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
Tenet Facility
Birmingham, AL
Urban setting
644 Licensed Beds
26,000 IP Visits
112,000 OP Visits
60000 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.
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)
MODIFICATION AFTER PILOT

- 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
<table>
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<tr>
<th></th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
<th>1</th>
<th>2</th>
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<tbody>
<tr>
<td><strong>Airway</strong></td>
<td>100% NRB or OSA documented</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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<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>
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<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>
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<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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<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
Primary RN provides intervention and documents intervention in nursing narrative

MEWS Score ≥ 6

Yes
Notify Clinical Coordinator/Charge Nurse Assess Patient and Validate MEWS Score

No
Clinical Coordinator/Charge Nurse evaluate current orders

Primary RN/CCRN Nurse may call RRS (940-0139)

Primary RN/CCRN Nurse may call physician of record

Primary RN monitors patient every hour for 4 hours. If patient is deemed stable 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 re-assesses every hour until patient is stable & consecutive hours not requiring further intervention

No
Transfer to higher level of care

Post patient's MEWS score color on room door and/or mark patient's MEWS score color beside name on assignment/dry erase board
Post Modification

Mean EWS Scores Prior to RRS Activation

Note: sample of selected RRT calls, no other change in methodology)
**RESULTS**

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

- Baseline Event Score
- Post Implementation Event Score

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

- 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)

**Code Survival Increases with RRT Calls**

- Survival Rate for Code Event
- Rapid Response 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)