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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