patients with elevated levels were more likely to be treated with vasopressors (75% and 20% of patients with elevated and normal troponin levels, respectively, were given vasopressors; difference = 55%, 95% confidence interval: 25%, 85%). There was no correlation between length of ICU stay and initial BNP nor initial or highest troponin levels. However, when the highest BNP levels during hospitalization were examined, and patients were divided into the two groups with the lowest and highest values, the difference in ICU LOS was statistically significant (medians of 0 days vs. 4 days, $p < 0.05$). The cutoff for BNP level to predict ICU LOS was 7850.

Conclusions: In children who are diagnosed with MIS-C, elevated troponin is predictive of a more severe clinical course with more children requiring vasopressor use. Elevated BNP, (> 7850) was associated with increased LOS in the PICU. Therefore, in patients with these laboratory findings, it may be useful to have closer monitoring in an institution with the ability to provide ICU level care.

No, authors do not have interests to disclose

166 Real World Evidence Demonstrates Safety and Performance of Intraosseous Vascular Access, Including for Longer Duration of Use in Pediatric Patients

Philbeck T, McDonald J, Ross C/Teleflex Medical Incorporated, Morrisville, North Carolina, US

Objectives: The Arrow EZ-IO Intraosseous Vascular Access System (Teleflex Medical Incorporated, Morrisville, NC, USA) is indicated in the United States and Canada for intraosseous (IO) access anytime in which vascular access is difficult to obtain in emergent, urgent or medically necessary cases for up to 24 hours. For patients ≥12 years old, the device may be extended for up to 48 hours when alternate intravenous access is not available or reliably established. In the European Union (EU), it is indicated for intraosseous access anytime in which vascular access is difficult to obtain in emergent, urgent or medically necessary cases and may be left in place for up to 72 hours. To support the EU Medical Device Regulation 2017/745 requirement to demonstrate safety and performance of medical devices, a two-phase retrospective chart review study was conducted in 2021 and 2022.

Methods: A multicenter retrospective chart-review study was designed: Phase I was to demonstrate the general safety and performance of the Arrow EZ-IO in all patients for whom IO access was needed. Phase II was to demonstrate the same in pediatric patients (only) when used for more than 24 hours. The primary endpoint was the success rate for achieving IO access; and a secondary endpoint was the rate of adverse events. The study protocol was reviewed by a central institutional review board, and an exempt determination was issued. Sample size calculation determined at least 90 cases would be needed to meet endpoint requirements, but data from additional pediatric cases were collected in Phase II.

Results: In two phases, real world data for 177 cases were captured. Among those, 71 patients (41.1%) were adult, and 106 (58.9%) were pediatric—for this study defined as <18 years of age. Of all cases, 60.5% were male. The overall success rate for achieving IO access and infusion was 96.5%. Adverse events occurred in 1.7% of device interactions; none were serious or previously unreported. The median duration of use was 44 hours. See Table for more information regarding duration of use. All subjects with duration of use ≥24 hours were pediatric. Among the 58 patients for whom the device was used for up to 48 hours, as intended, one non-serious adverse event (1.7%) occurred.

Conclusions: The Arrow EZ-IO is safe and effective for providing vascular access in both adult and pediatric patients. This is the first characterization of device safety and performance when used in the pediatric population for longer dwell times, with no serious complications reported.

Duration of device use (dwell time)

Dwell Time	Number of Subjects
<24 hours	17
24 to 48 hours	41
48.1 to 72 hours	23
72.1 to 96 hours	4
>96 hours	18

(Note: Duration of use data were not available for all patients in the study)

Yes, authors have interests to disclose
Disclosure: Teleflex Medical Incorporated
Employee
Teleflex Medical Incorporated
Disclosure: Teleflex Medical Incorporated
Employee
Teleflex Medical Incorporated
Disclosure: Teleflex Medical Incorporated
Employee
Teleflex Medical Incorporated

167 Risk of Serious Bacterial Infections in Febrile Infants Aged 7-90 Days With COVID-19

Greenhow T, Somers M, Zhang J, Nguyen T, Vinson D, Mark D, Rauchwerger A, Reed M, Ballard D/Kaiser Permanente Northern California, San Francisco, California, US

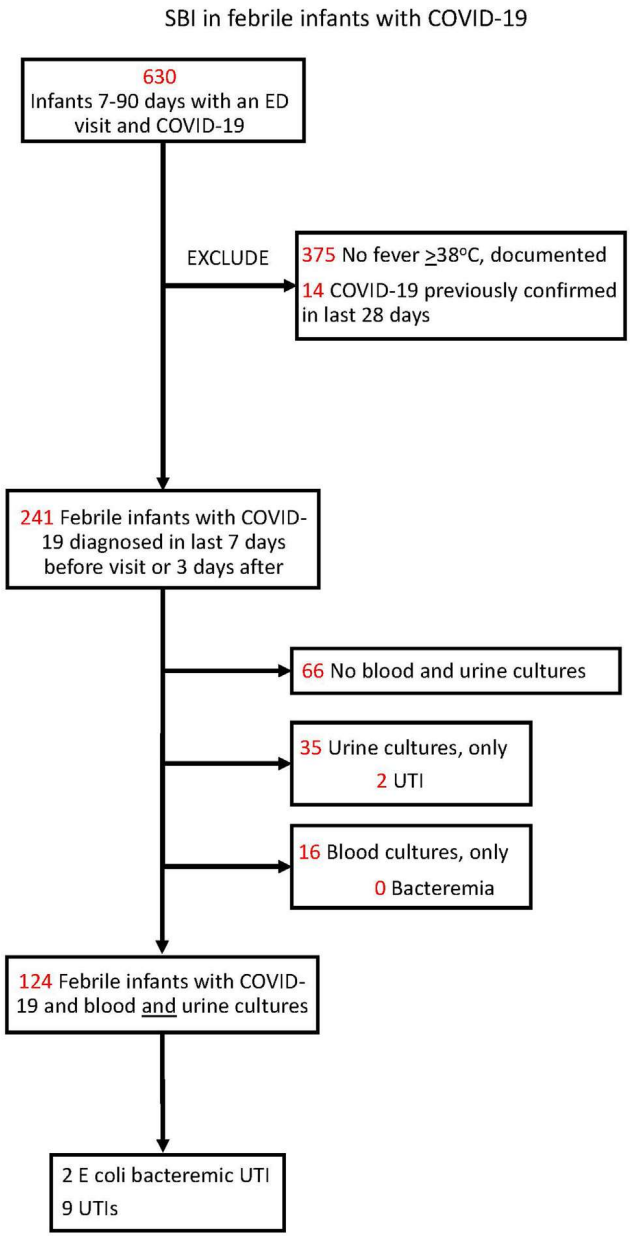
Background: Infants with COVID-19 may present to the emergency department (ED) with symptoms such as fever, poor feeding, respiratory distress, and hypoxia. In febrile infants, the rate of concomitant serious bacterial infection (SBI) with acute COVID-19 is unclear. We reviewed the frequency of SBI in febrile infants with COVID-19 presenting to one of 21 EDs in a large health care delivery system in northern California.

Methods: We retrospectively reviewed the electronic health records of all infants aged 7-90 days with COVID-19 (confirmed by diagnosis code or SARS-CoV-2 positive PCR) from 07/01/20 to 08/31/22 who received a COVID-19 diagnosis within 7 days prior to or 3 days after an ED visit. Our primary outcome was ED work up with an SBI diagnosis, defined as urinary tract infection (UTI), bacteremia, or bacterial meningitis. Infants without fever (i.e., maximum ED temperature < 38° C) or with prior COVID-19 within 8-28 days prior to the index ED visit were excluded. We screened for 7-day follow up after the index ED visit for possible missed SBI. We collected data on blood, urine, and cerebrospinal fluid culture results, and receipt of antibiotics. UTI, bacteremia, and bacterial meningitis were defined by culture review.

Results: Six-hundred and thirty infants with acute COVID-19 were seen in the ED. (Figure 1) Of those, 375 (60%) had no documented fever, and an additional 14 (2%) were excluded because they had a prior diagnosis of COVID-19 within 8-28 days prior to the ED visit. Of the 241 febrile infants, 66 (27%) did not have blood and urine cultures obtained and none received antibiotics. Of these 66, two (3%) had a repeat ED visit within 7 days and neither was diagnosed with an SBI. Eight percent (8%) of infants with urine collected had a UTI on urine culture. Of the 124 infants with both blood and urine collected, two infants (age 42 and 49 days respectively) had an *Escherichia coli* bacteremic UTI. There were no cases of isolated bacteremia or bacterial meningitis. Of 241 febrile infants, 31 received empiric antibiotics, all of whom had obtained both blood and urine cultures. The only oral antibiotic prescribed without preceding parenteral antibiotic was cephalexin in three infants. Eleven infants received ceftriaxone alone, three received ampicillin with gentamicin, and three received parenteral ampicillin alone. Three additional infants received ceftriaxone followed by cephalexin and one additional infant received ceftriaxone followed by oral amoxicillin.

Conclusions: Febrile infants with COVID-19 are at low risk for invasive bacterial infections but do have some risk for concomitant UTI. Of those tested in our cohort, 1.6% had a bacteremic UTI and 7% had an isolated UTI. This is likely an overrepresentation of actual incidence as there was no evidence that any of the infants who presented without fever or did not receive an ED evaluation had an SBI. These

data suggest that the evaluation of febrile, previously well, and well-appearing infants aged 7-90 days with COVID-19 could be limited to a urinalysis with urine culture.



No, authors do not have interests to disclose

168 Brief Hospitalizations and Readmissions Among Children With Complex Chronic Conditions

Garrity B, Lyons T, Melvin P, Stack A, Huth K, Cook S, Berry J/Boston University Medical Center, Boston, Massachusetts, US

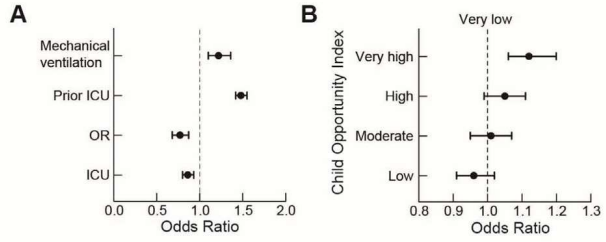
Objectives: Pediatric hospitals have been experiencing unprecedented volume and bed shortages. Children with complex chronic conditions (CCCs) have frequent emergency department (ED) visits and hospitalizations. The objective of this study was to assess reasons for emergency department visits leading to hospital admissions one-night length-of-stay in children with CCCs.

Methods: Retrospective analysis of 234,255 admissions of children with a CCC who had a <2-day admission 1/1/2016 to 12/31/2021 in 44 children's hospitals in the Pediatric Health Information System. We examined most common diagnoses, procedures, and CCCs. We conducted a multivariate analysis to examine risk factors for children readmitted within 7 days of their index hospitalization. Covariates included demographics, child opportunity index, ICU admission, operation during admission, mechanical ventilation, number of CCCs, and prior ICU admission within the past year.

Results: Most children in the cohort were 5-12 years old (28.2%, n=65,948), followed by 1-4 years (25.4%, n=59,434) and 13-17 (22.6% n=52,852). 52.5% had Medicaid insurance. The most common CCC with brief hospitalization was technology dependence (n=61,303), followed by neurologic and neuromuscular (n=54,486), and gastrointestinal conditions (n=51,615). Among the cohort, 8.17% of children were admitted to ICU and 2.77% went to the operating room. The most common admission diagnoses were diabetic ketoacidosis (5.6%, n=13,178), dehydration (3.1%, n=7,299), and sickle cell anemia crisis (2.0%, n=4,675). 2.9% of the cohort returned to the emergency department within 7 days of their brief hospitalization, 5.2% was readmitted, and 16.6% of those readmissions were to the ICU. Child opportunity index (COI) was significantly associated with 7-day readmission rates, with children having very high COI having 1.12 times the odds of being readmitted, compared to children with very low COI ($p<0.001$). Children admitted to the ICU (OR 0.86, 0.08-0.93) and children who went to the operating room (OR 0.77, 0.68-0.87) had significantly lower odds of being readmitted within 7 days ($p<0.001$), whereas children with mechanical ventilation (OR 1.22, 1.10-1.36) and prior ICU admissions (OR 1.48, 1.42-1.55) had significantly higher odds ($p<0.001$) (Figure 1).

Conclusions: 24% of hospitalizations for children with CCCs are brief. 7-day readmission rates after brief hospitalizations for children with CCCs are low. Brief hospitalizations may represent opportunities for preventable and avoidable emergency department visits and hospital admissions for children with CCCs.

Figure 1: Risk factors for 7-day readmission after a brief hospitalization



No, authors do not have interests to disclose

169 Who Is Coming In? Evaluation of Physician Performance Within Multi-Physician Emergency Departments

Sangal R, Teresi R, Dashevsky M, Ulrich A, Tarabar A, King M, Venkatesh A/Yale University, New Haven, Connecticut, US

Objective: We sought to examine the relationship between physician performance metrics based upon the speed of co-attendings concurrently staffing the emergency department (ED).

Methods: Retrospective study between January 2018 and February 2020. We used a neural network to generate patient predicted patient length of stay (LOS) and compared it to actual LOS to calculate a novel measure of physician speed. We constructed linear regression models to examine the relative change in physician performance based on the speed of an ED co-attending across outcomes including LOS, patients per hour, imaging utilization, admission rate and 72-hour returns.

Results: Eighty physicians and 212,902 ED visits were included. Overall, patients assigned to the fastest physicians have a 17.8% [13.5%, 22.0%] shorter LOS but a 2.9% [0.2%, 5.6%] longer LOS when the fastest co-attendings are working. The fastest physicians see 0.21 [0.13, 0.28] more patients per hour but see 0.08 [0.04, 0.11] fewer patients per hour when the fastest co-attendings are present. The fastest physicians order 0.18 [0.13, 0.23] fewer radiology tests per patient, but 0.05 [0.04, 0.07] more tests when the fastest co-attendings are present. Associations were similarly robust but in the oppositive direction when the slowest co-attendings are present. The speed of co-attendings had no significant association on the attending admission rate or 72-hour return rate.

Conclusions: Physicians have slower throughput and more imaging ordered when faster co-attendings are present and faster throughput and less imaging ordered when slower co-