Clinical Assessment Tool for the Child with Acute Exacerbation of Asthma 2-16 Years
Management within Hospital Setting

Suspected Acute exacerbation of Asthma:

Consider other diagnosis if any of the following are present:
• Fever  • Dysphagia  • Productive Cough
• Breathlessness with light headness and peripheral tingling (hyperventilation)  • Asymmetry on auscultation  • Excessive vomiting  • Inspiratory Stridor

Suspected Acute Exacerbation of Asthma. Assess severity (ref Box 1):

If all green features and no amber or red

Moderate Exacerbation
• Give 2-10 puffs of β₂ agonist via a spacer (with a facemask in younger children using tidal breathing)
• Increase β₂ agonist dose by 2 puffs every 2 minutes upto 10 puffs according to response
• Consider an appropriate dose of soluble oral prednisolone (ref table 5)
Assess response after one hour

Good Response
• If all symptoms resolved after treatment consider discharge home.
• Continue β₂ agonist 4 hourly pm.
• Consider Prednisolone for upto 3 days.
• Arrange asthma clinic follow up/GP
• Review inhaler technique.
• Give asthma discharge management

Deterioration? Consider if now amber/red

Poor clinical response but all green features:
• Give 10 puffs of salbutomol inhaler via spacer
• Inform paediatric team to review

Good Response (Green features)
• Discuss further management with Paediatric registrar on Bleep 733.
• Consider lower threshold for admission circumstances

Poor Response
• Repeat β₂ agonist upto every 20-30 minutes.
• Give nebulised ipratropium at an appropriate dose driven by oxygen
• Fast bleep paed reg to arrange a quick review and admission to ward

Severe Exacerbation
• Give oxygen via face mask/nasal prongs to achieve SpO₂ 94-98%
• β₂ agonist 10 puffs via spacer ± facemask or nebulised salbutamol at an appropriate dose driven by oxygen (ref table 4)
• Give an appropriate dose of oral prednisolone (Ref table 5) or IV Hydrocortisone
• Reassess after each treatment
• Repeat β₂ agonist up to every 20-30 minutes.
• If poor response give nebulised ipratropium at an appropriate dose driven by oxygen
• Reassess after each treatment

Good Response
• Give 10 puffs of salbutomol inhaler via spacer
• Inform paediatric team to review

Poor Response
• Repeat β₂ agonist upto every 20-30 minutes.
• Give nebulised ipratropium at an appropriate dose driven by oxygen
• Fast bleep paed reg to arrange a quick review and admission to ward

Severe Exacerbation

If any amber features and no red

If any red features

Life Threatening
• Give Oxygen via a facemask to achieve SpO₂ 94-98%
• FAST BLEEP PAEDIATRIC REGISTRAR 733 and ANAESTHETIC REGISTRAR 700
• Nebulised β₂ agonist at an appropriate dose (Ref table 4)
• Give an appropriate dose of oral prednisolone (Ref Table 5) or IV Hydrocortisone
• Repeat β₂ agonist up to every 20-30 minutes.
• Use hospital Asthma Guidelines for further management, including IV medications.
• Continually assess the child after each intervention.

If any red features

Lower threshold for admission if:
• Attack in late afternoon or at night
• Recent hospital admission or previous severe attack
• Concern over social circumstances or ability to cope at home
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Management within Hospital Setting

Table 1: Traffic Light system for identifying severity of Acute Exacerbation of Asthma

<table>
<thead>
<tr>
<th>Talking</th>
<th>Green – Moderate</th>
<th>Amber – Severe</th>
<th>Red – Life Threatening</th>
</tr>
</thead>
<tbody>
<tr>
<td>In sentences</td>
<td>Not able to complete a sentence in one breath</td>
<td>Not able to talk</td>
<td></td>
</tr>
<tr>
<td>Fair air entry, moderate wheeze</td>
<td>Decreased air entry with marked wheeze</td>
<td>Silent Chest</td>
<td></td>
</tr>
<tr>
<td>Respiratory Rate at Rest: Within normal range (Ref to table 2)</td>
<td>&gt;40 Breaths/min (2-5 years)</td>
<td>&gt;30 Breaths/min (&gt;5 years)</td>
<td></td>
</tr>
<tr>
<td>Heart Rate Within normal range (Ref to table 2)</td>
<td>&gt;140 beats p/min (2-5 years)</td>
<td>&gt;125 beats p/min (&gt;5 years)</td>
<td></td>
</tr>
<tr>
<td>SaO₂: ≥92% in air</td>
<td>&lt;92% in air +/- cyanosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEFR (if possible) &gt;50% of predicted</td>
<td>33-50% of predicted</td>
<td>&lt;33% of predicted</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Normal Paediatric Values:

<table>
<thead>
<tr>
<th>Respiratory Rate at Rest:</th>
<th>Systolic Blood Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-5yrs 25-30 breaths/min</td>
<td>2-5yrs 80-100 mmhg</td>
</tr>
<tr>
<td>5-12yrs 20-25 breaths/min</td>
<td>5-12yrs 90-110 mmhg</td>
</tr>
<tr>
<td>&gt;12yrs 15-20 breaths/min</td>
<td>&gt;12yrs 100-120 mmhg</td>
</tr>
<tr>
<td>Heart Rate 95-140 bpm</td>
<td></td>
</tr>
<tr>
<td>80-120 bpm</td>
<td></td>
</tr>
<tr>
<td>&gt;60-100 bpm</td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Predicted Peak Flow: For use with EU / EN13826 scale PEF metres only

<table>
<thead>
<tr>
<th>Height (m)</th>
<th>Height (ft)</th>
<th>Predicted EU PEF (L/min)</th>
<th>Height (m)</th>
<th>Height (ft)</th>
<th>Predicted EU PEF (L/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.85</td>
<td>2'9&quot;</td>
<td>87</td>
<td>1.30</td>
<td>4'3&quot;</td>
<td>212</td>
</tr>
<tr>
<td>0.90</td>
<td>2'11&quot;</td>
<td>95</td>
<td>1.35</td>
<td>4'5&quot;</td>
<td>233</td>
</tr>
<tr>
<td>0.95</td>
<td>3'1&quot;</td>
<td>104</td>
<td>1.40</td>
<td>4'7&quot;</td>
<td>254</td>
</tr>
<tr>
<td>1.00</td>
<td>3'3&quot;</td>
<td>115</td>
<td>1.45</td>
<td>4'9&quot;</td>
<td>276</td>
</tr>
<tr>
<td>1.05</td>
<td>3'5&quot;</td>
<td>127</td>
<td>1.50</td>
<td>4'11&quot;</td>
<td>299</td>
</tr>
<tr>
<td>1.10</td>
<td>3'7&quot;</td>
<td>141</td>
<td>1.55</td>
<td>5'1&quot;</td>
<td>323</td>
</tr>
<tr>
<td>1.15</td>
<td>3'9&quot;</td>
<td>157</td>
<td>1.60</td>
<td>5'3&quot;</td>
<td>346</td>
</tr>
<tr>
<td>1.20</td>
<td>3'11&quot;</td>
<td>174</td>
<td>1.65</td>
<td>5'5&quot;</td>
<td>370</td>
</tr>
<tr>
<td>1.25</td>
<td>4'1&quot;</td>
<td>192</td>
<td>1.70</td>
<td>5'7&quot;</td>
<td>393</td>
</tr>
</tbody>
</table>

Table 4: Guidelines for nebuliser

- Significantly low sats despite inhaler and spacer use
- Oxygen Saturations persistently below 92%
- Requiring oxygen
- Unable to use volumatic/spacer device
- Severe respiratory distress

Table 5: Prednisolone Guideline BNF2010-2011

Give prednisolone by mouth:
- child under 12 years 1–2 mg/kg (max. 40 mg) daily for up to 3 days or longer if necessary, if the child has been taking an oral corticosteroid for more than a few days give prednisolone 2mg/kg (max. 60mg). Child12-18 years 40-50mg daily for at least 5 days.

This guidance is written in the following context

This assessment tool was arrived at after careful consideration of the evidence available including but not exclusively use BTS Guidelines and NHS evidence. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. The guidance does not, however, override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.