Modified Early Warning System (MEWS): Reducing Mortality Through Early Intervention

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Objectives

• Identify problem
• Identify goal
• Develop multidisciplinary team
• Determine metrics
• Implement PDSA cycle
• Develop system implementation plan
• Future state
In FY 2015 at Vidant Health, **twenty percent (20%) of serious safety events** were the result of a failure to recognize signs of clinical deterioration which caused a **delay in treatment of care.**
Time to Take a Poll
Improve patient outcomes by 10% through earlier implementation of interventions during the stage of vulnerability instead of at the catastrophic stage.

The earlier we intervene the higher the chances of rescuing patients.

Figure 1: Three stages of clinical deterioration in a hospitalized Patient

• Form MEWS Multidisciplinary Committee

• Choose an Early Warning System

• Perform Density Analysis

• Determine Metrics

• Identify Pilot Units
# MEWS Protocol

<table>
<thead>
<tr>
<th>MEWS Score</th>
<th>Actions</th>
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<tbody>
<tr>
<td>0-2</td>
<td>• Continue routine/ordered monitoring and AVPU* assessment</td>
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</table>
| 3          | • Increase VS frequency and AVPU assessment to every 1 hour x 3, confirm MEWS score each time  
|            | • If a patient remains at a MEWS score of 3 for 3 consecutive sets of Vital Signs, the nurse should resume routine vital signs. If there is an escalation in the MEWS score, the MEWS protocol should restart. |
| 4          | • Actions for MEWS 3  
|            | • Apply pulse oximeter  
|            | • Apply cardiac monitor  
|            | • Inform provider and develop plan of care |
| 5          | • Increase VS frequency and AVPU assessment to every 30 minutes x 4, confirm MEWS score each time  
|            | • Actions for MEWS 4  
|            | • Notify ERT and/or Nursing Supervisor |
| **Fluctuating MEWS Score** | • Implement protocol each time BPA is triggered. |
Determining Metrics

- Pilot Metrics
  - BPA Frequency
  - Escalation of Care

- Final Metrics
  - Codes Outside ICU
  - ERT Activations
  - Mortality
PDSA Cycle

**PLAN**
- Bi-monthly Committee Meetings
- Determine EWS
- Gap Analysis
- Education Strategies
- EHR Reports
- Alert Fatigue

**DO**
- Pilot Gen Med Unit at AMC and Regional Hospital
- Daily Feedback
- Rounding

**STUDY**
- BPA Frequency
- Interventions
- MEWS Parameters
- Escalation of Care
- Work Burden
- Workflow

**ACT**
- MEWS Parameters Refinement
- Workflow Modifications
- Intervention Adjustments
Implementation Strategy

- Pilot

- Regional Spread
  - Daily Feedback

- Academic Medical Center Spread
  - Real time Coaching
Vidant Community Hospitals
Current Outcomes

#Total ERT Activations
#Total Codes Outside ICU

VCOM Total ERT Activations
VCOM Codes Outside ICU
Vidant Medical Center
Current Outcomes
Vidant Community Hospitals
Mortality Index

VCOM Mortality Index
VCOM FY 2017 Improvement Target
Linear (VCOM Mortality Index)
Vidant Medical Center
Mortality Index

- VMC Mortality Index
- VMC FY 2017 Improvement Target
- Linear (VMC Mortality Index)
Lessons Learned

- Set specific expectations
- Implement multiple education strategies
- Message EHR as communication tool
- Define communication channels
Future State

• Combine inpatient Systemic Immune Response Syndrome (SIRS) Best Practice Advisory (BPA) and MEWS BPA

• Discontinue 36° post-operative snooze

• Include in Adult Admission Order Sets

• Timely Vital Sign Documentation Report
Questions?
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