PEWS
2009
Paediatric Critical Care Outreach Team
(Pead CCOT)
A large number of children are treated in hospital every year.

Nearly three million children attend Paed ED (28%)

- 5% require immediate intervention for serious illness.
- 1:1000 children will require intensive care (DOH2004).
- 10% of inpatient children require level 1 (HDU) care.
Staff caring for such children need to have the appropriate knowledge and experience to accomplish such prompt and specialized care irrespective of where or how the child presents (DOH 2006).

The Paediatric Intensive Care Society states that:

‘Children attending or admitted to hospital may manifest or develop critical illness. These children have a right to expect the severity of their illness to be recognised and to receive competent treatment’ (PICS 2001 pg.8).
How can we facilitate appropriate & timely intervention?

Nurses will often say they just had ‘that feeling’ about the patient or the patient was ‘just not quite right’. 
Evidence suggests that junior doctors and nurses...

- have difficulty recognising and assessing the patient with developing critical illness (Moscrop, 2001, DoH, 2000, McQuillan et al, 1998)

- have difficulty articulating what they have found, even senior ‘expert’ nurses (Benner, 1984)
Latest UK DOH reports suboptimal care continues to be an ongoing problem

• NPSA 2007
• NICE 2007
• Resus council guidelines (2007)

a decade after McQuillan et al (1998)

8 years on from Comprehensive Critical Care (DOH 2000)

CEMACH (2008)

The same set of errors are examined.

Found preventable factors in 26% of reviewed cases.

These included difficulty in recognition of severity of illness and poor communication.

Key messages included:
Difficulty in the recognition of the severity of illness
The need for improved communication and listening skills by healthcare professionals.
Clinical guideline outlining practical guidance to ‘reduce risk’ for the acutely ill patient.

A ‘track and trigger’ system to measure, record and act on patient’s physiological observations.

(NICE 2007)
New Developments in Paediatrics at NUH

Nottingham PEWS tool has been developed over the last few years with guidance from an expert panel and the National Paediatric Outreach working group (PICS).
Aim of PEWS

• To aid systematic patient assessment
• To enable staff to articulate patient assessment
• To provide staff with a quantitative measure for indicating severity of illness
• To ensure the child with an acute serious illness receives a seamless service
Paediatric Early Warning Scoring System
Systematic approach

A - Airway
B - Breathing
C - Circulation
D - Disability
E - Exposure
<table>
<thead>
<tr>
<th>Airway and Breathing Assessment</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Respiratory Rate</strong></td>
<td>&lt;20 and/or apnoea</td>
<td>20-30</td>
<td>30-50</td>
<td>51-60</td>
<td>61-80</td>
<td>&gt;80</td>
<td></td>
</tr>
<tr>
<td><strong>Effort of Breathing</strong></td>
<td>No chest movement</td>
<td>CRASH CALL 2222</td>
<td>Mild Recession</td>
<td>Mod Recession</td>
<td>Severe Recession</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Effectiveness of Breathing</strong></td>
<td>High Oxygen Requirement 60% OR 15L via non-rebreath mask</td>
<td>Mod Oxygen Requirement 35 - 40%</td>
<td>Minimal Oxygen Requirement 28% OR Nasal Cannulae</td>
<td>SpO₂ 95-100% IN AIR</td>
<td>SpO₂ 90-94%</td>
<td>SpO₂ 85% or below</td>
<td>SpO₂ 86-89%</td>
</tr>
<tr>
<td><strong>Circulation Assessment</strong></td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>Heart Rate</strong></td>
<td>&lt;60 With no signs of life</td>
<td>CRASH CALL 2222</td>
<td>85-100</td>
<td>101-110</td>
<td>111-160</td>
<td>161-170</td>
<td>171-180</td>
</tr>
<tr>
<td><strong>Capillary Refill or Temperature</strong></td>
<td>Very Hot 39°C OR Cold to Touch</td>
<td>Temp 38-38.9°C OR Cool To Touch</td>
<td>&lt;2 sec Temp up to 37.9°C</td>
<td>3sec</td>
<td>4sec</td>
<td>&gt;4sec OR LOOKS GREY / CYANOSED</td>
<td></td>
</tr>
<tr>
<td><strong>Systolic Blood Pressure</strong></td>
<td>Unrecordable or &lt;50mmHg</td>
<td>50-60</td>
<td>61-69</td>
<td>70-90 (or not recorded)</td>
<td>91-100</td>
<td>101-120</td>
<td>&gt;120</td>
</tr>
<tr>
<td><strong>Urine Output</strong></td>
<td>* anuric</td>
<td>&lt;0.5ml/kg/hr</td>
<td>&lt;1ml/kg/hr</td>
<td>1– 2 ml/kg/hr</td>
<td>&gt; 3ml/kg/hr</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Disability Assessment</strong></td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>Conscious Level Or Behaviour</strong></td>
<td>GCS 3-8</td>
<td>GCS 9-13</td>
<td>GCS 14-15 ALERT</td>
<td>Responds to VOICE</td>
<td>Responds to Pain or Unresponsive</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pupils</strong></td>
<td>Fixed one Or both</td>
<td>Pupils equal &amp; reacting to light</td>
<td></td>
<td></td>
<td>Unequal pupils or significant change in size</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Posture</strong></td>
<td>Abnormal</td>
<td>Normal</td>
<td></td>
<td></td>
<td>Floppy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Paediatric Early Warning Scoring System

Systematic approach

Airway
Breathing
Circulation
Disability
Exposure
Do you need to intervene to support the patients breathing?

Prone and/or 30° head up tilt.

NGT to either feed or empty stomach.

Think about O² delivery and humidification.

Monitor O² saturations & colour (Check Hb if O² saturations are normal but child looks grey or cyanosed).

Consider if child requires physio.

FOLLOW O² DELIVERY FLOW CHART
Paediatric Early Warning Scoring System
Systematic approach

A irway
B reathing
C irculation
C. Are There Signs Of Cardiovascular Compromise?

Look for:
- Tachycardia
- Cool peripheries
- Decreased capillary refill time
- Skin colour mottled/grey/cyanosed
- Signs of bleeding

Do you need to monitor this child more closely?

- Do you need to check BP? (with appropriate cuff size)
- Do you need to monitor ECG?
- Can you feel strong peripheral pulses?
- Does the child have IV access - is this patent?

- Assess fluid balance - are there signs of dehydration or shock?

COULD THIS BE SEPSIS? - FOLLOW SEPSIS FLOWCHART

Have you recorded BP on child's right arm? Is this different from the left?
Is there a difference between O₂ saturations on right and left hands?
Is heart rate >200? Could this be SVT?

Contact Paediatric Registrar
Paediatric Early Warning Scoring System
Systematic approach

A irway
B reathing
C irculation
D isability
<table>
<thead>
<tr>
<th>Disability Assessment</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conscious Level Or Behaviour</td>
<td>GCS 3-8</td>
<td>GCS 9-13</td>
<td>GCS 14-15</td>
<td>ALERT</td>
<td>Responds to VOICE</td>
<td>Responds to Pain or Unresponsive</td>
<td></td>
</tr>
<tr>
<td>Pupils</td>
<td>Fixed one Or both</td>
<td>Pupils equal &amp; reacting to light</td>
<td>Unequal pupils or significant change in size</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posture</td>
<td>Abnormal</td>
<td>Normal</td>
<td>Floppy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain (score)</td>
<td></td>
<td>No Pain</td>
<td>Mild</td>
<td>Mod</td>
<td>Severe</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### D. Is This Normal Behaviour For This Child?
- Is the child drowsy and/or irritable?
- Is posture normal for this child?
- Is cry normal or irritable?

### LISTEN TO PARENTS.
- Do you need to check blood sugar if below 2.6 mmols/L follow age appropriate emergency hypoglycaemia protocol?
- Do you need to complete GCS score & check pupils?

### Is This A Primary Neurological Problem?
- Is the child fitting?
- Assess child’s fontanel.
Increase frequency of observations to every 30 minutes. Ensure ward coordinator aware of child’s condition.

Inform child’s own medical/surgical team of change in condition using SBAR and ensure urgent review.

Refer to Paediatric CCOT nurse.

Increase frequency of observations to hourly. Ensure ward coordinator aware of child’s condition.

Inform child’s own medical/surgical team of change in condition using SBAR and ensure prompt review.

Refer to Paediatric CCOT nurse.

Increase frequency of observations to every 30 minutes. Ensure ward coordinator aware of child’s condition.

Inform child’s own medical/surgical team of change in condition using SBAR and ensure urgent review.

Childs own Consultant to be informed. Out of hours contact on-call Consultant

Refer to Paediatric CCOT nurse.

Direct referral to PICU EXT: 61232

Continuous observation of child’s condition. Record 15 min observations. Ensure ward coordinator aware of child’s condition

Childs own Consultant to be informed. Out of hours contact on-call Consultant

Refer to Paediatric CCOT nurse.

If concerned at anytime, even if child has not triggered the escalation plan, please contact Paediatric CCOT
PEWS depend on accumulative scores as a result of assessment data and are useless if they are based on inaccurate and untrustworthy data measurement.

It is crucial that children’s nurses return to basics and develop rigour in their assessment skills.

Aylott (2006) pg 38