PEWS as a system

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Disclaimer

• I have developed an Children’s Emergency and Urgent care acuity scoring tool: The Paediatric Observation Priority Score (POPS) with Dr. Ffion Davies

• I am a co-investigator on the PUMA study: Paediatric early warning system - Utilisation and Mortality Avoidance Study commenced 2015
DANGER
THIN ICE
IN THE INTEREST OF SAFETY, IT IS ADVISABLE TO KEEP YOUR CHILD AWAY FROM FIRE AND FLAMES
PEWS Activates

FLAGS UP DETERIORATING KIDS

POTENTIALLY DRAINS RESOURCES

FAILS TO RECOGNISE DETERIORATION

MONITORS EFFECTIVELY

Deteriorating → Not Deteriorating

PEWS doesn’t activate

Original concept by Akmal Hussein, Royal Berkshire Hospital
Presentation
Physiological Parameters
General Appearance

Junction A

Thought to have sepsis

Septic
Not Septic

Not thought to have sepsis

Septic
Not Septic

Concept Tree by @damian_roland
Presentation

Physiological Parameters

General Appearance

Junction A

Thought to have sepsis

Septic

Not Septic

Junction B

Optimal Treatment or Outcome

Suboptimal Treatment or Outcome

Not thought to have sepsis

Septic

Not Septic

Optimal Treatment or Outcome

Suboptimal Treatment or Outcome

Concept Tree by @damian_roland
Presentation
Physiological Parameters
General Appearance

Junction A

- Thought to be ill
  - Ill
    - Optimal Treatment or Outcome
  - Not Ill
    - Optimal Treatment or Outcome

Junction B

- Not thought to be ill
  - Ill
    - Suboptimal Treatment or Outcome
  - Not Ill
    - Suboptimal Treatment or Outcome

Concept Tree by @damian_roland
High Patient Load

Roland D, McCaffery, Davies F. Scoring Systems in Paediatric Emergency: Panacea or Paper Exercise? J Paediatr Child Health 2016 Feb 52 (2) 181-6
High Patient Load

Time Pressures

Roland D, McCaffery, Davies F. Scoring Systems in Paediatric Emergency: Panacea or Paper Exercise J Paediatr Child Health 2016 Feb 52 (2) 181-6
High Patient Load
Multiple Handovers
Time Pressures

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High Patient Load

Inexperienced Staff

Multiple Handovers

Time Pressures

Roland D, McCaffery, Davies F. Scoring Systems in Paediatric Emergency: Panacea or Paper Exercise J Paediatr Child Health 2016 Feb 52 (2) 181-6
High Patient Load
Multiple Handovers
Inexperienced Staff
Diagnostic Uncertainty
Time Pressures

Roland D, McCaffery, Davies F. Scoring Systems in Paediatric Emergency: Panacea or Paper Exercise J Paediatr Child Health 2016 Feb 52 (2) 181-6
Chain of events needed to demonstrate an improved response to deterioration in in-patient children

An optimal system should:

- Reduce Knowledge Deficit
- Escalate Senior Review
- Identify both tails of the Distribution curve
- Decrease Cognitive Load
- Improve Communication
## Considerations prior to introduction of an EWS

1. What is the patient group the EWS will be used on?

2. What outcome are you looking to alter?

3. What type of EWS would you like to introduce?

4. Is there a current system you could employ?

5. How will you engage and be responsive to the concerns of the stakeholders?

6. How will you monitor its effect?

Roland D. Early Warning Scores: Holy Grail and Achilles Heel.
Arch Dis Child Educ Pract Ed 2012;97:208-215
Patient Safety Culture

Partnership with patients and family

Education and training

Recognising deterioration

Open and consistent learning

Responding to deterioration

Infant, child or young person

Family or Carer

Clinicians

Wider clinical team

Service or organisation

Regional, National and Networks

RCPCH
Royal College of Paediatrics and Child Health
Leading the way in Children’s Health

NHS
England
<table>
<thead>
<tr>
<th>Textbook</th>
<th>Heart rate</th>
<th>Respiratory rate</th>
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<tbody>
<tr>
<td>Nelson's Textbook of Pediatrics: The acutely ill child(^8)</td>
<td>100-150</td>
<td>35-55</td>
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<tr>
<td>Nelson's Textbook of Pediatrics: Evaluation of the Cardiovascular System Disease(^9)</td>
<td>70-190</td>
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<tr>
<td>Forfar and Arneil's Textbook of Pediatrics: History Taking and Physical Examination(^10)</td>
<td>100-140</td>
<td>30-50</td>
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<td>Forfar and Arneil's Textbook of Pediatrics: Cardiovascular Disease(^11)</td>
<td>95-155</td>
<td>45-60</td>
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<tr>
<td>Advance Paediatric Life Support(^12)</td>
<td>110-160</td>
<td>30-40</td>
</tr>
</tbody>
</table>

**TABLE 1** Normal ranges for newborn infant's heart rate and respiratory rate as published in standard paediatric texts.

“When users want what's not best for them”
Google: “Damian Roland” for e-mail

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