PEWS Pre-Learning Information

Competency Fair 2012

Changes to PEWS – Sep. 2012

- **Vital sign ranges** have changed. They are more consistent with the American Heart Association and often the range of normal is wider.
- **Algorithm change** - Score of 3 in one category is now a **5** and provider evaluation at the bedside should be requested.
- **Algorithm change** – For scores of **4** or **5**, there are now specific actions to take if there is no improvement in one hour.

What Is PEWS?

- The Pediatric Early Warning Score (PEWS) uses objective data to predict patient deterioration early.
- Most children's hospitals now use some version of PEWS.
- PEWS looks at three categories: behavior, cardiovascular, respiratory.
- PEWS is meant to be used along with clinical judgment.

Why do we use PEWS?

- In a study done here at Children's of Minnesota, changes in PEWS scores were seen hours before a Dr. Blue or RRT were called.

- We want find ways to intervene as early as possible.

- PEWS and the algorithm are meant to help get appropriate resources to the bedside to assess and manage deteriorating patients.

How do I score PEWS?

- Obtain vital signs and compare them to the PEWS reference for vital signs. (Note new VS ranges 9/12.)
- Do NOT use patient “baseline” vital signs, but **only** the normal vital signs on the PEWS reference.
- Patients with “baseline” or “usual” vital signs that fall outside of the PEWS normals often have conditions that put them at greater risk for deterioration or more rapid deterioration. This is why we don’t want to “adjust” for these vital signs.

Normal Vital Signs

Vital signs are based on chronological age, not adjusted age.

Vital signs are assessed by norms for age, not adjusted baseline for the patient.

Age Range	Awake Heart Rate	Age Range	Respiratory Rate
Newborn up to 3 months	85 – 205	Newborn up to 1 year	30 - 60
3 months up to 2 years	100 – 190	1 year up to 4 years	24 – 40
2 years up to 10 years	60 - 140	4 years up to 6 years	22 - 34
>10 years (10 years and older)	60 - 100	6 years up to 13 years	18 - 30
		>13 years (13years and older)	12 - 16

American Heart Association 2010 Guidelines

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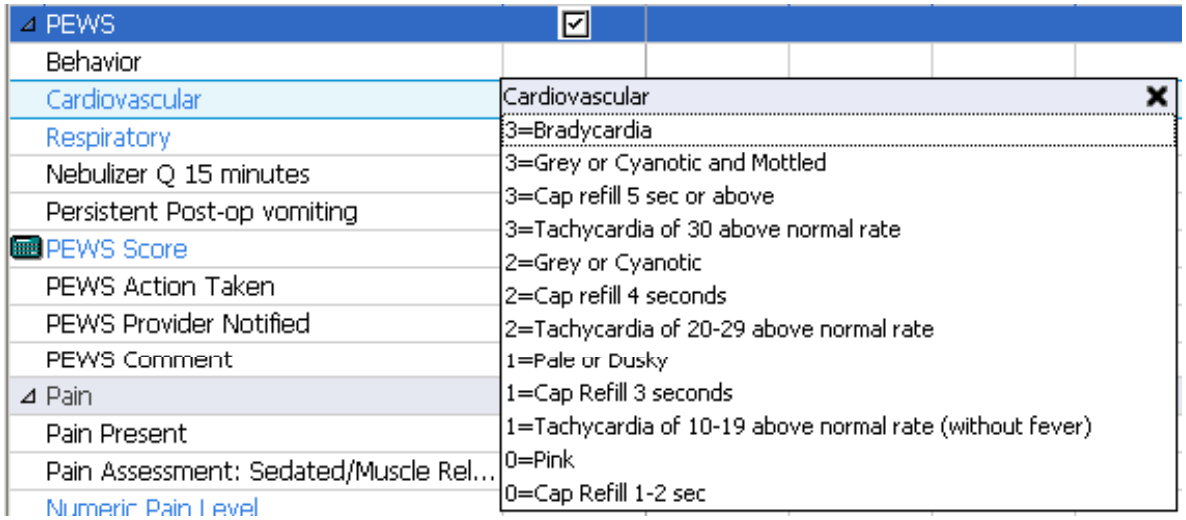
How do I score PEWS?

- Remember "**WORST FIRST**"
- Start with the most significant signs/ symptoms (i.e. those at the **top** in the I View and on the **left** on the PEWS reference)
- Select the **first** item that applies to your patient, even if other signs/symptoms listed further down are present



PEWS Reference

Pediatric Early Warning Score (PEWS)

	3	2	1	0	Score
Behavior	• Reduced responsiveness to pain **OR** • Lethargic **OR** • Confused	• Irritable, difficult to console	• Irritable, but consolable	• Playing **OR** • Alert at baseline **OR** • Sleeping appropriately	
Cardiovascular	• Bradycardia **OR** • Grey **or** Cyanotic **AND** Mottled **OR** • Capillary Refill 5 seconds **or** above **OR** • Tachycardia of 30 above normal rate	• Grey **or** Cyanotic **OR** • Capillary Refill 4 seconds • Tachycardia of 20-29 above normal rate	• Pale **or** dusky **OR** • Capillary Refill 3 seconds **OR** • Tachycardia of 10-19 above normal rate (without fever)	• Pink **OR** • Capillary Refill 1-2 seconds	
Respiratory	• 50+%Fi02 **or** 8+ liters/min **OR** • RR ≥5 below normal parameters **OR** • Severe Retractions **OR** • Grunting **OR** • Audible I/E wheeze without stethoscope	• 40+%Fi02 **or** 6+liters/min **OR** • RR >20 above normal parameters • Moderate Retractions **OR** • Wheeze entire Expiratory phase **or** audible w/out stethoscope	• 30+ %Fi02 **or** 3+ liters/min **OR** • RR >10 above normal parameters **OR** • Mild retractions **OR** • End expiratory wheeze **or** audible only with stethoscope	• Rate normal • No retractions • Clear breath sounds – no wheeze	

***Score by starting with the most severe parameters first.**
***Score 2 extra for every 15-minute nebs (includes continuous nebs).**
***Score 2 extra for persistent post-op vomiting.**
***Use "liters/minute" to score a Regular nasal cannula.**
***Use "Fi02" to score a High flow nasal cannula.**

How do I score PEWS?

- Add two points if patient is on q 15 min. nebs (includes continuous nebs).
- Add two points for persistent post-op vomiting.
- Total the scores and compare to the algorithm appropriate for your area to determine the next step.

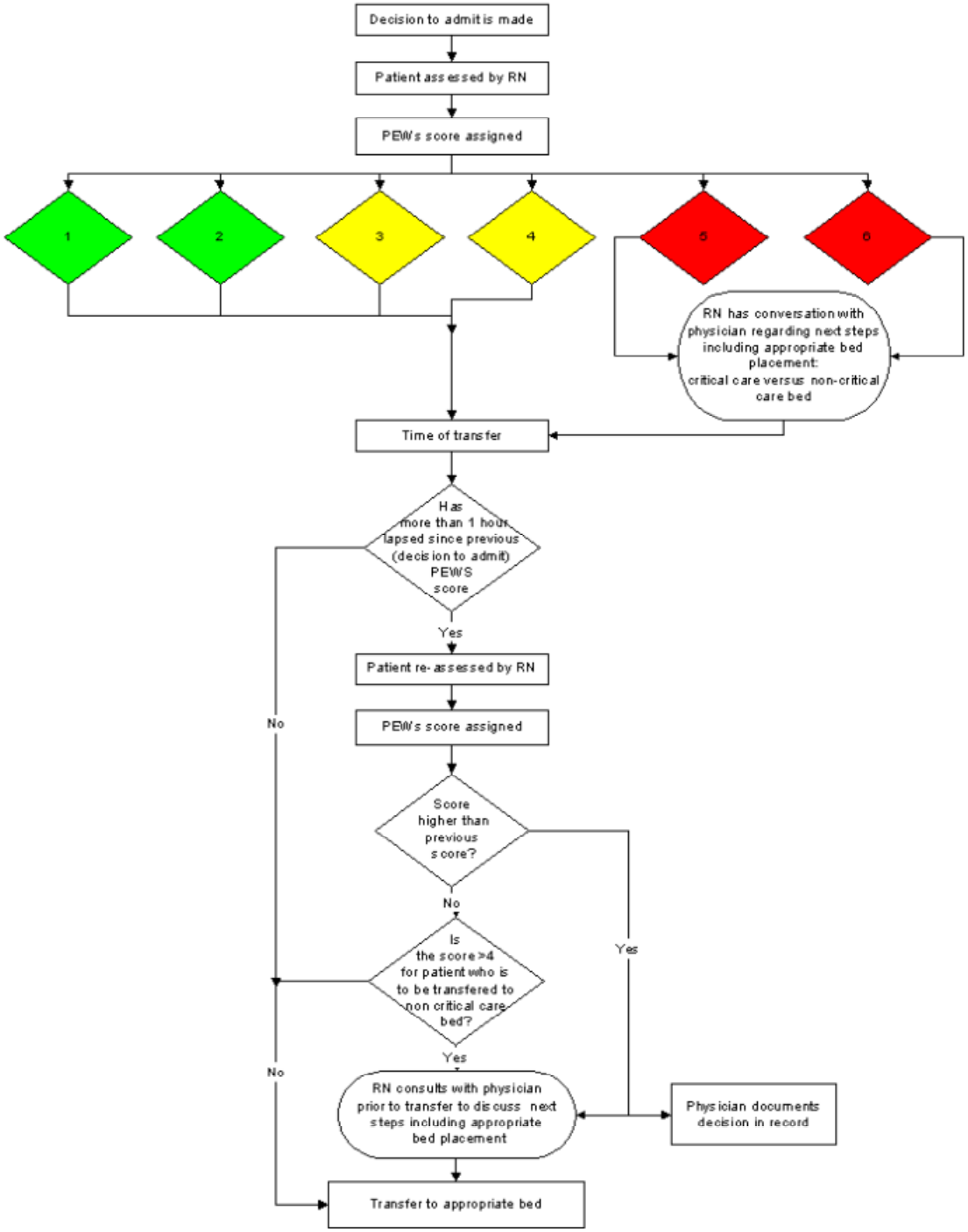
Med/Surg Algorithm

Children's of Minnesota – Pediatric Early Warning Score (PEWS) Algorithm

PEWS Total score 0 - 2	Continue routine assessment/scoring by RN/RT
PEWS Total score 3	**Notify charge nurse.** Agree on plan/reassessment plan.
PEWS Total score 4	**Notify Resident or Attending.** No improvement in 1 hour, request evaluation at bedside
PEWS Total score 5 or greater or *3 in any one category*	**Request evaluation at bedside by Resident or Attending, and if Resident, assure the Attending is notified.** No improvement in 1 hour, call a RRT

- A **RRT** may be ***called at any time***.
- A ***Dr. Blue*** may be ***called at any time***.

Do not hesitate to implement the chain of command. It is meant to advocate for the patient's needs – Speak up if your patient is not getting the care or treatment required.



ED PEWS Process Flow

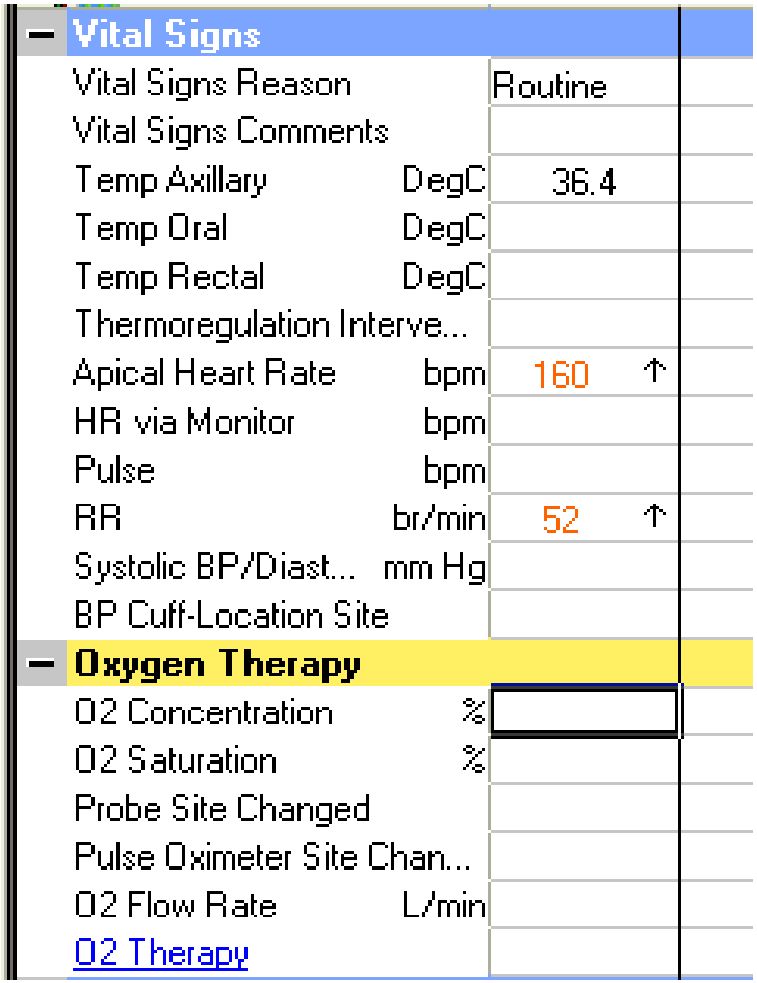
Following is a patient scenario, similar to what you will be asked to complete for the competency fair.

Use the information given about the patient to determine a PEWS score. You may want to write down the age and important information so that it is in front of you when you look at the PEWS references.

For the competency fair you will also be asked to select the appropriate action you would take based on the PEWS, using the algorithm for your unit (PICU excluded as they do not have an algorithm).

24 month-old male, post-op liver biopsy

- Liver biopsy 12 hours ago
- Irritable, difficult to console. Pain meds given as often as ordered
- Afebrile, color pink, abdomen slightly distended
- P = 160, R = 52 on room air, no retractions
- Unable to get BP via machine
- Cap refill 2 seconds



Vital Signs		
Vital Signs Reason		Routine
Vital Signs Comments		
Temp Axillary	DegC	36.4
Temp Oral	DegC	
Temp Rectal	DegC	
Thermoregulation Interve...		
Apical Heart Rate	bpm	160 ↑
HR via Monitor	bpm	
Pulse	bpm	
RR	br/min	52 ↑
Systolic BP/Diast...	mm Hg	
BP Cuff-Location Site		
Oxygen Therapy		
O2 Concentration	%	
O2 Saturation	%	
Probe Site Changed		
Pulse Oximeter Site Chan...		
O2 Flow Rate	L/min	
O2 Therapy		

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24 month-old male, post-op liver biopsy

1. PEWS Behavior

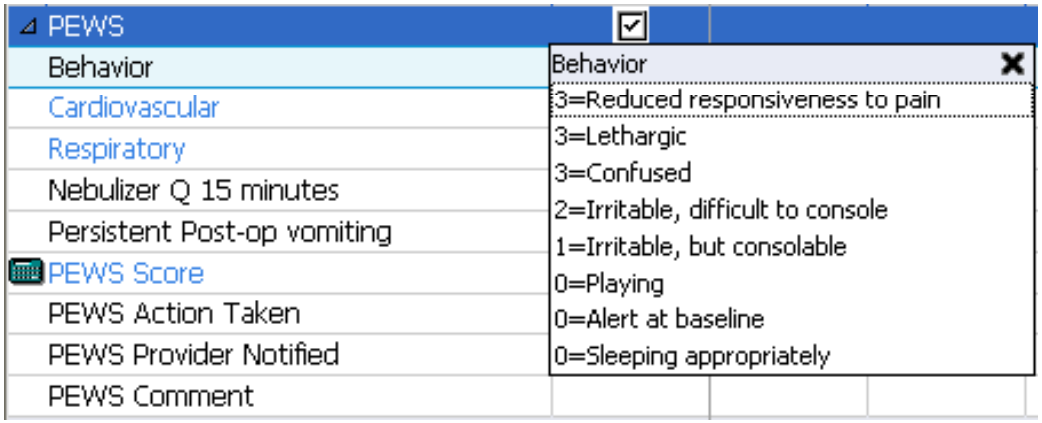
   Score:

   a) 3

   b) 2

   c) 1

   d) 0



2. PEWS Cardiovascular

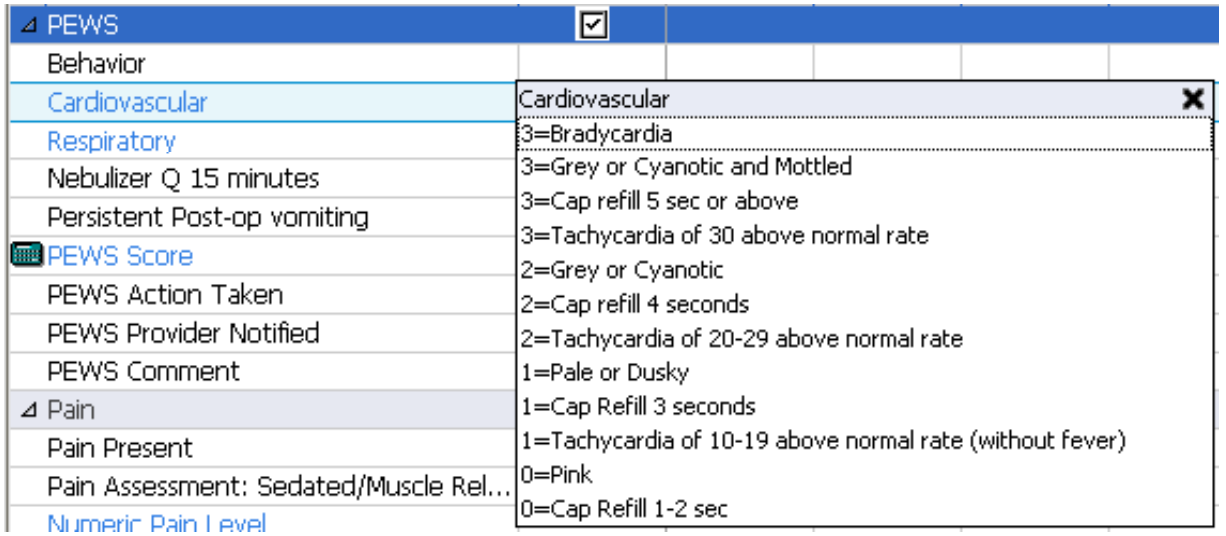
   Score:

   a) 3

   b) 2

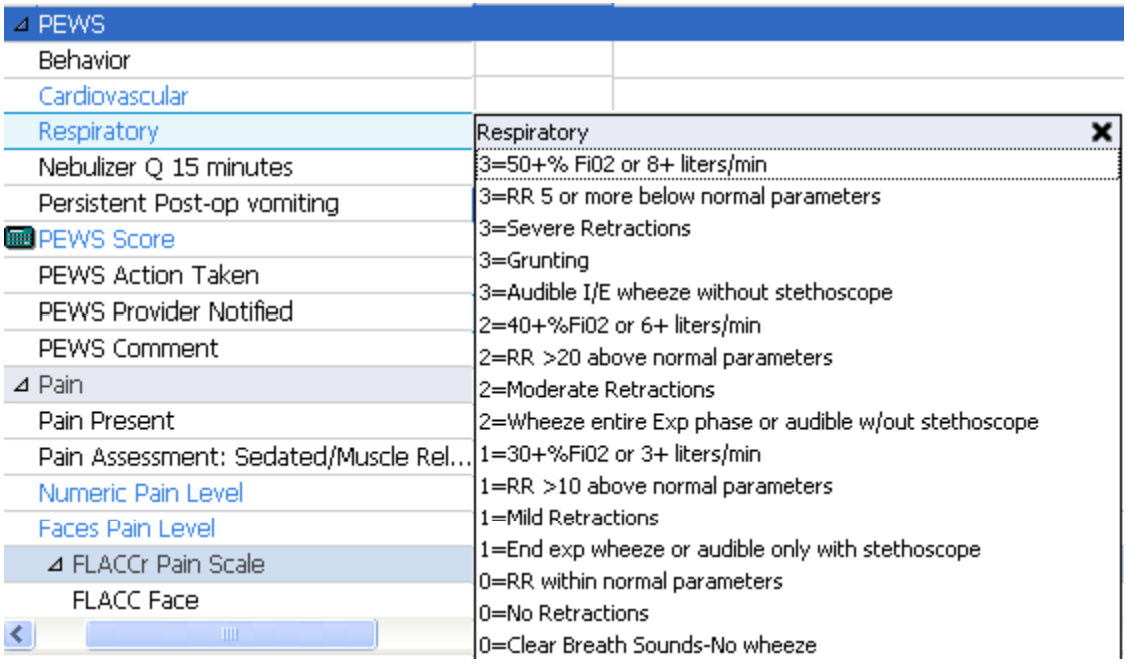
   c) 1

   d) 0



24 month-old male, post-op liver biopsy

3. PEWS Respiratory Score:
   a) 3
   b) 2
   c) 1
   d) 0



4. Total PEWS Score:
   a) 2
   b) 3
   c) 4
   d) 5

24 month-old male, post-op liver biopsy

(Note: ED will have actions based on their algorithm for the competency. This is not included here in the pre-learning.)

5. What action would you take based on the PEWS score:

a. Notify charge RN, agree on re-assessment plan.
b. Notify charge RN, consult provider for next steps.
c. Notify Resident or Attending. If no improvement in one hour request evaluation at bedside.
d. Request evaluation at bedside by Resident or Attending. If Resident, assure Attending is notified.

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Answers

1. PEWS Behavior Score = **b** (2)
   - The patient is irritable and difficult to console, so the score is 2.

2. PEWS Cardiovascular Score = **b** (2)
   - The patient has tachycardia, 20-29 above the normal rate without fever.
   - Cap refill is two seconds, but you should select the most significant symptom (worst first, scoring from the left).

Answers

3. PEWS Respiratory Score = **c** (1)
   - The patient has a respiratory rate >10 above normal parameters.

4. Total PEWS Score = **d** (5)

5. What action would you take based on the PEWS score = **d** (Request evaluation at bedside by Resident or Attending. If Resident, assure Attending is notified.)

If you have questions about scoring PEWS or using the algorithm, please contact your Clinical Educator or Kim Lorence, Clinical Education Specialist at x5-6345.