**Objective:** To develop a process to meet the need of the RRT/Code blue system as we move into the new bed tower with an ultimate goal of reducing “failure to rescue” events outside the ICU in 2017 by 50%.

**Important Factors regarding IHCA:**
- Location of arrest is highly predictive of morbidity and mortality.
- Late treatment of clinical deterioration is common in hospitalized patients and results in greater severity of illness at ICU admission and increased ICU mortality.

---

**Code Blue events on Acute Care Units**

<table>
<thead>
<tr>
<th>Year</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>9</td>
</tr>
<tr>
<td>2012</td>
<td>8</td>
</tr>
<tr>
<td>2013</td>
<td>5</td>
</tr>
<tr>
<td>2014</td>
<td>4</td>
</tr>
<tr>
<td>2015</td>
<td>10</td>
</tr>
<tr>
<td>2016</td>
<td>9</td>
</tr>
</tbody>
</table>
Current State: RRT Activations (2014-2016)
Research has shown that adverse events, defined as any harm that occurs to patients from medical care, whether or not as the result of error, are associated with higher rates of poor outcomes and death and that many adverse events are preceded by physiologic signs that are clearly abnormal. A review of the literature identifies three main systemic issues contributing to adverse events:

- Failure to plan
- Failure to communicate
- Failure to recognize a patient's deteriorating condition (failure to rescue)

The Joint Commission states that two of three primary causes of sentinel adverse events are lack of communication among hospital staff and inadequate patient assessments.
## RRT Trigger Data

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Unkn/Not Doc</th>
<th>Respiratory</th>
<th>Cardiac</th>
<th>Neurological</th>
<th>Medical</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>1 (0.6%)</td>
<td>101 (58.7%)</td>
<td>61 (35.5%)</td>
<td>59 (34.3%)</td>
<td>31 (18%)</td>
<td>56 (32.6%)</td>
</tr>
<tr>
<td>2015</td>
<td>0 (0%)</td>
<td>66 (60.6%)</td>
<td>42 (38.5%)</td>
<td>38 (34.9%)</td>
<td>10 (9.2%)</td>
<td>24 (22%)</td>
</tr>
<tr>
<td>2016</td>
<td>0 (0%)</td>
<td>58 (54.7%)</td>
<td>42 (39.6%)</td>
<td>49 (46.2%)</td>
<td>17 (16%)</td>
<td>26 (24.5%)</td>
</tr>
</tbody>
</table>
Root Cause Analysis

- **Delayed decision-making on calling a RRT**
  - Culture

- **Rapid deterioration of patient condition**
  - Gaps in recognizing early signs of deterioration

- **Hospital environment (new bed tower) future concerns**
  - Distance from ICU to Med/Surg areas

- **Unstable patients admitted to the Medical-Surgical units**
  - Delays in care during transition from ED to Med/Surg areas
Impact/Effort Matrix – RRT: ED to Med/Surg Units

Objective: To develop a process to meet the need of the RRT/Code blue system as we move into the new bed tower with an ultimate goal of reducing “failure to rescue” events outside the ICU in 2016 by 50%.

1. Create respiratory scoring process that would determine whether or not patient is well enough to go to med-surg unit
2. Replace admit order with “bed search” order and put in admit order when patient is actually ready to be transferred to the floor
3. Standardize PEWS score to be done at time of admission and time of disposition. Ensuring that any changes are communicated to the MD
4. Revise general “admit order” to allow ED physicians to add simple first dose or emergency med orders for inpatient nurses to follow (needs to connect between Firstnet and Peds)
5. Create a “patient Advocacy Award” for calling RRT’s earlier and advocating and communicating well on the patient’s behalf.
6. After admit orders are placed have a pop up for MD’s to re-assess admitted patients boarding in the ED every 2 Hours
7. Create standing orders for RN’s that will allow them to pull emergency medications out of pyxis
8. Level-load resident schedules to meet hospital demand
9. Create process to assess ED patients prior to admission to the unit by inpatient teams (ADT nurse or Admit team-MD/RN)
10. Create process to make sure all patients in respiratory distress requiring nebulizers get a neb right before leaving the ED
11. Re-implement the transfer checklist and make sure that notifying MD of time to transfer is included so residents make sure they give sign out to the receiving unit
12. Have an assigned admit resident on the inpatient floors
13. Respiratory protocol to assess all patients upon admission to med-surg units
**Action Plan**

**Decrease Rapid Deterioration of Patient Condition**
- Education on when to document PEWS score
  - Clinical Leader Organizer

**Decrease rate of ED to Floor to ICU within 12 hours**
- Complete PEWS score prior to leaving the ED
  - Create triage orders to support seamless transitions

**Improve Hospital Environment to respond to RRT**
- Train additional PICU staff to respond to RRT’s
  - Ensure RRT post-evaluation when patient remains on floor

**Decrease delayed decision making in calling an RRT**
- Revise RRT algorithm
  - Educate current and new nurses on who/when to call an RRT

**Long-term goal:** Create program in PEDS that pulls data from charting to determine patient risk of clinical deterioration and alerts staff to required additional monitoring and support
What Do I Call?? RRT Verse Code Blue

RRT

Med-Surg Inpatient Units

IBD Clinic, Infusion center, Psych

Code Blue

All physician offices, radiology, heart station, Med/Surg inpatient units
Any visitor/employee assistance

All outpatient areas
Anything on the 1st floor
Who Responds to an RRT/Code Blue

**RRT**
- Med-Surg Inpatient Units
- IBD Clinic, Infusion center, Psych
- RRT team responds

**Code Blue**
- ED code blue response team responds to anything on the 1st floor or on external hospital grounds (e.g., Parking lot, research building)
- Hospital code blue team responds to anything on floors 2-6 in the main hospital including the brain institute and physician practices.
<table>
<thead>
<tr>
<th>Criteria to call an RRT</th>
<th>PEWS Documentation</th>
<th>Activation</th>
<th>RRT Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Acute change in Respiratory status</td>
<td>• Before transferring a patient out of the ED</td>
<td>• Dial 811</td>
<td>• Pre-activation evaluation</td>
</tr>
<tr>
<td>• Acute change in perfusion</td>
<td>• Every 4 hours while on the unit</td>
<td>• Anyone can call an RRT (permission to call is not necessary)</td>
<td>• Post-RRT evaluation</td>
</tr>
<tr>
<td>• Acute neurological changes</td>
<td>• Before and after a patient leaves the unit for a procedure/test</td>
<td>• RRT team will respond within 15 minutes of activation</td>
<td>• Follow-up call documentation within 60 minutes of RRT (if patient is not transferred to a higher level of care)</td>
</tr>
<tr>
<td>• Gut feeling</td>
<td>• PEWS score &gt;3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Parent request</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Nurses will be held accountable for NOT calling an RRT for a patient who is in distress.
### Clinical Leader Organizer

<table>
<thead>
<tr>
<th>Location</th>
<th>Patient</th>
<th>PEWS score</th>
<th>Obs</th>
<th>Res</th>
<th>Central</th>
<th>Sed</th>
<th>Su</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 East</td>
<td>330-B</td>
<td>5 yrs M PEWS, Score</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 East</td>
<td>322-A</td>
<td>15 yrs F PEWS, Score</td>
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<td>3 East</td>
<td>333-B</td>
<td>2 yrs M PEWS, Score</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 East</td>
<td>322-B</td>
<td>8 m 1w M PEWS, Score</td>
<td>0</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 East</td>
<td>336-A</td>
<td>5 yrs F PEWS, Score</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3 East</td>
<td>331-A</td>
<td>3 yrs F PEWS, Score</td>
<td>1</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>3 East</td>
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<td>4 yrs M PEWS, Score</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 East</td>
<td>331-B</td>
<td>5 yrs M PEWS, Score</td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3 East</td>
<td>337-A</td>
<td>13 m M PEWS, Score</td>
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<td></td>
<td>OBS</td>
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<td></td>
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<tr>
<td>3 East</td>
<td>335-B</td>
<td>17 yrs M PEWS, Score</td>
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<td></td>
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<tr>
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<td>324-A</td>
<td>2 yrs M PEWS, Score</td>
<td>0</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3 East</td>
<td>326-A</td>
<td>20 m M PEWS, Score</td>
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<tr>
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<td>13 yrs F PEWS, Score</td>
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<td>327-B</td>
<td>13 yrs M PEWS, Score</td>
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<tr>
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<td>3 yrs F PEWS, Score</td>
<td>0</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Pre-RRT Algorithm

Before Kaizen Event

- Change in Patient Condition
- RN informs resident of change
- Resident accesses patient and notifies PL3
- Direct admit to PICU
- Patient transferred to ICU setting
- Revised plan of care determined, Pt. stays on the floor
- Hospitalist Consult
- RRT Called
Before Kaizen Event

RRT Algorithm

1. RRT Team receives page and overhead announcement
2. RRT Team Arrives
3. Team assesses and provides intervention
4. Admit to ICU
5. Patient transferred to ICU setting
6. Stay on Floor
7. Fellow discusses plan of care with residents (PLS more aware of patient)
Pre-RRT Algorithm

Do NOT call an RRT for procedural needs: IV’s, ISTAT, labs. Call the OA if there are delays or concerns related to procedure turn around times.
Case Studies

1. A 17yr old patient with increased abdominal pain requiring additional monitoring. What should be called?

2. A 3yr old whose tracheostomy tube dislodged during an on-site outpatient visit. What should be called?

3. A 5yr old patient received several back to back nebulizers and was on 5L of oxygen for an asthma flare up in the ED and required 9L of oxygen upon admission to the med-surg unit. The patient was tachycardic, tachypneic, and had inspiratory and expiratory wheezing. What should be called?

GOAL: Right level of care, by the right clinicians, in the right location, at the right time
Seamless Transitions of Care

Med-Surg Triage Process

Goal:

• To provide immediate assessment and interventions, as needed, of patients admitted to the medical-surgical units to avoid delays in care.

Fever relief  pain management  oxygen  IVF

Priority

Nicklaus Children's Hospital
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Code blue events outside the ICU</td>
<td>Quality Data</td>
<td>4 events</td>
<td>10</td>
<td>9</td>
<td>Goal: 0</td>
<td>4</td>
</tr>
<tr>
<td>RRT events</td>
<td>Quality Data</td>
<td>180 calls</td>
<td>128</td>
<td>113</td>
<td>Increased calls</td>
<td>50</td>
</tr>
<tr>
<td>ED-Floor-ICU within 12 hours</td>
<td>Quality Data</td>
<td>NA</td>
<td>N=44 Rate: 4.04</td>
<td>N=36 Rate: 3.34</td>
<td>Goal: 25 (30% reduction)</td>
<td>16</td>
</tr>
</tbody>
</table>
Code Blue Documentation

**Overview:**
- CPR started within 1 minute of cardiac event recognition
- Document if the event was witnessed or unwitnessed
- Document pulses, HR, Rhythm, Breath sound, Resp. Rate, O2 sats, BP, cap refill every 5 minutes

If **RRT was changed to Code blue** then documentation should be completed for both RRT and code blue events.
- Document time when RRT was changed to code blue
- Document time and vital signs which would correlate and validate activating code blue. In a recent code, RRT was changed to code blue because per progress notes, pt. became apneic and required BVM but the code sheet had O2 sats documented as 100% throughout.

**Respiratory Guidelines:**
- Trach placement verified by either ETCO2 color change, breath sounds etc.
  - If Trach changed then document date and time and method used to verify placement
- If pt. gets intubated on the floor then ET placement should be verified by ETCO2 color change or Revisualization by direct laryngoscopy and breath sounds should be documented
Cardiac Guidelines:

- Epinephrine should be administered within first 5 minutes of event recognition
  - Document correct dose
  - Document Routes
  - If not given within the first 5 minutes, then Physicians needs to provide an explanation.

- **Pulse checks** – Present or absent at the start of event, whether its cardiopulmonary arrest or Respiratory arrest.
  - Type of Rhythm (Floors almost always leave this section empty)
  - Rhythm with pulses are: Normal Sinus rhythm (NSR), Bradycardia, SVT, Ventricular tachycardia with pulse
  - Pulseless Rhythm are: Asystole, Pulseless electrical activity, Pulseless V-Tac and V-Fib


