Anaphylaxis-Guidelines for Management During Retrieval.

This guideline is for use by healthcare staff, at CoMET undertaking critical care retrieval, transport and stabilisation of children, and young adults.

CoMET is a Paediatric Critical Care Transport service and is hosted by the University Hospitals of Leicester NHS trust working in partnership with the Nottingham University Hospitals NHS Trust.

The guidance supports decision making by individual healthcare professionals and to make decisions in the best interest of the individual patient.

This guideline represents the view of CoMET, and is produced to be used mainly by healthcare staff working for CoMET, although, professionals, working in similar field will find it useful for easy reference at the bedside.

We are grateful to the many existing paediatric critical care transport services, whose advice and current guidelines have been referred to for preparing this document. Thank You.

<table>
<thead>
<tr>
<th>Executive Lead/ Medical Director:</th>
<th>Andrew Furlong (LRI, UHL – <a href="mailto:andrew.furlong@uhl-tr.nhs.uk">andrew.furlong@uhl-tr.nhs.uk</a>)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author:</td>
<td>Rachel Miller- ST6 Emergency and ICM [ <a href="mailto:rachel.h.miller@uhl-tr.nhs.uk">rachel.h.miller@uhl-tr.nhs.uk</a>]</td>
</tr>
<tr>
<td>Guideline Lead:</td>
<td>Zoha Mohammad – CoMET Consultant, UHL</td>
</tr>
<tr>
<td>Clinical Leads:-</td>
<td>Peter Barry – CoMET Lead PICU Consultant, UHL</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dusan Raffaj – CoMET Lead PICU Consultant, NUH</td>
</tr>
<tr>
<td>Approved By:</td>
<td>UHL Policy and Guideline Committee</td>
</tr>
<tr>
<td>Date of Latest Approval:</td>
<td>18 December 2020 UHL Trust ref: B47/2020</td>
</tr>
<tr>
<td>Version:</td>
<td>1</td>
</tr>
<tr>
<td>Next Review Date:</td>
<td>December 2022</td>
</tr>
</tbody>
</table>

Education and Training
1. Annual Transport team update training days
2. Workshops delivered in Regional Transport Study days/ Outreach

Monitoring Compliance

<table>
<thead>
<tr>
<th>What will be measured to monitor compliance</th>
<th>How will compliance be monitored</th>
<th>Monitoring Lead</th>
<th>Frequency</th>
<th>Reporting arrangements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incident reporting</td>
<td>Review related Datix</td>
<td>Abi Hill – Lead Transport Nurse</td>
<td>Monthly</td>
<td>CoMET Lead Governance Meeting</td>
</tr>
<tr>
<td>Documentation Compliance</td>
<td>Documentation Audit</td>
<td>Abi Hill – Lead Transport Nurse</td>
<td>3 Monthly</td>
<td>CoMET Lead Governance Meeting</td>
</tr>
</tbody>
</table>
Anaphylaxis management for a specialised transport team is likely to involve:

- An advisory role to regional teams in management of acute anaphylaxis
- Advanced management of children with airway compromise, requiring invasive ventilation, or with refractory cardiovascular instability
- Anaphylaxis occurring during transport of an acutely unwell child

**RECOGNITION & ASSESSMENT**

It is vital to establish an early diagnosis. Consider Anaphylaxis when the following are present:

- Sudden onset and rapid progression of an illness with skin / mucosal tissue changes. (Urticaria/ Angioedema/ Flushing/ Peri-orbital oedema/ Conjunctivitis/GI symptoms etc.)
- Life-threatening Airway and/or Breathing and/or Circulation problems [After exposure to known/likely allergen]

Consider agents administered before and during resuscitation of acutely unwell child as a trigger:

- Antibiotics – like Penicillins, Cephalosporins, Teicoplanin
- Neuromuscular blocking agents – like Atracurium, Rocuronium
- Blood products, contrast media
- Latex, chlorhexidine

**TREATMENT**

- Follow the ABCDE approach
- Basic principles are the same regardless of age group
- See flow chart overleaf

---

**Immediate Management (during transport)**

Remove trigger if possible
Ensure help is available:
Call CoMET consultant
Stop ambulance for any procedure
Consider divert to nearest hospital
Pre-alert destination

---

**Intubation**

Indicated for developing airway obstruction or cardiorespiratory collapse

**BEFORE:**

- Get urgent senior anaesthetic & ENT support if evidence of airway obstruction
- May need inhalational induction +/- surgical airway
- Adrenaline 10 mcg/kg IM +/- Adrenaline 0.5ml/kg 1in1000 nebulised (max 5ml) if waiting
- Ensure patent vascular access

**AFTER INTUBATION:**

- Ventilate as for air trapping/bronchospasm:
  - Pressure control (aim PIP <35cmH₂O)
  - Slow respiratory rate (e.g. 10-15 bpm), long expiratory time (e.g. I:E 1:2)
  - Permissive hypercapnoea - aim pH ≥7.2
  - PEEP 5cmH₂O
  - Muscle Relaxation
- Chest physiotherapy/suctioning for mucus plugging
- Observe for 2h
Primary treatment

Adrenaline IM (1in1000)
- <6 years 150microgram (0.15ml)
- 6-12 yrs 300microgram (0.3ml)
- >12 yrs 500microgram (0.5ml)
Repeated dose after 5mins if required

Advanced Management
*If agreed with Consultant, delay at least 10mins after last IM adrenaline*

Adrenaline IV/IO (1in10000) 1microgram/kg max. 50mcg
Infusion if repeated IV boluses needed: 0.05-0.2microgram/kg/min
(dilute 75microgrammes/kg up to 50ml)

Secondary treatment

Ensure secure airway, consider early intubation (see box)
High flow oxygen (>10L/min via non-rebreath mask/ FiO2 1.0)
Vascular volume expansion 20ml/kg, repeated as required

Antihistamine – chlorphenamine maleate IV (or IM)
- <6months 250microgrammes/kg
- 6m-6years 2.5mg
- 6-12yrs 5mg
- >12yrs 10mg

Steroid – hydrocortisone IV
- <6months 25mg
- 6m-6years 50mg
- 6-12yrs 100mg
- >12yrs 200mg

Salbutamol for bronchospasm – nebulised 2.5-5mg
Note for Handover

- Mast cell tryptase – take samples immediately, and at 1hr and 6-24hrs after reaction
- Referral to an allergist in a Regional Allergy Centre
- Education for patients and parents

In the event of cardiopulmonary arrest, start CPR immediately and follow APLS guidelines
  - Note IM adrenaline is not recommended after cardiac arrest has occurred

References:

1. CATS Anaphylaxis guideline – accessed August 2018 at www.cats.nhs.uk
4. D. Luyt et-al; Guideline for the management of suspected anaphylaxis in children under 16 years; LRI emergency department, UHL
6. Richard Lockey; Anaphylaxis synopsis; www.worldallergy.org, sept 2012