PEWS as a Risk Assessment Tool in Determining Admission Level of Care

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Background

- The Pediatric Early Warning Score (PEWS) was developed in Canada to quantify severity of illness in hospitalized children[1].
- It has not been studied as a risk assessment tool in determining admission level of care (LOC).

Objective

- To study the impact of the ED PEWS assessment of in-hospital level of care upgrades in patients admitted from our ED with respiratory complaints

PEWS

Color and Number Coding PEWS

dell children's medical center of central texas
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Pediatric Early Warning Score (PEWS)

Adapted from: Royal Alexandra Hospital for Sick Children, Brighton-Paediatric Early Warning Score

	0	1	2	3	Score
Behavior	Playing/Appropriate	Sleeping	Irritable	Lethargic/Confused OR Reduced response to pain	
Cardiovascular	Pink or Capillary refill 1-2 seconds	Pale or Capillary refill 3 seconds	Grey or Capillary refill 4 seconds OR Tachycardia of 20 above normal rate	Grey and mottled or capillary refill 5 seconds or above. OR Tachycardia of 30 above normal rate or bradycardia	
Respiratory	Within normal parameters, no retractions	> 10 above Normal Parameters, using accessory muscles OR 30+% FiO2 or 3+ liters/min.	> 20 above normal parameters retractions. OR 40+% FiO2 or 6+ liters/min.	5 below normal Parameters with retractions and/or grunting. OR 50% FiO2 or 8+ liters/min.	

Score 2 extra for hourly nebulizers or persistent vomiting following surgery.

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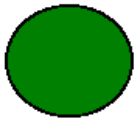
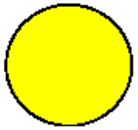


Green = 0-2 Score



Yellow = 3 Score

Orange = 4 Score

Red = 5 or > Score

Methods

- The PEWS was instituted as a standard assessment after the attending emergency physician (EP) made a hospital admission decision for patients with respiratory complaints, though it was only applied when PEWS trained nurses were in the department.
- A PEWS score of 3 or higher initiated a discussion between the PEWS nurse and the EP about admission LOC.

Methods

- We retrospectively created a database of patients presenting with respiratory complaints the year before and the year after the institution of this policy.
- This created three cohorts: the Pre-PEWS group (PPG); the PEWS group (PG); and the No-PEWS group (NPG) (those in the PEWS era for whom PEWS was not assessed because the trained nurses were not available).

Methods

- In each group, we analyzed the number of admissions, the admission LOC (floor, intermediate care unit and pediatric intensive care unit) and the number of LOC "upgrades" after admission.

Results

- PPG (2008 CY)
  - 9,476 patients with respiratory complaints
  - 8,021 discharged from ED
  - 1,198 admitted patients
  - 239 eloped/AMA/UTL
  - 41 upgrades in care
    - Floor to IMC/PICU 33
    - IMC to PICU 8
  - 3.4% chance of upgrade in care

Results

- Intervention period (2009 CY)
  - 14,691 patients with respiratory complaints
  - 12,723 discharged from ED
  - 1,476 admitted patients
  - 490 eloped/AMA/UTL

Results

- 2 groups : PG, NPG
- PG
  - 341 patients evaluated
  - 3 upgrades in care (Floor to IMC/PICU)
  - 0.88% chance of upgrade in care
- NPG
  - 1,135 respiratory patients not evaluated with PEWS
  - 20 upgrades in care (Floor to IMC/PICU or IMC to PICU)
  - 1.76% chance of upgrade in care

References

1. H. Duncan, J. Hutchinson, C.S. Parshuram. The pediatric early warning system score: A severity illness score to predict urgent medical need in hospitalized children. Journal of Critical Care. 2006;21:271-279