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May 3rd, 11:30 AM - 1:30 PM

**Identifying Predictive Factors for Patients Transferred from Floor to PICU within 24 hours of Admission by a Pediatric Critical Care Transport Team**

Gina Patel

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## Research Abstract Title

**Submitting/Presenting Author (must be a trainee):**

**Primary Email Address:**

- Medical Student
- Resident/Psychology Intern ( $\leq 1$  month of dedicated research time)
- Resident/Ph.D/post graduate ( $> 1$  month of dedicated research time)
- Fellow

**Primary Mentor (one name only):** Jennifer Flint, MD

**Other authors/contributors involved in project:** Lisa Carney, MD; Brian Olsen, MD

**IRB Number:** STUDY00001445

**Describe role of Submitting/Presenting Trainee in this project (limit 150 words):**

I, Gina Patel, randomly selected each study participant, completed an extensive chart review to collect data, developed the RedCap Database and the primary author for the abstract and manuscript. I also presented this abstract at the AAP 2021 Conference in the Section of Transport Medicine as a panelist.

**Background, Objectives/Goal, Methods/Design, Results, Conclusions limited to 500 words**

**Background:**

Appropriate triage and disposition during transport can reduce the need for unplanned transfers to the pediatric intensive care unit (PICU) within 24 hours of admission. We sought to determine predictive factors of patients admitted to the inpatient ward that required PICU transfer within 24 hours following transport by Children's Mercy Critical Care Transport (CMCCT) team. The pediatric early warning score (PEWS) is used to monitor changes in the level of acuity for inpatients at our hospital and has been utilized to measure acuity during transport. We hypothesized patients with respiratory illness and  $PEWS \geq 4$  during interfacility transport are at higher risk of PICU transfer within 24 hours of admission.

**Objectives/Goal:**

Aim 1: Determine major risk factors that can predict secondary admission to the PICU within 24 hours after admission to the floor.

Aim 2: Determine if PICU transfers within 24 hours after admission to the pediatric floor are associated with increased length of stay and escalation of care in therapy.

**Methods/Design:**

A retrospective, case-controlled chart review of 100 total transports by CMCCT between January 2019 - December 2020 was performed. We included patients 1 month to 18 years of age admitted to the inpatient ward with respiratory illness and excluded patients with congenital heart disease. PICU transfers within 24 hours were compared to the control group who did not require PICU transfer. Metrics from pre-transport, transport, floor and first 6 hours after PICU transfer were recorded into a RedCap Database.

**Results:**

PICU transfers had a median PEWS score of 4. Patients who remained on the floor had a median PEWS of 3. PEWS scores were grouped into green (0-2), yellow (3) and red zone ( $\geq 4$ ) for multivariate analysis. A trend towards higher PEWS scores for PICU transfers within 24 hours was noted. 30/50 (60%) of PICU transfers had PEWS in the red zone during transport as compared to 23/50 (46%) in the control group, but not statistically significant ( $p = 0.141$ ). A higher PEWS scores following admission to the floor was statistically significant for PICU transfer. PEWS were more likely to be in the yellow ( $p = 0.003$ ) and red zone ( $p = 0.001$ ) for patients that required PICU transfer. There were no differences between the 2 groups related to prematurity ( $p = 0.795$ ), home oxygen ( $p = 0.999$ ), high flow nasal cannula ( $p = 0.262$ ), or continuous beta agonist ( $p = 0.454$ ). Patients transferred to the PICU did have lower weights (median 11.7, [7.8, 17.7]) compared to those who stayed on the floor (median 14.7, [10.3, 20.1]) ( $p = 0.09$ ).

**Conclusions:**

Our analysis showed a trend towards higher transport PEWS for patients who required subsequent PICU transfer but was not statistically significant, suggesting PEWS alone may not be a useful scoring tool to determine patient disposition during transport. A higher PEWS score after hospital admission was associated with PICU transfer. Future directions should include additional study with larger sample sizes analyzing other risk factors or interventions during interfacility transport that might predict PICU transfer after admission to the floor.