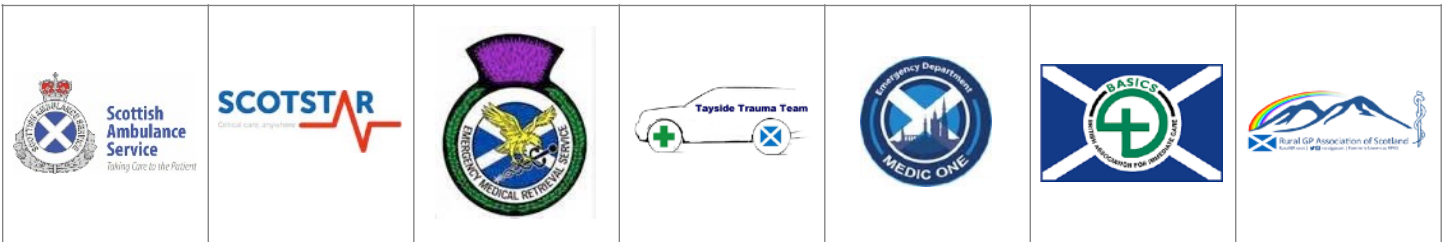


1. Key Recommendations for operational use		
1	Contact	<ul style="list-style-type: none"> <li>• Contact ScotSTAR Paediatric / EMRS team via SSD: 03333 990 222.</li> <li>• Tertiary paediatric hospitals are Glasgow (RHC) and Edinburgh (RHCYP):               <ul style="list-style-type: none"> <li>- accept patients up to their 16th birthdays.</li> </ul> </li> </ul>
2	Age per page	<ul style="list-style-type: none"> <li>• Use an age-per-page as a cognitive aid.</li> <li>• Use two person check of drug doses, equipment sizes and fluid volumes.</li> </ul>
3	Airway	<ul style="list-style-type: none"> <li>• Position the head in neutral alignment in an infant / young child.</li> <li>• Use a shoulder roll for infants / babies.</li> <li>• Do not compress submental soft tissues when mask ventilating:               <ul style="list-style-type: none"> <li>- this occludes the airway.</li> </ul> </li> <li>• Consider a two handed technique, along with an oropharyngeal airway.</li> <li>• Calculate tube length first: endobronchial intubation is likely.</li> <li>• Use most familiar laryngoscope blade, ideally a Macintosh blade size 0-4.</li> <li>• Use a cuffed ETT tube:               <ul style="list-style-type: none"> <li>- ETT internal diameter: <math>\text{age} / 4 + 4</math>.</li> <li>- round down to the nearest whole size.</li> <li>- have size above and below available.</li> <li>- preferentially use a microcuff tube if available.</li> <li>- microcuff tubes also have age guidance on packaging.</li> </ul> </li> <li>• Consider an ETT stylet for infants.</li> <li>• ETT insertion to lips: <math>\text{age} / 2 + 12</math>.</li> <li>• Front of neck access: have an <b>extremely</b> high threshold and optimise all attempts at i-gel airway first. i-gel will usually be successful.</li> <li>• If proceeding to front of neck access:               <ul style="list-style-type: none"> <li>- 1-8 years: consider needle cricothyroidotomy.</li> <li>- &gt;8: consider surgical cricothyroidotomy.</li> </ul> </li> </ul>
4	Breathing	<ul style="list-style-type: none"> <li>• Desaturation is quicker - assist ventilation sooner.</li> <li>• Be careful with tidal volumes when hand ventilating.</li> <li>• Give PEEP.</li> <li>• Consider inserting a nasogastric tube to decompress the stomach.</li> <li>• Use 6-8 ml/kg tidal volume.</li> <li>• With Oxylog 3000/3000+ ventilator:               <ul style="list-style-type: none"> <li>- 10-30kg use with paediatric tubing.</li> <li>- &lt;10kg consider hand ventilation.</li> </ul> </li> <li>• With Hamilton T1 ventilator:               <ul style="list-style-type: none"> <li>- &lt;15kg use with neonatal/paediatric dual limb tubing.</li> <li>- &gt;15kg use with adult coaxial tubing.</li> </ul> </li> </ul>

## CG012 Paediatrics

5	Circulation	<ul style="list-style-type: none"> <li>• IO: use blue needle in infants and children.</li> <li>• Consider specific IO dressings to stabilise.</li> <li>• Use tibial tuberosity as 1<sup>st</sup> choice:             <ul style="list-style-type: none"> <li>- humeral head is an acceptable alternative, especially &gt; 8 years old.</li> </ul> </li> <li>• Appropriate IV fluid or blood boluses are:             <ul style="list-style-type: none"> <li>- 5 ml/kg in trauma.</li> <li>- 10 ml/kg in severe sepsis.</li> <li>- 5 ml/kg congenital cardiac disease, cautiously (seek PICU advice).</li> <li>- 10mls/kg in diabetic ketoacidosis.</li> </ul> </li> <li>• Do not titrate to blood pressure, look for signs of organ perfusion:             <ul style="list-style-type: none"> <li>- capillary refill, heart rate, skin colour and mental status.</li> </ul> </li> </ul>
6	Disability	<ul style="list-style-type: none"> <li>• Use AVPU as an assessment of conscious level.</li> <li>• Check capillary blood glucose (BM) in all patients.</li> <li>• With head injury, ensure adequate blood pressure to maintain cerebral perfusion:             <ul style="list-style-type: none"> <li>- maintain MAP &gt;50mmHg as an absolute minimum, and &gt;60mmHg in older children.</li> </ul> </li> </ul>
7	Drugs	<ul style="list-style-type: none"> <li>• Use titrated boluses of morphine / midazolam for maintenance of anaesthesia.             <ul style="list-style-type: none"> <li>- consider a propofol infusion for longer transfers in older children after discussion with the receiving PICU.</li> </ul> </li> <li>• Consider the ScotSTAR paediatric drug calculator for drugs, including infusions.             <ul style="list-style-type: none"> <li>- <a href="https://www.snprs.scot.nhs.uk">https://www.snprs.scot.nhs.uk</a></li> </ul> </li> </ul>
8	Exposure	<ul style="list-style-type: none"> <li>• Children lose heat quickly: careful temperature control is imperative.</li> <li>• Abdominal organs are vulnerable to injury.</li> <li>• Pelvic fractures are rare:             <ul style="list-style-type: none"> <li>- pelvic splint can be folded or cut to size as required.</li> </ul> </li> <li>• Long bones: fold Kendrick to size.</li> </ul>
9	Weight	<ul style="list-style-type: none"> <li>• Weight formulae:             <ul style="list-style-type: none"> <li>- (age+4) x 2.</li> <li>- ideally use known weight or Broslow tape.</li> </ul> </li> </ul>
10	CPR	<ul style="list-style-type: none"> <li>• 5 rescue breaths.</li> <li>• 15:2 chest compressions to breaths.</li> <li>• 4 joules / kg DC shock.</li> </ul>
11	Death at scene	<ul style="list-style-type: none"> <li>• Resuscitation should normally be continued to the nearest hospital.</li> <li>• In certain contexts (catastrophic injury, entrapment, CYPADM [Childen and Young People Acute Deterioration Management] form completed) it may be appropriate to perform Confirmation of Death at scene.</li> <li>• If there are no suspicious circumstances, transfer the deceased child to the receiving hospital:             <ul style="list-style-type: none"> <li>- pre-alert the receiving unit prior to leaving scene to allow time for preparations.</li> <li>- do not use emergency driving exemptions.</li> </ul> </li> </ul>

2. Document History			
Reference Number	CG012		
Version	2		
Writing group (Lead author in bold)	David Bywater	Consultant paramedic	SAS
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Associate Medical Director	Andrew Cadamy		
Date issued	9th June 2023	Version 1: August 2019	
Date for review	June 2026		
Distribution	BASICS Scotland		✓
	Medic 1		✓
	Referring centres via service websites		✓
	Rural GPs Association of Scotland		✓
	SAS	Specialist Services Desk	for information
	ScotSTAR	Air Ambulance	✓
		EMRS West	✓
		EMRS North	✓
		Paediatric	X
		Neonatal	X
Tayside Trauma Team		✓	



### 3. Scope and purpose

- Overall objectives:

The aim of this guideline is to provide specific guidance relating to the emergency management of children by non-specialist teams or individuals.

- Statement of intent:

This guideline is not intended to be construed or to serve as a standard of care. Adherence to guideline recommendations will not ensure a successful outcome in every case, nor should they be construed as including all proper methods of care or excluding other acceptable methods of care aimed at the same results. The ultimate judgement must be made by the appropriate healthcare professional(s) responsible for clinical decisions regarding a particular clinical procedure or treatment plan. Clinicians using this guideline should work within their skill sets and usual scope of practice.

- Specific note:

SAS policy is for the conveyance of all patients under the age of 2 to hospital. Any decision not to transport a patient under two should be carefully appraised and appropriately documented.

- Feedback:

Comments on this guideline can be sent to: [sas.cpg@nhs.scot](mailto:sas.cpg@nhs.scot)

- Equality Impact Assessment:

Applied to the ScotSTAR Clinical Standards group processes.

- Guideline process endorsed by the Scottish Trauma Network Prehospital, Transfer and Retrieval group.



4. Explanatory Statements		
4.1 Contact	Authors' recommendation	Level [Reference]
<ul style="list-style-type: none"> <li>Contact ScotSTAR Paediatric / EMRS team via SSD: 03333 990 222.</li> <li>Tertiary paediatric hospitals are Glasgow (RHC) and Edinburgh (RHCYP):               <ul style="list-style-type: none"> <li>accept patients up to their 16th birthdays.</li> </ul> </li> </ul>	Information only	
<b>4.2 Age-per-page</b>		
<ul style="list-style-type: none"> <li>Use an age-per-page as a cognitive aid.</li> <li>Use two person check of drug doses, equipment sizes and fluid volumes.</li> </ul>	GPP	
<b>4.3 Airway</b>		
<ul style="list-style-type: none"> <li>Position the head in neutral alignment in an infant / young child.</li> <li>Use a shoulder roll for infants / babies.</li> <li>Do not compress submental soft tissues when mask ventilating:               <ul style="list-style-type: none"> <li>this occludes the airway.</li> </ul> </li> <li>Consider a two handed technique, along with an oropharyngeal airway.</li> </ul> <p>In an older child, the 'sniffing the morning air' position will open the airway, as in adults. Infants have a large occiput and so adult positioning will occlude the airway. A neutral position will align the oral, pharyngeal and tracheal axes, open the airway and improve the view.</p>	Strong	Guidelines [1,2]
<ul style="list-style-type: none"> <li>Calculate tube length first: endobronchial intubation is likely.</li> <li>Use most familiar laryngoscope blade, ideally a Macintosh blade size 0-4.</li> <li>Use a cuffed ETT tube:               <ul style="list-style-type: none"> <li>ETT internal diameter: <math>\text{age} / 4 + 4</math>.</li> <li>round down to the nearest whole size.</li> <li>have size above and below available.</li> <li>preferentially use a microcuff tube if available.</li> <li>microcuff tubes also have age guidance on packaging.</li> </ul> </li> <li>Consider an ETT stylet for infants.</li> <li>ETT insertion to lips: <math>\text{age} / 2 + 12</math>.</li> </ul> <p>These calculations are in the Age Per Page. Age /4+4 is well established but other formulae may apply to cuffed ET tubes [3]; accordingly rounding down would be a reasonable approach. Endobronchial intubation is highly likely in the emergent scenario and will result in alveolar collapse in the contralateral lung and desaturation. Confirm bilateral air entry after intubation. Unilateral air entry is more likely to be an endobronchial intubation than a pneumothorax.</p>	Strong	Guidelines [1,2] 4 [3]

4.3 Airway, cont.	Authors' recommendation	Level [Reference]
<ul style="list-style-type: none"> <li>• <i>Front of neck access: have an <b>extremely</b> high threshold and optimise all attempts at i-gel airway first. i-gel will usually be successful.</i></li> <li>• <i>If proceeding to front of neck access:</i> <ul style="list-style-type: none"> <li>- <i>1-8 years : consider needle cricothyroidotomy.</i></li> <li>- <i>&gt;8: consider surgical cricothyroidotomy.</i></li> </ul> </li> </ul>	Strong	Guideline [2]
<p><b>4.4 Breathing</b></p>		
<ul style="list-style-type: none"> <li>• <i>Desaturation is quicker - assist ventilation sooner.</i></li> <li>• <i>Be careful with tidal volumes when hand ventilating.</i></li> <li>• <i>Give PEEP.</i></li> </ul> <p>Children need higher alveolar ventilation and have greater basal oxygen consumption, so desaturate quickly. They have lower functional residual capacity (FRC) and closing capacity encroaches on FRC, necessitating PEEP.</p>	GPP	
<ul style="list-style-type: none"> <li>• <i>Consider inserting a nasogastric tube to decompress the stomach.</i></li> </ul>	Conditional	Guidelines [2,4]
<ul style="list-style-type: none"> <li>• <i>Use 6-8ml / kg tidal volume.</i></li> </ul> <p>This is derived from adult data.</p>	Conditional	Guideline [1] 1++ [5]
<ul style="list-style-type: none"> <li>• <i>With Oxylog 3000/3000+ ventilator:</i> <ul style="list-style-type: none"> <li>- <i>10-30kg use with paediatric tubing.</i></li> <li>- <i>&lt;10kg consider hand ventilation.</i></li> </ul> </li> <li>• <i>With Hamilton T1 ventilator:</i> <ul style="list-style-type: none"> <li>- <i>&lt;15kg use with neonatal/paediatric dual limb tubing.</i></li> <li>- <i>&gt;15kg use with adult coaxial tubing.</i></li> </ul> </li> </ul> <p>The Oxylog 3000 paediatric circuit is appropriate for <b>tidal</b> volumes 50-250ml. This will be suitable for this weight range with a tidal volume range of 6-8ml/kg. Adult tubing is suitable for <b>tidal</b> volumes &gt;100ml, accordingly is suitable down to 18kg.</p>	Strong	Manufacturer's Guideline [6]

4.5 Circulation	Authors' recommendation	Level [Reference]
<ul style="list-style-type: none"> <li>• <i>IO: use blue needle in infants and children.</i></li> <li>• <i>Consider specific IO dressings to stabilise.</i></li> <li>• <i>Use tibial tuberosity as 1<sup>st</sup> choice:</i> <ul style="list-style-type: none"> <li>- <i>humeral head is an acceptable alternative, especially &gt; 8 years old.</i></li> </ul> </li> </ul> <p>Use a blue IO needle in all children and infants, with caution. In the experience of the writing group, the pink (15mm) needle often does not reach through soft tissue and a blue (25mm) needle is likely to be suitable for all but small babies. Note the manufacturers recommendation that 5mm (black line) should remain visible above the skin prior to drilling. Intraosseus landmarks are the same as in adults, making sure to avoid the growth plate. Padding under the knee (e.g. rolled up bandage) will help stabilise the tibia.</p>	GPP	Manufacturer's Guideline [7]
<ul style="list-style-type: none"> <li>• <i>Appropriate IV fluid or blood boluses are:</i> <ul style="list-style-type: none"> <li>- <i>5 ml/kg in trauma.</i></li> <li>- <i>10 ml/kg in severe sepsis.</i></li> </ul> </li> </ul> <p>Although there are several guidelines dealing with fluid volumes, these are the recommendations from PHPLS which is probably the most pertinent.</p>	Strong	Guideline [3]
<ul style="list-style-type: none"> <li>- <i>5 ml/kg congenital cardiac disease, cautiously (seek PICU advice).</i></li> </ul>	GPP	
<ul style="list-style-type: none"> <li>- <i>10mls/kg in diabetic ketoacidosis.</i></li> </ul> <p>Detailed guidance on fluid resuscitation and therapy in DKA can be found in the NHS GGC and NHS Lothian DKA support document available at: <a href="https://www.snprs.scot.nhs.uk/wp-content/uploads/DKASupportDocumentV3_July2020.pdf">https://www.snprs.scot.nhs.uk/wp-content/uploads/DKASupportDocumentV3_July2020.pdf</a></p>	Strong	Guideline [8]
<ul style="list-style-type: none"> <li>• <i>Do not titrate to blood pressure, look for signs of organ perfusion:</i> <ul style="list-style-type: none"> <li>- <i>capillary refill, heart rate, skin colour and mental status.</i></li> </ul> </li> </ul> <p>The cardiovascular system will compensate extremely well; blood pressure is a late marker. The circulating volume is 90mls/kg in neonates and 75-80mls/kg in children. Permissive hypotension is not validated in children: use signs of organ perfusion to target resuscitation.</p>	Strong	Guidelines [1,3]

4.6 Disability	Authors' recommendation	Level [Reference]
<ul style="list-style-type: none"> <li>Use AVPU as an assessment of conscious level.</li> </ul> <p><b>AVPU: Alert, Voice, Pain, Unresponsive.</b></p>	Strong	Guideline [3]
<ul style="list-style-type: none"> <li>Check capillary blood glucose (BM) in all patients.</li> </ul> <p>Children do not have significant glycogen stores so are prone to hypoglycaemia in the fasting state.</p>	Strong	Guideline [3]
<ul style="list-style-type: none"> <li>With head injury, ensure adequate blood pressure to maintain cerebral perfusion.</li> </ul> <p>In head injury, in order to reduce the risk of secondary brain injury, Mean Arterial Pressure (MAP) should be maintained at greater than 50mmHg as an absolute minimum, and greater than 60mmHg in older children.</p>	Conditional	2+ [9]
<b>4.7 Drugs</b>		
<ul style="list-style-type: none"> <li>Use titrated boluses of morphine / midazolam for maintenance of anaesthesia               <ul style="list-style-type: none"> <li>consider a propofol infusion for longer transfers in older children after discussion with the receiving PICU</li> </ul> </li> </ul> <p>Standard short term maintenance of anaesthesia in a critically ill or injured child is with cautiously titrated boluses of morphine and midazolam. For longer transfers, particularly in older children, sedation may be maintained by the use of a propofol infusion - this should be discussed with the receiving critical care unit prior to initiation.</p>	GPP	
<ul style="list-style-type: none"> <li>Consider the ScotSTAR paediatric drug calculator for drugs, including infusions.               <ul style="list-style-type: none"> <li><a href="https://www.snprs.scot.nhs.uk">https://www.snprs.scot.nhs.uk</a></li> </ul> </li> </ul>	GPP	
<b>4.8 Exposure</b>		
<ul style="list-style-type: none"> <li>Children lose heat quickly: careful temperature control is imperative.</li> </ul> <p>Large body surface area to volume ratio results in rapid heat loss.</p>	GPP	
<ul style="list-style-type: none"> <li>Abdominal organs are vulnerable to injury.</li> </ul> <p>The anatomical dimensions of the torso and soft ribs leave solid organs exposed to damage.</p>	Information only	Guideline [3]
<ul style="list-style-type: none"> <li>Pelvic fractures are rare:               <ul style="list-style-type: none"> <li>pelvic splint can be folded or cut to size as required.</li> </ul> </li> </ul> <p>The pliability of the pelvis makes fractures unlikely. Use Prometheus splint and cut or fold to size.</p>	GPP	
<ul style="list-style-type: none"> <li>Long bones: fold Kendrick to size</li> </ul>	GPP	



4.8 Weight	Authors' recommendation	Level [Reference]
<ul style="list-style-type: none"> <li>• <i>Weight formulae:</i> <ul style="list-style-type: none"> <li>- <math>(age+4) \times 2</math></li> <li>- <i>ideally use known weight or Broslow tape</i></li> </ul> </li> </ul> <p>Alternative, age dependent, formulas are now used in many guidelines. The doses of commonly used drugs are in the age per page document.</p>	Information	Guideline [1]
<b>4.9 CPR</b>		
<ul style="list-style-type: none"> <li>• <i>5 rescue breaths.</i></li> <li>• <i>15:2 chest compressions to breaths.</i></li> <li>• <i>4 joules / kg DC shock.</i></li> </ul> <p>The RC(UK) 2021 guideline flowchart is here: <a href="https://www.resus.org.uk/sites/default/files/2021-04/Paediatric%20ALS%20Algorithm%202021.pdf">https://www.resus.org.uk/sites/default/files/2021-04/Paediatric%20ALS%20Algorithm%202021.pdf</a> and the explanatory text is here: <a href="https://www.resus.org.uk/library/2021-resuscitation-guidelines/paediatric-advanced-life-support-guidelines">https://www.resus.org.uk/library/2021-resuscitation-guidelines/paediatric-advanced-life-support-guidelines</a></p> <p>The newborn algorithm is different to the paediatric algorithm. The flow chart for the neonatal guideline is here: <a href="https://www.resus.org.uk/sites/default/files/2021-05/Newborn%20Life%20Support%20Algorithm%202021.pdf">https://www.resus.org.uk/sites/default/files/2021-05/Newborn%20Life%20Support%20Algorithm%202021.pdf</a> and the explanatory text for the neonatal guideline is here: <a href="https://www.resus.org.uk/library/2021-resuscitation-guidelines/newborn-resuscitation-and-support-transition-infants-birth">https://www.resus.org.uk/library/2021-resuscitation-guidelines/newborn-resuscitation-and-support-transition-infants-birth</a></p>	Strong	Guideline [1]
<b>4.10 Death on scene</b>		
<ul style="list-style-type: none"> <li>• <i>Resuscitation should normally be continued to the nearest hospital</i></li> <li>• <i>In certain contexts (catastrophic injury, entrapment, CYPADM CYPADM [Childen and Young People Acute Deterioration Management] form completed) it may be appropriate to perform Confirmation of Death at scene.</i></li> </ul> <p>Information on CYPADM can be found in reference [11].</p>	Conditional	Guidelines [10,11]


<ul style="list-style-type: none"> <li>• <i>If there are no suspicious circumstances, transfer the deceased child to the receiving hospital:</i> <ul style="list-style-type: none"> <li>- <i>pre-alert the receiving unit prior to leaving scene to allow time for preparations.</i></li> <li>- <i>do not use emergency driving exemptions.</i></li> </ul> </li> </ul> <p>With the exception of crime scenes, and after confirmation of death, transport the patient to the anticipated receiving Emergency Department for initiation of bereavement care for the family. Pre-alert the duty ED Consultant. If accepted, subsequent ambulance transfer will not involve ongoing resuscitation efforts, a standby call nor use of emergency systems / traffic exemptions during transport. This must also be cleared with the most senior Police Scotland officer on scene prior to patient transport.</p> <p>Pragmatic additional advice around the approach to the care of both the deceased infant and their family during pre-hospital care and transport is accessible within the JRCALC app [10] or at <a href="http://www.sudiscotland.org.uk">www.sudiscotland.org.uk</a></p>	GPP	SAS Policy [12]
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### 5. References

1. Van de Voorde P et al. European Resuscitation Council Guidelines 2021: Paediatric life support. Resuscitation 2021; 161: 327-387.
2. Black AE et al. Development of a guideline for the management of the unanticipated difficult airway in paediatric practice. Pediatric Anesthesia 2015; 25: 346. (also available at <https://das.uk.com/guidelines/paediatric-difficult-airway-guidelines>).
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8. NHS Lothian and NHS GGC. Support document for emergency assessment and management of diabetic ketoacidosis in children and young people who require transfer to RHSCE or RHCG. Available at [https://www.snprs.scot.nhs.uk/wp-content/uploads/DKASupportDocumentV3\\_July2020.pdf](https://www.snprs.scot.nhs.uk/wp-content/uploads/DKASupportDocumentV3_July2020.pdf)
9. Chambers IR et al. Critical thresholds of intracranial pressure and cerebral perfusion pressure related to age in paediatric head injury. J Neurol Neurosurg Psychiatry 2006; 77: 234–240.
10. JRCALC+ Termination of Resuscitation and Verification of Death in Children.
11. <https://www.cen.scot.nhs.uk/wp-content/uploads/2017/01/ResucPlanningPolicyCYPADM.pdf>
12. SAS National Clinical Bulletin 011/2022-23 Confirmation of Child Death in the Community.


APPENDIX 1: Drug doses	
<b>Resuscitation</b>	
Adrenaline: Cardiac arrest	10 mcg/kg (0.1ml/kg of 1:10,000 minijet)
Adrenaline: anaphylaxis	<b>IM:</b> > 12 years: 500 micrograms IM (0.5 mL of 1:1000) 6 -12 years: 300 micrograms IM (0.3 mL of 1:1000) < 6 years: 150 micrograms IM (0.15 mL of 1:1000) <b>IV:</b> 1 mcg/kg
Glucose	2mls/kg of 10% glucose
Atropine	20mcg/kg
<b>Anaesthesia</b>	
Ketamine	2mg/kg
Rocuronium	1mg/kg
Suxamethonium	2mg/kg
<b>Analgesia</b>	
Fentanyl	1 to 3mcg/kg
Alfentanil	10mcg/kg
Morphine	0.1mg/kg
Ketamine	0.1mg/kg
Paracetamol	15mg/kg (if >10kg, dose calculation otherwise lower)
<b>Sedation</b>	
Midazolam	0.1mg/kg
Ketamine	0.5mg/kg
<b>Trauma</b>	
Tranexamic acid	15mg/kg
<b>Antibiotics</b>	
Ceftriaxone	50mg/kg (max 2g)
Benzympenicillin	30mg/kg (max 1.2g)
<b>Antiemetics</b>	
Ondansetron	0.1mg/kg

APPENDIX 2: Paediatric trauma triage tool



# Paediatric Trauma Triage Tool

Use this tool to triage all children under 16 years old who have suspected major trauma



**Clinical Judgement is important and valued.**

If you are concerned that your patient's triage category does not reflect their needs, you require clinical or logistical advice please contact the **Trauma Desk** directly on

**03333 990 211**

or by airwave by placing a callback to your local area dispatcher who will arrange a callback from the Trauma Desk.

### Triage Questions

**Step 1**  
Assess your Patient's Physiology

Does your Patient have any of the following:

- Abnormal vital signs for age\* not explained by pain or distress
- Abnormal conscious level
- Catastrophic haemorrhage

**Step 2**  
Assess your Patient's Injuries

Does your Patient have any of the following:

- Penetrating injury to head, neck, torso
- Suspected open, depressed or basal skull fracture
- Suspected spinal injury with new onset neurology
- Significant bruising to chest or abdomen
- Traumatic amputation/mangled extremity proximal to wrist/ankle
- Suspected pelvic fracture
- Multiple and/or single open long bone fracture
- Burns/scalds >20% BSA and/or facial or circumferential burns from flame

**Step 3**  
Assess the Mechanism of Injury

Did any of the following occur:

- Traumatic death in same incident/same mechanism
- "Bull's eye" damage to windscreen or damage to "A" post (from pedestrian striking outside of vehicle)
- Ejection from motor vehicle
- Pedestrian/cyclist struck by vehicle at >20mph
- Uninterrupted fall over 2x patient's height (not bouncing down stairs)
- Bicycle handlebar injury with abdominal and/or groin pain

**Step 4**  
Special Considerations

Are any of the following present:

- Bleeding disorder or anticoagulant treatment
- Isolated burns (liaise with trauma desk)
- Pregnancy >20 weeks
- Significant crew concern (discuss case with Trauma Desk prior to transfer)

### Response Category

Should the airway become compromised and cannot be managed, consider conveying/diverting to the nearest locally designated Emergency Department

**Major trauma centre care**

Your Patient requires **Major Trauma Centre (MTC) Care**

- If <45 minutes from MTC = convey to MTC
- If >45 minutes from MTC = contact Trauma Desk

*If you do not think your patient requires MTC, contact Trauma Desk*

Remember to pre-alert the receiving hospital via airwave if you are managing a patient triaged to MTC

**Trauma unit care**

Your Patient requires **Trauma Unit (TU) Care**

- Convey to the nearest TU, or MTC if closer
- If >45 minutes from TU/MTC contact Trauma Desk

*If you do not think your patient requires TU/MTC, contact Trauma Desk*

**Local**

Convey your patient to the nearest **Local Emergency Hospital**

- Your patient can be taken to the nearest hospital with an Emergency Department, regardless of designation

*If you think your patient requires MTC, contact Trauma desk*

**Physiological Reference Ranges\***

Age	RR	Pulse
<2Y	30-40	100-160
<2-5Y	25-30	95-140
5-11Y	20-25	80-120
>12Y	15-20	60-100

\*Also refer to JRCALC Age-Per-Page for more physiological reference ranges

VERSION 8 (DRAFT)