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



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Background

Appropriate triage and disposition during transport can reduce the need for unplanned transfers to the pediatric intensive care unit (PICU)

We sought to determine predictive factors for PICU transfer within 24 hours following transport by Children's Mercy Critical Care Transport (CMCCT)

Hypothesis

We hypothesized patients with respiratory illness and PEWS ≥ 4 during interfacility transport are at higher risk of PICU transfer within 24 hours of admission

| | PICU Transfers (n= 50) | No Transfer (n=50) | P value ^a |
|--|------------------------|--------------------|----------------------|
| Weight -- median [IQR] | 11.7 [7.8, 17.7] | 14.7 [10.3, 20.1] | 0.090 |
| Prematurity -- n (%) | 10 (20.0%) | 8 (16.0%) | 0.795 |
| Home Oxygen (yes/no) | 2 (4.0%) | 2 (4.0%) | 0.999 |
| Transport Low Flow Cannula | 20 (40.0%) | 19 (38.0%) | 0.999 |
| Highest Transport PEWS -- median [IQR] | 4 [3, 5] | 3 [2, 4] | 0.036 |
| Transport HFNC (yes/no) -- n (%) | 10 (20.0%) | 5 (10.0%) | 0.262 |
| Transport HFNC (flow/kg) -- median [IQR] | 0.95 [0.91, 1.29] | 1.12 [0.58, 1.46] | 0.692 |
| Transport Beta Agonist -- n (%) | 8 (16.0%) | 12 (24.0%) | 0.454 |
| Transport Continuous Albuterol | 5 (10.0%) | 2 (4.0%) | 0.436 |
| Transport Continuous Albuterol Hours -- median [IQR] | 2.5 [2, 3] | 3 [2, 3] | 0.844 |
| Transport Atrovent -- n (%) | 1 (2.0%) | 5 (10.0%) | 0.204 |
| Transport Magnesium Sulfate | 3 (6.0%) | 1 (2.0%) | 0.617 |

^a Wilcoxon Rank-sum and Fisher's exact tests

| | PICU Transfers (n= 50) | No Transfer (n= 50) | Odds Ratio ^a | P value | 95% Confidence Interval | |
|----------------|------------------------|---------------------|-------------------------|---------|-------------------------|-------|
| | | | | | Lower | Upper |
| Transport PEWS | | | | | | |
| Green | 11 (22.0%) | 17 (34.0%) | -ref- | --- | --- | --- |
| Yellow | 9 (18.0%) | 10 (20.0%) | 1.39 | 0.583 | 0.43 | 4.51 |
| Red | 30 (60.0%) | 23 (46.0%) | 2.02 | 0.141 | 0.79 | 5.12 |
| Floor PEWS | | | | | | |
| Green | 12 (24.0%) | 31 (62.0%) | -ref- | --- | --- | --- |
| Yellow | 15 (30.0%) | 7 (14.0%) | 5.54 | 0.003 | 1.81 | 16.92 |
| Red | 23 (46.0%) | 12 (24.0%) | 4.95 | 0.001 | 1.89 | 13.00 |

^a Unadjusted logistic model

Results

The highest transport PEWS tended to be higher in patients who required PICU transfer

However, higher PEWS during transport was not associated with an increased odds of PICU transfer

Higher PEWS score after hospital admission was associated with an increased odds of PICU transfer

Conclusion

PEWS alone may not be a useful scoring tool to determine patient disposition during transport