provided by internal medicine residents to patients with a diagnosis of COPD.

Methods Used: We evaluated whether patients were screened and diagnosed appropriately with PFTs. In addition, for patients who received a diagnosis of COPD, we determined whether they received appropriate evaluation through ABGs, chest imaging, screening for alpha-1-antitrypsin deficiency. We also evaluated whether patients received appropriate screening for vitamin D deficiencies, appropriate vaccinations, and calculation of BODE scores.

This was done in two stages. The initial phase occurred during the first 6 months of the academic year (July 2021–December 2021). This was followed by an educational session regarding current guidelines for COPD diagnosis and management. Afterwards, a second set of data was collected during the last 6 months of the academic year (Jan 2022–June 2022).

Summary of Results: Records were gathered from 62 patients in the first phase and 64 patients in the second phase. The PGY-1 class had significant improvement in obtaining baseline imaging and vaccination rates while the PGY-3 class had significant improvements in obtaining 6-minute walk tests and vaccinations. No significant results were found for the PGY-2 class. When all three resident classes were compared together, there was significant improvement in the vaccination rates between the two phases.

Conclusions: Our study served as a trial run to improve management of COPD for patients managed in a resident clinic. Our results suggest that with proper resident education, improved care can be provided to patients who are being managed for COPD.

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Assessing barriers to kangaroo care in premature infants admitted to the neonatal intensive care unit

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Purpose of Study: Kangaroo Care (KC) is the act of holding an infant upright in direct skin-to-skin contact with the caregiver. Research shows that KC improves infant thermal regulation and cardiorespiratory stability, promotes early parent-infant bonding, lowers pain scores and infection rates, and improves survival. In the Children's Memorial Hermann Hospital (CMHH) NICU, extremely premature (EP) infants born <28 weeks receive humidity protocol (HP) for 10 days in addition to standard incubator care (SIC). HP serves to decrease evaporative water losses and improve thermoregulation across an immature skin barrier. Premature (PT) infants born between 28–34 weeks require SIC only. In the absence of sufficient data to describe humidity procedure, variation exists among NICUs in this country. We hypothesize that HP may be a barrier to delay KC in the CMHH NICU.

Methods Used: This single-site retrospective cross-sectional study evaluated 122 PT infants born between 08/2018–04/2021 at CMHH. A random number sequence was used to select our sample population from >2500 PT infants. To account for variation, PT infants were stratified into two groups: 28–31 weeks gestation (younger PT infants) and 32–34 weeks gestation (older PT infants). We analyzed factors considered to be potential barriers to KC, including respiratory support, oxygen requirement, vasopressor use, intraventricular hemorrhage (IVH), umbilical catheter (UVC), central line (PICC), and peripheral arterial line. We compared the PT group to our previously studied EP infants to assess humidity as a potential barrier. The primary outcome variable was time to first KC. Data were analyzed using descriptive statistics, Fisher's exact test, and the non-parametric Kruskal-Wallis test.

Summary of Results: Median time to first KC in PT infants is 3.4 days (IQR 1.7–8.0). By subgroup, median time to first KC was 11.2 days (IQR 10.3–15.5) in EP infants, 5.1 days (IQR 2.5–9.4) in younger PT infants, and 2.4 days (IQR 1.1–4.5) in older PT infants. Analysis of the factors that are potential barriers to KC showed PT infants were more likely to have a UVC compared to EP infants. By contrast, EP infants were more likely to be intubated, require vasopressor support, have evidence of IVH, and have a PICC present at the time of the first KC. Younger PT infants were more likely to have a UVC or PICC than older PT infants.

Conclusions: The use of humidity was the most common reason for delaying time to first KC in infants born prematurely. While humidity is essential for thermoregulation in premature infants, the duration of use and effects of interrupting humidity to promote kangaroo care have not been adequately studied. An RCT of the duration of humidity and interruption of humidity is warranted to avoid depriving infants of the benefits of kangaroo care.

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Incorporation of a smart sock with the virtual immersive test for postural stability

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Purpose of Study: Assessment of an individual's postural stability serves as an indirect measure for both physiological and biomechanical stresses placed on an individual. More recently, some individuals after COVID-19 (SARS-CoV-2) infection have been identified with neurological complaints (Post-Acute Sequelae of Covid – PASC). These individuals can also be predisposed to decreased postural stability and an increased risk for falls. The purpose of the project was to incorporate two different wearable technology (virtual reality (VR) based virtual immersive sensorimotor test – VIST and pressure senor-based smart sock) to assess postural stability among healthy and individuals with PASC to quantify the overall status of the postural control system.

Methods Used: All methods were conducted based on the University's Institutional Review Board (IRB# 21–296)

with informed consent. A total of 12 males and females (six healthy and six with self-reported complaints of PASC) have completed the study so far. All participants were tested using the VIST, while standing on a force platform and wearing the smart sock simultaneously. The (VIST uses a VR headset and proprietary software to test an individual's integrated sensory, motor, and cognitive processes through eight unique tests (smooth pursuits, saccades, convergence, peripheral vision, object discrimination, gaze stability, head-eye coordination, cervical neuromotor control). Center of pressure (COP) data from force platform and pressure sensor data from the smart socks were used to calculate anterior-posterior and medial-lateral postural sway variables. These postural sway variables were analyzed using an independent samples t-test between the healthy and PASC groups at an alpha set at 0.05.

Summary of Results: Significant differences ($p < 0.05$) between healthy and individuals with PASC with anterior-posterior and medial-lateral postural sway variables derived from COP measures, with individuals with PASC exhibiting significantly greater postural sway compared to healthy individuals in all eight tests of the VIST. The measures from the smart sock, while not statistically significant, exhibited the same findings of increased postural sway in individuals with PASC compared to healthy individuals.

Conclusions: Findings from the current analysis revealed that individuals with PASC demonstrated significantly worse postural control compared to the healthy, when challenged with various sensorimotor tests in VIST, suggesting that postural control is compromised due to PASC. While not statistically significant due to a lower sample size, the measures from smart sock also indicated the same findings of the COP measures, suggesting a promising use of wearable technology in postural control assessments. In addition to other neurological signs and symptoms of PASC, assessment of postural stability using the VIST can provide more detailed clinical measures for diagnosis, treatment, and prognosis assessments.

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Evaluation of a clinical decision support system and an automated electronic health record alert on outpatient prescribing of cefdinir

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Purpose of Study: Acute bacterial upper respiratory infections, such as acute otitis media, pharyngitis, and sinusitis, are common indications for antibiotics in pediatrics, and it is estimated one-third of these prescriptions may be inappropriate. Cefdinir is an oral cephalosporin commonly used in pediatrics due to taste and ease of once-a-day dosing. However, there are no evidence-based guidelines recommending it as a first-line agent. Outpatient clinician education has demonstrated some improvement in antibiotic prescribing habits but is often not sustainable long term. Clinical decision support systems in the form of pathways and order sets are more feasible in the outpatient setting and have demonstrated sustained improvements in provider prescribing habits. Best practice advisory alerts are commonly used in the inpatient setting and have shown promising results, but there are little data on their use in the outpatient setting.

Methods Used: We developed an intervention in our electronic health record consisting of an order-set based on our local acute upper respiratory infection guidelines and a best practice advisory alert targeting Cefdinir use in non-penicillin allergic patients. The pre-intervention period was defined as April 2018 to December 2021. The post-intervention period was defined as January 2022 to December 2022. Data shown here are through September 2022. Oral antibiotic prescriptions from all general pediatric clinics within our institution with diagnosis codes pertaining to acute otitis media, pharyngitis, and sinusitis were included. These were then grouped into first-line and non-first-line categories. Patient data were collected for each prescription, including diagnosis, date, sex, and race/ethnicity. The primary endpoint was the percentage of first-line prescribing.

Summary of Results: A total of 45 038 prescriptions were included in our analyses with 36 578 in the pre-intervention period and 8460 in the post-intervention period. There was no difference noted between the pre- and post-groups in patient sex, however, there were notable differences in patient race/ethnicity and diagnosis. First-line prescribing accounted for 73.5% of the pre-intervention group, and 81.9% of the post-intervention group (P = <0.001).

Conclusions: Implementation of an outpatient order-set coupled with a best practice advisory alert was associated with an 8.4% increase in first-line antibiotic prescribing for acute upper respiratory infections in outpatient pediatric clinics affiliated with our institution. Differences in diagnoses noted between pre- and post-intervention periods may be attributable to the COVID-19 pandemic.

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Sustained reduction in cardiac arrest events in a cardiac intensive care unit: a single center quality improvement experience

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Purpose of Study: To reduce cardiac arrest rates in our CICU.

Methods Used: This quality improvement initiative analyzed cardiac arrest events in our single center over a 10-year period in our 30-bed pediatric CICU. Phase one of the QI project was aimed at identifying and analyzing staff baseline practices, the technical and behavioral aspects of resuscitation. Deficits within each event were categorized by performance, communication, documentation, or system/process issues and then mitigation