PEWS tool in Clinical Practice

Impacting Early Recognition, Treatment and Resource Management through Enhanced Provider Communication
• No consistent method to score the level of acuity/severity of illness for our patients

• Lack of Common language to describe analysis of assessment
  • What’s red to me may be pink to you

• Varied perception of risk for deterioration among staff
  • Comfort Levels -Experienced vs. New staff
What is it???

- Pediatric Early Warning Score, Pediatric Early Warning tool (PEWS):
  - Standardized score calculated for a patient via a tool to assesses different physiological, behavioral, and clinical parameters of a patient and assigning a score to that assessment
What Good Can Come...

- Removing bias in assessment promotes:
  - justice of health care delivery to support autonomy, intervention, and treatment for patients based on their objective needs
  - Equal distribution of intervention based on severity of need
    - Proper allocation of resources
  - Efficiency is gained through **TRUST**:
    - Provider to Provider
    - Patient to Provider
  - Early Detection = Improved Patient Outcomes
Burning Platform

- Deterioration in patient status can be detected **HOURS** before a significant event
  - 11 hours (Monaghan 2006)
  - 8 hours (ACLS, AHA, 2010)

- Standardized tools reduce human errors by improving communication

- Removes emotional impact on clinical data

  Objective Data ➔ Common Language ➔ Timely and Effective Care ➔ Safer Outcomes
Who is scored and when??

- Inpatients will be assessed and scored per routine.
  - On admission as a baseline
  - AND as ordered per physician or per vital signs routine
  - Typically Q4 or Q6 hours.
- Outpatients will be scored on an as needed basis, per nursing discretion.
How to score~

- Patients will be evaluated and given a score that directly correlates with specific assessment findings in 3 categories: behavior, cardiovascular, and respiratory.
  - Scores will range from 0-3 in each category.
  - Two (2) additional points will be added to the total score for any patient that is receiving nebs Q1 hour, or more frequently.

- The score from each category will be added together for a total PEWS score.
# Pediatric Early Warning Score Card

<table>
<thead>
<tr>
<th></th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Behavior</strong></td>
<td>Lethargic, confused or Reduced pain response</td>
<td>Irritable or agitated and NDT consolable</td>
<td>Sleeping or Irritable and consolable</td>
<td>Playing Appropriate for patient</td>
</tr>
<tr>
<td><strong>Cardiovascular</strong></td>
<td>Grey or CRT ≥ 5 or Tachycardia 30 above or Bradycardia for age</td>
<td>CRT 4 seconds or Tachycardia of 20 above normal parameters</td>
<td>Pale or CRT 3 seconds</td>
<td>Pink, CRT 1-2 seconds</td>
</tr>
<tr>
<td><strong>Respiratory</strong></td>
<td>Grunting 5 below normal with retractions and/or ≥ 50% FiO2 &gt; 30 above normal</td>
<td>≥ 20 above normal Using accessory muscles and retractions 40-49% FiO2 or ≥ 3 LPM</td>
<td>≥ 10 above normal Using accessory muscles or 24-40% FiO2 or ≥ 2 LPM Any initiation of O2</td>
<td>WNL for age No use of accessory muscles</td>
</tr>
</tbody>
</table>

**CRT = Capillary Refill Time**  
Add 2 points for nebulizers delivered hourly  
** ** Parental concern should be an automatic call to the Rapid Response Team.
## Vital Sign Reference

<table>
<thead>
<tr>
<th>Age</th>
<th>Pulse</th>
<th>Respiratory Rate</th>
<th>Blood Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3 months</td>
<td>100-150</td>
<td>35-55</td>
<td>65-85/45-55</td>
</tr>
<tr>
<td>3-6 months</td>
<td>90-120</td>
<td>30-45</td>
<td>70-90/50-65</td>
</tr>
<tr>
<td>6-12 months</td>
<td>80-120</td>
<td>25-40</td>
<td>80-100/55-65</td>
</tr>
<tr>
<td>1-3 years</td>
<td>65-110</td>
<td>20-30</td>
<td>90-105/55-70</td>
</tr>
<tr>
<td>3-6 years</td>
<td>65-110</td>
<td>20-25</td>
<td>95-110/60-75</td>
</tr>
<tr>
<td>6-12 years</td>
<td>60-95</td>
<td>14-22</td>
<td>100-120/60-75</td>
</tr>
<tr>
<td>12 years</td>
<td>55-85</td>
<td>12-18</td>
<td>110-130/65-85</td>
</tr>
<tr>
<td>13 years and older</td>
<td>75-90</td>
<td>12-18</td>
<td>110-135/70-85</td>
</tr>
</tbody>
</table>

*Blood Pressure values for patients 3 years and younger are not routinely ordered. Rely on pulse and respiratory rate.*

PEWS FLOWCHART

Families know their child best. Listen to their concerns and advocate for them. If they have concerns notify the RN and the primary physician.

Pt admitted to Pediatric Unit

Pt assessed/assessed by RN, including PEWS score

GREEN ZONE

PEWS 0-3
Reassess and record at next routine assessment

INDIVIDUAL PEWS of 3 in any category

YELLOW ZONE

PEWS 4-5
Notify Resource RN/supervisor RN

Plan and collaborate with team

If still concerned notify primary MD, nursing leadership, House supervisor, consider RR Team

Document and reassess after intervention. Continue to reassess and re-score:

Score of 4 or 5: Every 2 hours
Score of 6: Every 1 hour

RED ZONE

PEWS 7 or higher

Notify primary MD
Call Rapid Response
Follow the Policy & Algorithms

Plan and collaborate with team

Document and reassess after intervention. Continue to reassess and re-score every 30 minutes.
## Pediatric Early Warning Score

### Behavior

- **3** - Lethargic, confused, or reduced pain response
- **2** - Irritable or agitated and NOT consolable
- **1** - Sleeping or irritable AND consolable
- **0** - Playing, appropriate for patient

### Behavior Criteria

- [ ] Lethargic/Confused
- [ ] Irritable-NOT consolable
- [x] Sleeping
- [ ] Playing
- [ ] Reduced pain response
- [ ] Agitated-NOT consolable
- [x] Irritable-AND consolable
- [ ] Appropriate for patient

### Cardiovascular

- **3** - Grey, CRT>4, tachycardia 30 above or bradycardia for age
- **2** - CRT = 4, tachycardia 20 above normal parameters
- **1** - Pale or CRT = 3
- **0** - Pink, CRT = 1-2

**CRT - Capillary Refill Time**

### Cardiovascular Criteria

- [ ] Grey or CRT>= 5 sec
- [ ] CRT = 4 sec
- [ ] CRT = 3 sec
- [x] CRT = 1-2 sec
- [ ] Tachy >30/Brady for age
- [ ] Tachy>20 for age
- [ ] Pale
- [ ] Pink

### Respiratory

- **3** - 5 below normal with retractions and/or >=50% FiO2
- **2** - >20 above normal, using accessory muscles, 40%-49% FiO2, or >=3LPM
- **1** - >10 above normal, using accessory muscles, 24%-40% FiO2, >=2LPM, or any initiation of O2
- **0** - WNL for age, no retractions

### PEWS Respiratory Criteria

- [x] 5 below normal
- [x] >20 above normal
- [ ] >10 above normal
- [ ] WNL for age
- [x] Retractions
- [x] Using accessory muscles
- [x] Using accessory muscles
- [ ] No retractions
- [ ] >=50% FiO2
- [ ] 40-49% FiO2 or >=3LPM
- [ ] 24-40% FiO2 or >=2LPM
- [x] Oxygen <2LPM

### Every Hour Nebs

- [ ] Yes
- [ ] No

### Total

**Score: 4, Yellow Zone**

### Additional Information
Green Zone

Green Zone: score of 0-3.

- Reassess based on physician orders.
Yellow Zone

- Yellow Zone: score of 4-6, or any individual category score of 3.
  - Notify charge RN and mid-level if present.
  - Plan and collaborate with the team.
  - If concern continues, notify primary physician, nursing leadership (when available), house supervisor; consider a Rapid Response Team (RRT).
  - Document and reassess every 2 hours for a score of 4 or 5, or every 1 hours for a score of 6.
Red Zone

- Red Zone: score of 7 or higher.
  - Call PRRT, follow Pediatric Rapid Response policy (#6075.70) and algorithms.
  - Plan and collaborate with the team.
  - Document and reassess every 30 minutes.
IMPORTANT THINGS TO REMEMBER WHEN USING THE PEWS FLOWCHART/SCORING CARD

- Age cutoffs - For example, when the patient actually turns 6 yrs old use the 6-12 yr old reference.

- Nebulizer treatments ordered every hour adds 2 additional points.

- The patient is on 45% FiO2 and has respirations <10 take the higher scoring number.

- Any individual score of 3 equals zone yellow.

- Once initial RRT called, RRT does not necessarily need to be repeated at every reassessment. If any concerns call resource nurse or house supervisor for assistance and re-evaluation.

- The febrile patient with a score of 7 can be an expected finding for pediatrics as this can cause elevated heart rate and respiratory rate.
**PATIENT #1 – 6 YR OLD**

- **Assessment**
  - Patient has had a seizure in CT prior to admission. Patient arrives to unit awake, but drowsy. PERRLA, CRT <3 sec

- **Vital Signs**
  - HR = 129
  - RR = 35
  - O2 = RA
Patient #1 – PEWS Score

- Behavior =
- Cardiovascular =
- Respiratory =
- Total =
- Zone =
- Action =
Patient #1 – PEWS Score

- Behavior = 1
- Cardiovascular = 3
- Respiratory = 1
- Total = 5
- Zone = Yellow

Action = Notify Resource Nurse and plan/collaborate with the team. Assess patient every 2 hours.
PATIENT #1 REASSESS – 6 YR OLD

O Assessment
  O Drowsy, confused
  O PERRLA
  O Seizures X7 (10-15sec each) Phenobarbital, keppra, and ativan given, EEG on.

O Vital Signs
  O HR = 123
  O RR = 34
  O O2 = RA
Patient #1 – PEWS Score

- Behavior =
- Cardiovascular =
- Respiratory =
- Total =
- Zone =
- Action =
Patient #1 – PEWS Score

- Behavior = 3
- Cardiovascular = 2
- Respiratory = 1
- Total = 6
- Zone = Yellow

Action = Notify MD, Notify Resource Nurse
  - Consider Rapid Response.
  - Monitor vital signs every 1 hour
PATIENT #2 – 5 YR OLD

O Assessment
  O Alert, awake
  O Labored
  O Weak insufficient cough
  O Apical pulse WNL
  O CRT <3 sec

O Vital Signs
  O HR = 138
  O RR = 34
  O O2 = 96% 4L NC
Patient #2 – PEWS Score

- Behavior =
- Cardiovascular =
- Respiratory =
- Total =
- Zone =
- Action =
Patient #2 – PEWS Score

- Behavior = 0
- Cardiovascular = 2
- Respiratory = 2
- Total = 4
- Zone = YELLOW
- Action = Notify Resource Nurse
  - Assess every 2 hours
PATIENT #2 REASSESS - 5 YR OLD

O Assessment
  O Alert and awake
  O Back to back nebs x2
  O Increased wheezes/tight LS

O Vital Signs
  O HR = 166
  O RR = 44
  O 02 = 94% on Oxy Mask 40% - 8L
Patient #2 – PEWS Score

- Behavior = 
- Cardiovascular = 
- Respiratory = 
- Total = 
- Zone = 
- Action =
Patient #2 – PEWS Score

- Behavior = 0
- Cardiovascular = 3
- Respiratory = 2
- Total = 5 + 2 for hourly Nebs = 7
- Zone = RED
- Action = Notify MD, Notify Resource Nurse
  - Call Rapid Response Team
  - Reassess every 30 minutes
PATIENT #3 - 5 YR OLD

O Assessment
  O Appropriate for age
  O Alert, awake, and verbal
  O Tachypnea and labored at rest
  O CRT <3 sec
  O Strong pulses

O Vital Signs
  O HR = 134
  O RR = 36
  O O2 = 91% on 4L NC (decreases to 80% on RA)
Patient #3 – PEWS Score

- Behavior =
- Cardiovascular =
- Respiratory =
- Total =
- Zone =
- Action =
Patient #3 – PEWS Score

- Behavior = 0
- Cardiovascular = 2
- Respiratory = 2
- Total = 4
- Zone = YELLOW
- Action = Notify Resource Nurse
  - Plan and Collaborate with Team
  - Assess every 2 Hours
PATIENT #3 REASSESS – 5 YR OLD

- Assessment
  - Alert and verbal
  - Labored respirations at rest
  - CRT <3
  - Pulses strong

- Vitals Signs
  - HR = 133
  - RR = 50
  - O2 = 95% on 10L NRB
Patient #3 – PEWS Score

- Behavior =
- Cardiovascular =
- Respiratory =
- Total =
- Zone =
- Action =
Patient #3 – Reassess PEWS Score

- Behavior = 0
- Cardiovascular = 2
- Respiratory = 3
- Total = 5
- Zone = **YELLOW**
- Action = Notify Resource Nurse
  - Plan and Collaborate with Team
  - Assess every 2 Hours
PATIENT #3 REASSESS – 5 YR OLD

- Assessment
  - SOB – won’t speak, irritable
  - Tachypnea and tight with infrequent cough
  - CRT <3 sec

- Vital Signs
  - HR = 137
  - RR = 44
  - O2 = 89% on 10L NRB
Patient #3 – PEWS Score

- Behavior =
- Cardiovascular =
- Respiratory =
- Total =
- Zone =
- Action =
Patient #3 – PEWS Score

- Behavior = 2
- Cardiovascular = 2
- Respiratory = 3
- Total = 7
- Zone = RED
- Action = Call MD, Notify Resource Nurse
  - Call Rapid Response Team
  - Assess every 30 minutes
PATIENT #4 – 12 YR OLD

O Assessment
  O Alert and content
  O LS = diminished, tight, and expiratory wheezes
  O Unlabored and regular respiratory rhythm

O Vital Signs
  O HR = 123
  O RR = 26
  O O2 = 93% on 2L
Patient #4 – PEWS Score

- Behavior = 
- Cardiovascular = 
- Respiratory = 
- Total = 
- Zone = 
- Action =
Patient #4 – PEWS Score

- Behavior = 0
- Cardiovascular = 3
- Respiratory = 1
- Total = 4
- Zone = YELLOW
- Action = Notify Resource Nurse
  - Plan and Collaborate with Team
  - Reassess every 2 hours
PATIENT #4 REASSESS – 12 YR OLD

- Assessment
  - Appropriate for age/patient
  - LS = shallow, wheezes, tight
  - Unlabored and regular respiratory rhythm
  - CAP <3 sec and color normal for race
  - Started on continuous nebs

- Vital Signs
  - HR = 152
  - RR = 44
  - O2 = 40% FiO2
Patient #4 – PEWS Score

- Behavior =
- Cardiovascular =
- Respiratory =
- Total =
- Zone =
- Action =
Patient #4 – PEWS Score

- Behavior = 0
- Cardiovascular = 3
- Respiratory = 2
- Total = 5 + 2 for continuous nebs = 7
- Zone = RED
  - Note patient on continuous nebs should be evaluated for ICU setting
- Action = Call MD, Notify Resource Nurse
  - Call Rapid Response Team
  - Reassess every 30 minutes
PATIENT #5 – 3 MONTH OLD

- Assessment
  - Irritable, consolable
  - CRT 3 sec

- Vital Signs
  - HR = 162
  - RR = 52
  - O2 = 1/2L O2
Patient #5 – PEWS Score

- Behavior =
- Cardiovascular =
- Respiratory =
- Total =
- Zone =
- Action =
Patient #5 – PEWS Score

- Behavior = 1
- Cardiovascular = 3
- Respiratory = 1
- Total = 5
- Zone = **YELLOW**
- Action = Notify Resource Nurse
  - Plan and Collaborate with Team
  - Reassess every 2 hours
PATIENT #6 – 12 YR OLD

O Assessment
  O Sleeping but arousable
  O Tachypneic
  O LS = shallow and wheezy
  O Patient on continuous nebs
  O CRT < 3 sec, skin normal for patient

O Vital Signs
  O HR = 152
  O RR = 44
  O 02 = 91% sat on 70% FiO2
Patient #6 – PEWS Score

- Behavior =
- Cardiovascular =
- Respiratory =
- Total =
- Zone =
- Action =
Patient #6 – PEWS Score

- Behavior = 1
- Cardiovascular = 3
- Respiratory = 3
- Total = 7 + 2 for continuous nebs = 9
- Zone = RED
- Action = Notify Physician and Call Rapid Response Team
  - Plan and Collaborate with Team
  - Reassess every 30 minutes
PATIENT #7 – 2 YR OLD

- **Assessment**
  - Lethargic
  - CRT 3 sec
  - Unlabored breathing

- **Vital Signs**
  - HR = 125
  - RR = 18
  - O2 = 98% on RA
Patient #7 – PEWS Score

- Behavior =
- Cardiovascular =
- Respiratory =
- Total =
- Zone =
- Action =
Patient #7 – PEWS Score

- Behavior = 3
- Cardiovascular = 1
- Respiratory = 0
- Total = 4
- Zone = YELLOW
- Action = Notify Resource Nurse
  - Plan and Collaborate with Team
  - Reassess every 2 hours
PATIENT #8 – 5 YR OLD

- Assessment
  - Lethargic
  - LS slightly coarse - no increased work of breathing
  - CRT 2 sec

- Vital Signs
  - HR = 90
  - RR = 24
  - O2 = 97% on RA
Patient #8 – PEWS Score

- Behavior =
- Cardiovascular =
- Respiratory =
- Total =
- Zone =
- Action =
Patient #8 – PEWS Score

- Behavior = 3
- Cardiovascular = 0
- Respiratory = 0
- Total = 3
- Zone = YELLOW

- Action = Notify Resource Nurse
  - Plan and Collaborate with Team
  - Reassess every 2 hours
PATIENT #9 – 17 YR OLD

O Assessment
  O Drowsy, need to sternal rub to arouse
  O Shallow respirations
  O Moaning
  O CRT 3 sec

O Vital Signs
  O HR = 116
  O RR = 16
  O O2 = 98% on RA
Patient #9 – PEWS Score

- Behavior =
- Cardiovascular =
- Respiratory =
- Total =
- Zone =
- Action =
Patient #9 – PEWS Score

- Behavior = 3
- Cardiovascular = 2
- Respiratory = 0
- Total = 5
- Zone = YELLOW
- Action = Notify Resource Nurse
  - Plan and Collaborate with Team
  - Reassess every 2 hours
PATIENT #10 – 7 DAY OLD

- Assessment
  - Irritable – takes pacifier with sweetase
  - No increased work of breathing
  - CRT 2 sec

- Vital Signs
  - HR = 165
  - RR = 42
  - O2 = 98% on RA
Patient #10 – PEWS Score

- Behavior =
- Cardiovascular =
- Respiratory =
- Total =
- Zone =
- Action =
Patient #10 – PEWS Score

- Behavior = 1
- Cardiovascular = 0
- Respiratory = 0
- Total = 1
- Zone = GREEN
- Action = Reassess based off physician orders or standards of care
  - Reassess at next routine assessment
PATIENT #11 – 2 MONTH OLD

O Assessment
  O Agitated but consolable
  O No cough, unlabored respirations
  O CRT < 3 sec
  O Pale

O Vital Signs
  O HR = 150
  O RR = 30
  O O2 = 100% on RA
Patient #11 – PEWS Score

- Behavior =
- Cardiovascular =
- Respiratory =
- Total =
- Zone =
- Action =
Patient #11 – PEWS Score

- Behavior = 1
- Cardiovascular = 1
- Respiratory = 0
- Total = 2
- Zone = GREEN
- Action = Reassess based on physician orders or standards of care
  - Reassess at next routine assessment
IDENTIFYING YOUR PT’S PEWS SCORE

- As per your facility policy consider:
  - Circles will be present at your patient’s door identifying your patient’s zone. You will need to change the color accordingly to your patient’s score.
  - Or just on high risk patients (RED ZONE)
  - Status board or indicator in electronic medical record
Summary

- **Early Detection**
  - Life Saving interventions can be implemented long before “Life Saving” is needed
  - PEWS (EBP) enhances *use of RRT by providing systematic scoring and algorithms*
  - Detection of deterioration can be improved by as much as 11 hours

- **Staff Empowerment**
  - Allows initiation of care using a validated tool- No need to wait

- **Physician Communication**
  - Provides an objective communication tool between RN-MD


Park, E. (2012). An integrated ethical decision making model for nurses. *Nursing Ethics, 19*(1), 139-159.


