

Clinical Guidance

Paediatric Critical Care: Pre Transport Stabilisation

Summary

This guideline is for staff to use as a prompt when preparing a child for safe retrieval.

Document Detail	
Document type	Clinical Guideline
Document name	Paediatric Critical Care: Pre Transport Stabilisation
Document location	Evelina London website & GSTT Guideline Database
Version	3
Effective from	16 th October 2024
Review date	31 st October 2027
Owner	PICU, Head of Service
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Approved by, date	Evelina London Clinical Guideline Committee, Oct 2024
Superseded documents	Paediatric Critical Care: Pre Transport Stabilisation v2
Related documents	ARDS , Intubation , ETT securing guideline , Neonatal Collapse , Neurosurgical Transfer , Sepsis , Oncological Emergencies
Keywords	Evelina, child, Paediatric, intensive care, STRS, Retrieval, Paediatric critical care, Pre transport stabilisation, PICU
Relevant external law, regulation, standards	UK Resus council guidance 2021
<p>This clinical guideline has been produced by the South Thames Retrieval Service (STRS) at Evelina London for nurses, doctors and ambulance staff to refer to in the emergency care of critically ill children.</p> <p>This guideline represents the views of STRS and was produced after careful consideration of available evidence in conjunction with clinical expertise and experience. The guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient.</p>	

Change History		
Date	Change details, since approval	Approved by
May 2021	Reflect Resus council guidance : Balanced fluids for resus fluid rather than 0.9% sodium chloride, adrenaline rather than dopamine New links and STRS app referenced more clearly	ELCGC June 2021
September 2024	Changed dopamine to adrenaline in ventilation for CVS support, added consider noradrenaline if vasodilated, removed old link to website for infusion/ drug calculations, additional hyperlinks added.	ELCGC Sept 2024

Paediatric Critical Care

Pre transport Stabilisation

Key information for referral call

- Patient demographics, current location of patient (please update if moved)
- Paediatric consultant preference for destination PICU
- Relevant clinical history and thorough examination
- Management to date and response to treatment
- Current physiological parameters (bring PEWS chart to phone) & results

Paediatric consultant **must** be aware of all referrals

Double check advice, document clearly and inform entire team

Update STRS with significant changes

Do not delay urgent interventions awaiting retrieval team arrival

A

AIRWAY

- Secure oral or nasal ETT (appropriate size and position) – [Intubation guidance](#), [ETT securing guideline](#)
- Avoid nasal ETT if suspected basal skull fracture or coagulopathy
- DO NOT pre-cut ETT as may result in later being too short
- Cervical spine immobilisation for ANY ventilated trauma patient
- Gastric tube on free drainage (all ventilated patients)
- Obtain CXR post intubation to verify ETT position prior to transfer

Indications for Intubation

- Airway protection/ patency
- Respiratory failure
- Cardiovascular support
- Neuroprotection
- Facilitate procedure/ analgesia

B

BREATHING

- Ensure adequate ventilation either by anaesthetic circuit or ventilator
- Spontaneous ventilation via ETT will result in atelectasis: avoid
- Monitor end tidal carbon dioxide (ETCO₂) and saturations continuously
- If ventilation difficulty use DOPES (see right) to troubleshoot
- Suggested initial ventilator settings:

	PIP	PEEP	Rate	I-Time	ETCO ₂	Sats
Standard	16-30*	5	15-20	0.7-1sec	4-7kPa	>95%
Asthma	To move chest	5	12-20	1sec	6-10kPa	>90%
ARDS	To move chest	5-15	15-25	1sec	6-10kPa	>85%

* PIP initially to achieve chest rise, titrate to ETCO₂/ PaCO₂, limit to prevent barotrauma

** Severe hypoxia in ARDS employ recruitment manoeuvres- increase PEEP, suction

Troubleshoot problems on ventilator: DOPES

- **D**isplaced ETT - check ETCO₂ and exact length of tube
- **O**bstuction - suction ETT and check can pass to end of ETT
- **P**neumothorax - clinical examination- can be difficult to exclude if chest hyper-expanded due to air trapping
- **E**quipment - check ventilator settings including O₂
- **S**tomach - Ensure decompressed: aspirate with nasogastric tube

C

CIRCULATION: GOOD INTRAVENOUS ACCESS IS A PRIORITY

- At least 2 well secured peripheral lines (external jugular vein useful)
- Intraosseous access if delay in obtaining IV access and shocked
- If child shocked, ongoing resuscitation whilst awaiting STRS team
- Fluid resuscitation: titrate to heart rate, blood pressure, CVP (if available)
First line: 10mL/kg “balanced” crystalloid: hartmann’s or plasmalyte
- Consider cardiogenic shock (gallop, hepatomegaly, cardiomegaly)
- 1st line inotrope: adrenaline 0.05-0.5 micrograms/kg/minute centrally or peripherally. Central/ peripheral preparations may vary. Central strength can be commenced via IO, CVL or external jugular line.
- Liaise with STRS regarding further escalation/ management
- Central venous line (CVL) if inotropes or likely to need them
- Arterial line if on inotropes (**not** initial priority, **avoid** brachial)
- **Shocked neonate** - consider dinoprostone - [see Neonatal collapse](#)

Ventilation for CVS support: DO NOT delay awaiting STRS arrival

- Grunting - needs respiratory support
- Anticipate CVS instability on induction
- Commence adrenaline and give volume
- Avoid propofol if CVS instability
- If vasodilated consider noradrenaline
- Oncology-related sepsis:
 - Early proactive fluid resuscitation
 - Consider line sepsis as source

D

DISABILITY

- Ensure adequate sedation if intubated and ventilated – all children IV morphine infusion 20-40microgram/kg/h, consider IV midazolam infusion 0.5-2microgram/kg/minute only if >5 years and cardiovascularly stable
- If neuroprotection required- see [Neurosurgical Transfer](#)
- Trauma patients: ensure C-spine immobilization (current APLS guidance), complete secondary survey and imaging

Documentation

- Referral letter, copy of notes, results and drug charts. Safeguarding documentation, x2 name bands
- PACS link X-rays/ CT to receiving hospital

Parents

- Keep as informed as possible
- Not to leave DGH before STRS arrival
- One parent & small bag can usually travel in ambulance

E

EXPOSURE

- Monitor temp, aim for normothermia (36-37°C) unless cooling indicated
- Special attention to temperature control required in neonates/ infants

F

FLUIDS

- Monitor blood glucose: neonates/ liver/ metabolic disease need glucose
- Maintenance fluid - (2mL/kg/h or max 40mL/h) - 0.9% sodium chloride & 5% glucose
- Use 0.9% sodium chloride & 10% glucose if neonate or hypoglycaemic
- Consider urinary catheter (monitoring/ possible retention)

Resources: [website](#) and STRS app Paediatric Emergency Tools

- Guidance on age/ weight appropriate equipment
- Clinical guidelines
- Calculate infusions and drugs on Paediatric Emergency Tools App

