IMPLEMENTATION
OF A NURSE EARLY WARNING SYSTEM (NEWS)

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OBJECTIVES

- Define the Nurse Early Warning System (NEWS)
- Describe how implementation of NEWS can prevent avoidable patient decline in condition
BROOKWOOD MEDICAL CENTER

- Tenet Facility
- Birmingham, AL
- Urban setting
- 644 Licensed Beds
- 26,000 IP Visits
- 112,000 OP Visits
- 60,000 ED Visits
WHAT IS NEWS?

NEWS is a tool that employs an algorithm that uses a physiological scoring system that either prompts a call to RRS or triggers additional assessment.

- NEWS score categorizes a patient’s condition into 3 groups, each with a specific nursing response based on the score
- scoring system was combined with vital sign monitoring
- The score is then stratified by one of three categories represented by green, blue or red
- corresponding color marker was then placed on the patients’ door to signify the NEWS score to other caregivers
WHY NEWS?

- earlier RRS activation results in better outcomes
- Lack of putting subtle patient indicators together
- low self-confidence in assessment skills
- Infrequency of rounding
The Pilot

- High volume med-surg pulmonary and ID unit
- Concurrent data capture across all shifts over 30 days
- Original MEWS Adult Algorithm from published work/IHI
- Retrospective review of randomly selected RRT calls as baseline
100% of all patients had a detectable decline at least 12 hours prior to a RRT event.
The number of patients with detectable decline doubled at 4 hours prior to RRT event.
Demonstrated opportunity with signs caught earlier.
Nurses not compliant with scoring every four hours (<70%)

Nurses did not consistently escalate to supervisors per algorithm (but did raise awareness for seeking additional orders)

No orange scoring levels identified: those 2-3 changed within 4 hours to full RRS activation with a mean score of 9: (we needed to change sensitivity and some triggers to increase capture of patient conditions)

Identified OSA management as a major influence in post ops not directly listed as a trigger; (OSA on scoring matrix allowed nurse to have a heightened index of suspicion for potential complications)
Algorithm Modifications Development

- Adult only

- Modifications:
  - Baseline pilot data supported lower threshold for certain triggers
  - Removed fourth level and recalibrated score ranges based on pilot data (for greater sensitivity/increased capture)
  - Added NEWS score to patient care conferences (daily multidisciplinary huddles), shift reports and handoffs
  - Removed sepsis-specific screen because this is completed on all pts during patient care conferencing/admit
  - Added OSA as a trigger
  - Added to vital sign documentation for hardwiring use
## THE TOOL

<table>
<thead>
<tr>
<th></th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Airway</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>100% NRB or OSA documented</td>
<td></td>
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<tr>
<td><strong>Temp (In F)</strong></td>
<td>&lt;95.0 F</td>
<td>95.1-96.0</td>
<td>96.1-96.4</td>
<td>96.5-100.4</td>
<td>100.6-101.3</td>
<td>&gt;101.5</td>
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<tr>
<td><strong>HR Beats/min</strong></td>
<td>&lt;40</td>
<td>40-50</td>
<td>51-59</td>
<td>60-100</td>
<td>101-110</td>
<td>111-129</td>
<td>&gt;130</td>
</tr>
<tr>
<td><strong>RR breaths/min</strong></td>
<td>&lt;6</td>
<td>&lt;8</td>
<td>9-15</td>
<td>16-20</td>
<td>18-20</td>
<td>21-29</td>
<td>&gt;30</td>
</tr>
<tr>
<td><strong>Oxygen Sat</strong></td>
<td>≤85%</td>
<td>86-92%</td>
<td>93-97%</td>
<td>98-100%</td>
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<tr>
<td><strong>Systolic BP</strong></td>
<td>&lt;70</td>
<td>71-80</td>
<td>81-100</td>
<td>101-199</td>
<td>&gt;200</td>
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<tr>
<td><strong>LOC</strong></td>
<td>Unresponsive</td>
<td>Responds to painful stimuli only</td>
<td>Responds to verbal stimuli</td>
<td>Alert</td>
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<tr>
<td><strong>Urine Output</strong></td>
<td>&lt;10 ml/hr</td>
<td>&lt;35 ml/hr</td>
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High score 24
THE ALGORITHM

Patient Admitted to Floor
-> Patient Assessed by RN
   MEWS Score Assigned and documented on Page 2 of Graphic sheet
   MEWS Score 0-3
     Yes -> Reassess MEWS every 4 hours with vital signs
     No -> MEWS Score 4-5
         Yes -> Notify Clinical Coordinator/Charge Nurse Assess Patient and Validate MEWS Score
         No -> MEWS Score ≥ 6
             Yes -> Notify Clinical Coordinator/Charge Nurse Assess Patient and Validate MEWS Score
             No -> Primary RN provides intervention and documents intervention in nursing narrative

Primary RN/ICU Nurse may call RRS (940-0144)
Primary RN/ICU Nurse may call physician of record
Primary RN/RIS Nurse may call physician of record

Primary RN monitors patient 24 hours after 4 hours, return to algorithm.
Primary RN calls RRS if patient's status declines or is not consistently stable during 4 hour assessment period
Primary RN reassesses every hour until patient is stable & consecutive hours not requiring further intervention

Post patient's MEWS score color on room door and/or mark patient's MEWS score color beside name on assignment/dry erase board
Transfer to higher level of care
THE “NEW” NEWS TOOL

Post Modification

Mean EWS Scores Prior to RRS Activation

Note: sample of selected RRT calls, no other change in methodology)
Patient acuity is lower at time of RRT call because “warning” signs of impending complications are caught earlier (event scores cut by >50%; 9.4 decreased to 4.2)

- Earlier calls to RRT prevents patient deterioration
- Earlier prompts for RRT are correlated to greater code survival rates

**RESULTS**

**EWS Mean Scores**
Baseline Comparison to Post Implementation

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<tr>
<th>Baseline Event Score</th>
<th>Post Implementation Event Score</th>
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**Code Survival Increases with RRT Calls**
Summary of Modified Pilot Findings

• Three levels of action improved tool sensitivity (capture of declining conditions earlier than pilot)

• Earlier escalation resulted in lower mean scores to trigger the supervisor and/or RRS activation

• Scores conducted every 4 hours with standard vital signs indicated >90% compliance with scoring (20% improvement from pilot)

• Potential adverse outcomes or increased patient acuity avoided (as indicated by mean score comparison)

• Allowed tailoring unit-specific EWS educational plans for housewide implementation (data identified fluctuations in scores relative to timing of day and care plan activities of patients)
QUESTIONS?