

evidence-based practices. Successful CDS deployment must address challenges to disseminating education regarding CDS goals and changes in workflows. Evidence is limited on how to improve best practices delivery in providers who don't initially adopt CDS. Our aim was to evaluate behavior change following educational messaging directed to providers who did not adopt CDS for Prescription Drug monitoring Program (PDMP) best practices.

**Methods:** This is an IRB approved prospective, cohort study describing the impact of email and EHR messaging on provider adoption of a new CDS to review the PDMP when prescribing opioids. Messaging started 4 weeks after CDS go-live in 11 different hospitals (4 million visits/year). EHR analytics identified providers receiving CDS who did not review PDMP (non-adopter) for inclusion. Non-adopters were messaged personalized CDS education materials up to 3 times if they: (1) bypassed the CDS  $\geq 8$  times with  $< 80\%$  CDS compliance/2-week period or (2) had  $> 3$  CDS alerts during a single encounter (suggesting misunderstanding of the CDS). Behavior change was defined as: improvement from  $< 80\%$  to  $> 80\%$  PDMP checks or zero multiple alerts per encounter.

**Results:** Over 10 months, 478 non-adopters were contacted at least once, and 161 (33%) changed behavior. One hundred and three (22%) of 478 changed behavior after first contact, 39/375 (10%) after second, and 19/336 (6%) after third. Two hundred and twenty-two emergency medicine providers were contacted (46% of all contacted), 88 (40%) of which, showed a positive behavior change: 56/222 (25%) after first contact, 18/166 (11%) after second, and 9/148 (6%) after third.

**Conclusion:** Targeted educational messaging resulted in behavior change in 35% of providers who were not early adopters and increased delivery of PDMP best practice. ED providers changed behavior at a similar rate to the overall group. Most behavior change occurred after first contact. Successive messaging added another 58 providers (12% of those contacted), but its value should be decided by stakeholders when considering significance of best practice vs. negatives such as resources and increased burden of messaging. This suggests that messaging may be an effective way to disseminate education to improve CDS adoption and facilitate delivery of evidence-based practices.

### 175 | Which Patients Use Digital Portals During Their Emergency Department Stay?

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**Background and Objectives:** The 21st Century Cures Act generated national interest in the release of clinical results via patient portals. Since no literature exists on real time patient portal use in the emergency department (ED), we conducted a single site, observational pilot study using electronic health record (EHR) data to describe ED

patients who viewed laboratory and imaging results during their ED stay.

**Methods:** Adult patients ( $\geq 18$  years old) with Texas addresses presenting between 4/5/2020 and 9/30/2021 were included. Demographics and patient portal data were extracted from the EHR (Epic, Verona, WI). We classified the "viewed" group as patients who viewed  $\geq 1$  test result. Due to sample sizes, race and ethnicity were combined into: Non-Hispanic White (White), Non-Hispanic Black (Black), Hispanic, Asian, Hawaiian or Pacific Islander (AHPI), American Indian or Alaska Native (AIAN), Multiple, Other. To compare groups, we used Welch two sample t-tests for continuous variables and Pearson  $\chi^2$  tests for categorical variables ( $\alpha = 0.05$ ).

**Results:** There were 2,914/26,834 (9.8%) patients who viewed results in the portal. Of the viewed group, 89% had activated portal accounts at arrival, while 11% activated new accounts during the visit. Comparing viewed and not-viewed groups, respectively, 88.7% of patients had activated accounts at arrival vs 61.1%;  $P < 0.001$ . Median age was 52 (IQR 37.0 – 68.0) vs 53 (IQR 36.0 – 68.0); mean difference -0.03 (95CI -0.68 to 0.74). Sex was 57.7% female vs 58.9% female;  $P = 0.21$ . Race/ethnicity were: White (56.3% vs 41.4%), Black (17.5% vs 32.6%), Hispanic (15.0% vs 18.1%), AHPI 5.9% vs 2.4%), AIAN (0.7% vs 0.2%), and Multiple (0.7% vs 0.5%);  $P < 0.001$ . Language was English (95.8% vs 95.3%), Spanish (2.4% vs 3.9%), Other (1.7% vs 0.9%);  $P < 0.001$ . Insurance groups were: Commercial (57.7% vs 42.9%), Medicare (37.0% vs. 40.3%), Medicaid (2.7% vs 7.1%), Self-Pay (2.4 vs 9.2%), and Other (0.1% vs 0.5%);  $P < 0.001$ .

**Conclusion:** Our data suggest that portals are underused tools for engaging with patients during their ED stay and that patients can be enrolled in the ED. There were statistically and clinically significant differences in patient portal status, race/ethnicity, preferred language, and insurance status between patients who viewed and did not view results during their stay. Age and sex were not significantly different. Our results raise concerns about portal access inequity. Multi-site studies are needed.

### 176 | A Retrospective Analysis of the Performance Characteristics of the 2021 American Academy of Pediatrics Guidelines

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**Background and Objectives:** In the summer of 2021, the American Academy of Pediatrics (AAP) published management algorithms collating the best available evidence for the acute assessment of febrile infants  $< 60$  days. While the AAP algorithms rely heavily



on C-reactive protein and procalcitonin, these tests aren't available in many settings. Using a large retrospective cohort of infants 8-60 days old, we sought to determine the test characteristics of the AAP guidelines for detecting invasive bacterial infection (IBI) in young infants in a community ED setting without these tests.

**Methods:** We included infants with an ED visit between 2010-2019 with a measured temperature  $\geq 100.4^{\circ}\text{F}$  who underwent a core work-up (complete blood count, blood culture, urinalysis, and urine culture) within 21 integrated medical centers in Northern California. Data were abstracted from the medical record through clinician chart review and natural language processing. We assessed performance characteristics for IBI among infants meeting the AAP inclusion criteria. We also calculated the percentage of infants recommended to receive lumbar puncture (LP), parenteral antibiotics (PAbx), and hospitalization.

**Results:** Among 1433 total eligible infants, there were 3 missed IBIs. Sensitivities for IBI in each age group were: 8-21 days (100%), 22-28 days (89%), 29-60 days (93%), overall (95%). Specificities were: 8-21 days (0%), 22-28 days (40%), 29-60 days (32%), overall (27%). Across all age ranges, positive predictive value was 5.4% and negative predictive value was 99.2%. Youden J-statistic ranged from 0 (8-21 days) to 0.29 (22-28 days). LP was recommended for 100% of 8-21 day infants, 61-100% of 22-28 day infants and 0-69% of 29-60 day infants. PAbx was recommended for 100% of 8-21 day infants, 58-100% of 22-28 day infants and 57-69% of 29-60 day infants. Hospitalization was recommended for 100% of 8-21 day infants, 65-100% of 22-28 day infants and 57-69% of 29-60 day infants. Sensitivity analyses using different absolute neutrophil count thresholds and including UA as an inflammatory marker did not significantly change performance characteristics.

**Conclusion:** The AAP guidelines performed with high sensitivity but low specificity for IBI in 8-60 day old febrile infants, even absent C-reactive protein and/or procalcitonin testing. Further studies may inform best practices to safely reduce unnecessary invasive interventions and hospitalizations.

### 177 | Clinical Characteristics of Pediatric Return Visits to the Emergency Department After COVID-19 Diagnosis

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**Background and Objectives:** Pediatric patients diagnosed with coronavirus disease 2019 (COVID-19) have been shown to have less morbidity and mortality than their adult counterparts. While published research has shown clinical characteristics associated with severe illness from COVID-19, there is limited data focused on the emergency department (ED) pediatric discharge population. Our objective is to describe these characteristics.

**Methods:** We performed a retrospective chart review of all ED-discharged patients from Wake Forest Baptist Health and Wake Forest Baptist Health Davie Medical Center between April 25-August 9, 2020, who tested positive for severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) from a nasopharyngeal swab using real-time reverse transcription polymerase chain reaction (rRT-PCR) tests. We compared the clinical characteristics of all pediatric patients who were discharged and had return visits within 30 days to those pediatric patients who did not return to the ED within 30 days.

**Results:** Our study included 235 pediatric patients who had an ED-performed SARS-CoV-2 rRT-PCR positive test and were subsequently discharged on their first ED visit. The average age was 7.7 years (SD = 6.3 years). 73.6% of patients were non-white and 36.7% were Hispanic. Of these patients, 17 (7.2%) had return visits to the ED within 30 days for symptoms related to COVID-19. Of these 17 patients, on return ED visits 4 (23.5%) were admitted to the hospital and 13 (76.5%) were not admitted. We used chi-square analysis and Odds Ratios to assess the clinical characteristics associated with a return ED visit, which demonstrated the following: congenital heart disease (odds ratio [OR] 11.5, 95% confidence interval [CI, 2.33-56.3,  $P = 0.0002$ ) and two or more chronic medical conditions (odds ratio [OR] 7.6, 95% confidence interval [CI, 1.7-33.5,  $P = 0.002$ ). Clinical characteristics that showed no significant risk of return visit included race, age, insurance status, fever, chills, myalgias, asthma history, abdominal pain, vomiting, diarrhea, fatigue, headache, nausea, rash, rhinorrhea, shortness of breath, sore throat, lung disease history, and neurologic disease history.

**Conclusion:** Pediatric ED 30-day return COVID-19 patients are rare. History of congenital heart disease or having two or more chronic medical conditions is correlated to return visits.

### 178 | Leukopenia and Neutropenia as Predictors of Serious Bacterial Infections in Febrile Young Infants

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**Background and Objectives:** Prediction rules for risk stratification of febrile infants  $\leq 60$  days for serious bacterial infections (SBIs) that include serum procalcitonin (PCT) and C-reactive protein (CRP) are highly accurate. However, these tests are not universally available. Prior data on leukopenia and neutropenia as predictors of SBI are incomplete and need further investigation, particularly in well-appearing infants and given increasingly available novel biomarkers. We sought to determine the test accuracy of leukopenia and

