Comparison of I-PASS Illness Severity Classification versus the Hopkins Pediatric Early Warning Score in Prediction of Clinical Decompensation in Pediatric Inpatients in a Large Academic Children’s Hospital

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BACKGROUND

- Structured communication tools promote patient safety at handoff
- I-PASS is a structured communication tool used for handoffs
- Hopkins Pediatric Early Warning Score (HPEWS) is an objective measurement tool differentiated based on pediatric age-stratified vital signs that was developed to identify early signs of clinical decompensation

METHODS

- Design: Retrospective, case-control study
- Cases: All pediatric inpatients with RRT or PICU transfer
- Control patients: matched by age, admitting service, and no clinical decompensation event during admission
- Dates: February-September 2018
- Exclusion: patients admitted to a surgical specialty or if illness severity was not recorded
- Data Collection:
  - Illness severity status designated by resident & recorded via daily pages or via electronic medical record documentation
  - HPEWS scores (green, yellow, red) recorded by bedside nurses
  - Watcher or unstable illness severity and red HPEWS scores correlated to clinical decompensation
- Outcomes: sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of both I-PASS illness severity and peak HPEWS scores within 24 hours of a clinical decompensation event

RESULTS

Table 1: Preliminary Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>PPV</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>RRT</td>
<td>36%</td>
<td>200%</td>
<td>100%</td>
<td>40%</td>
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CONCLUSIONS

- HPEWS has higher sensitivity and I-PASS illness severity has higher specificity for predicting clinical decompensation
- The high sensitivity of HPEWS provides a more robust screening indicator for clinical deterioration than I-PASS illness severity
- Both tools had relatively high PPVs
- I-PASS illness severity had a lower NPV, suggesting the resident’s subjective stable designation may not accurately reflect a patient’s decompensation risk

CLINICAL IMPLICATIONS

- HPEWS offers an objective indication of decompensation risk and might be included in a structured communication tool such as I-PASS
- Future studies should include evaluation of HPEWS during handoff

REFERENCES


Funding Source: The Helene Fuld Leadership Program for the Advancement of Patient Care Quality and Safety

OBJECTIVE

To compare I-PASS illness severity to HPEWS in predicting clinical decompensation of pediatric inpatients

METHODS

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