 126 at Bayview MC (BMC), 386 at Johns Hopkins Hospital (JHH)
- For comparison in a prior year primary diagnosis J21.\* (acute bronchiolitis) ED encounters at these sites were 1385, comprised of 627 at ACH, 286 at BMC and 472 at JHH
- The EHR process identified patients while in the ED 61% of the time at ACH, 76% at BMC and 52% at JHH, with the remainder meeting criteria while hospitalized
- Only 75 (5.3%) of interruptive EHR alerts resulted in pathway opening
- Only 80 (5.6%) of alert interactions resulted in the provider selecting “Bronchiolitis NOT Present”
- The remainder of responses acknowledged or paused the alert without further action (Figure 2)

**Conclusions:** Our EHR-based bronchiolitis identification process is identifying a larger group of patients compared with an ICD 10-based sample. This is not unexpected, given the limitations of ICD coding for disease identification, and the desire to identify even suspected bronchiolitis cases via our EHR process. More patients at ACH are being identified than at other sites which is not completely explained by past season differences in patient volume and may reflect different treatment patterns at each site. Provider responses to interruptive EHR alerts are inconclusive regarding the accuracy of patient identification, as the vast majority of responses are deferrals of the alert. Additional evaluation of alert accuracy using chart review and physician adjudication is planned.