The Yorkshire and Humber
Paediatric Critical Care
Operational Delivery Network

NHS

Service Evaluation

Anaesthetics

Karen Perring Nov 2018 (v1)

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Introduction

In 2014 the RCPCH published 'High Dependency Care for Children – Time to Move On', which focused on the pathway for a critically ill child beyond the Paediatric Intensive Care Unit. It proposed a change in terminology away from High Dependency Care to three levels of paediatric critical care: Level 1, Level 2 and Level 3 Critical Care. Level 3 critical care is delivered in the PICU setting.

*'Each hospital Trust that admits children will be able to deliver Level 1 Critical Care activities and support (defined in section 2.3) within a Level 1 paediatric critical care unit. A more limited number of hospital Trusts will be designated by their *PCC ODN to deliver more complex, or prolonged, critical care activities known as Level 2 Critical Care (defined in section 2.3). These will be delivered in a Level 2 paediatric critical care unit. Level 2 units will exist within tertiary children's hospitals and will be able to provide support for complex specialist paediatric services, but others will be within larger regional hospitals and/or more remote regional hospitals. Each PCC ODN, working closely with commissioners, will be responsible for designating units based on their network requirements. Children will move along the critical care pathway as their physiological condition stabilises to the point where they can be cared for on a general ward or their condition deteriorates and they require care on a PICU.'* (High Dependency Care for Children – Time to Move On 2014 Appendix 11 RCPCH)

The Paediatric Critical Care Minimum Dataset (PCCMDS) is used to define the interventions that map Level 1, 2 and 3 critical care.

The Paediatric Intensive Care Society have recently published the 5th Edition Quality Standards for the Care of Critically Ill Children December 2015. These standards build on the 2010 standards and also reflect the guidance in 'High Dependency Care for Children – Time to Move On' (RCPCH, 2014) and 'Facing the Future' (RCPCH, 2015). These standards have been used to form the framework of this Service Evaluation.

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Listed below are the interventions that currently map Level 1 Critical Care.

LEVEL 1: BASIC CRITICAL CARE
Airway: Upper airway obstruction requiring nebulised adrenaline
Breathing:
• Apnoea – recurrent
• Oxygen therapy plus continuous pulse oximetry plus ECG monitoring
• Nasal high flow therapy

Circulation:
• Arrhythmia requiring IV anti-arrhythmic therapy

Diagnosis:
• Severe asthma (IV bronchodilator / continuous nebulisers)
• Diabetic ketoacidosis requiring continuous insulin infusion

Other:
• Reduced level of consciousness (GCS 12 or below) **and** hourly (or more frequent) GCS monitoring

Listed below are the interventions that currently map Level 2 Critical Care.

LEVEL 2: INTERMEDIATE CRITICAL CARE

Airway:

- Nasopharyngeal airway
- Care of tracheostomy (first seven days of episode only)

Breathing:

- Non-invasive ventilation (including CPAP and BiPAP)
- Long-term ventilation via a tracheostomy

Circulation:

- >80 ml/kg volume boluses
- Vasoactive infusion (including inotropes and prostaglandin)
- Temporary external pacing
- Cardiopulmonary resuscitation in the last 24 hours

Diagnosis:

- Acute renal failure requiring dialysis or haemofiltration
- Status epilepticus requiring treatment with continuous IV infusion

Monitoring:

- Invasive arterial monitoring
- Central venous pressure monitoring
- Intracranial monitoring / external ventricular drain

This information has been taken from Quality Standards for the Care of Critically Ill Children, PICS, December 2015 and is based on the Paediatric Critical Care Minimum Dataset.

Please note that the standards within this Service Evaluation have been taken from the self assessment tool in the Quality Standards for the Care of Critically Ill Children, 5th Edition, Paediatric Intensive Care Society, December 2015

Demographics

Where are children stabilised / intubated and ventilated within your organisation?

Please list below:

Do you have a designated area for children within your GICU ?

Staffing

No.	*Quality standard*	*Notes*	*Demonstration of compliance*	*RAG*	*Comments*	*Standard agreed by Review Team*	*Review comments*
1.	**Lead Anaesthetist** A nominated consultant anaesthetist should be responsible for policies and procedures relating to emergency and elective anaesthesia of children. This consultant should be involved in the delivery of anaesthetic services to children.		Visit				

2.	**GICU Lead Consultant and Lead Nurse for Children** A nominated lead intensive care consultant and lead nurse should be responsible for Intensive Care Unit policies, procedures and training relating to the care of children.	1 This QS is not applicable if a General Intensive Care Unit is not one of the possible areas for maintenance of paediatric critical care (QS PM-506). 2 It is desirable in all units that the lead nurse is a senior nurse with specific competences in paediatric critical care.	BI Visit				

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No.	Quality standard	Notes	Demonstration of compliance	RAG	Comments	Standard agreed by Review Team	Review comments
3.	**On Site Anaesthetist** An anaesthetist, or other practitioner, with up to date competences in advanced paediatric resuscitation and life support and advanced airway management should be immediately available at all times.	1 'Immediately available' means able to attend within five minutes. 2 This QS duplicates QS HW-204. It is included so that a full picture of paediatric anaesthesia responsibilities can be gathered. Notes to HW-204 also apply; in particular, note 4 explains that paediatric medical staff may provide the competences in advanced airway management of neonates. 3 Achievement and maintenance of competences may be through appropriate in-house or other resuscitation and stabilisation courses or training related to children. The Royal College of Anaesthetists 'Guidance on the provision of paediatric anaesthesia services' (2014) states that "Anaesthetists who care for children should have received appropriate training and should ensure that their competency in anaesthesia and resuscitation is adequate for the management of the children they serve….. Some anaesthetists working in non-specialist centres will not have regular children's lists but may have both daytime and out-of-hours responsibility to provide care for children requiring emergency surgery. There should be arrangements for undertaking regular supernumerary attachments to lists or secondments to specialist centres. The Certificate of Fitness for Honorary Practice may facilitate such placements and provides a relatively simple system for updates in specialist centres. Paediatric simulator work may also be useful in helping to maintain paediatric knowledge and skills……Therefore; all anaesthetists should maintain paediatric resuscitation skills unless they work in a unit which does not have open access for children."	BI Visit				

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No.	*Quality standard*	*Notes*	*Demonstration of compliance*	*RAG*	*Comments*	*Standard agreed by Review Team*	*Review comments*
4..	**Consultant Anaesthetist 24 Hour Cover** A consultant anaesthetist with up to date competences in advanced paediatric resuscitation and life support and advanced paediatric airway management who is able to attend the hospital within 30 minutes and does not have responsibilities to other hospital sites should be available 24/7.						
5.	**Medical Staff Caring for Children** All anaesthetists or intensivists with emergency and / or elective paediatric responsibility should have up to date competences in advanced paediatric resuscitation and life support and advanced paediatric airway management.		BI Visit				
6.	**Operating Department Assistance** Operating department assistance from personnel trained and familiar with paediatric work and competences in basic paediatric resuscitation and life support should be available for all emergency and elective children's surgery. For hospitals accepting children with trauma, this includes competences in the care of children with trauma**.**						

Facilities & Equipment

No.	*Quality standard*	*Notes*	*Demonstration of compliance*	*RAG*	*Comments*	*Standard agreed by Review Team*	*Review comments*
7.	**GICU Paediatric Area** The General Intensive Care Unit should have an appropriately designed and equipped area for providing paediatric critical care for children. Drugs and equipment appropriate to the age and condition of children who may be admitted (QS PM-506) should be available and checked in accordance with local policy.	This QS is not applicable if a General Intensive Care Unit is not one of the possible areas for maintenance of paediatric critical care (QS PM-506).	Visit				
8.	**Drugs and Equipment** Appropriate drugs and equipment should be available in each area in which anaesthesia is delivered to children. Drugs and equipment should be checked in accordance with local policy.		Visit BI DOC				

Guidelines, policies & procedures

No.	*Quality standard*	*Notes*	*Demonstration of compliance*	*RAG*	*Comments*	*Standard agreed by Review Team*	*Review comments*
9.	**Role of Anaesthetic Service in Care of Critically Ill Children** Protocols for resuscitation, stabilisation, accessing advice, maintenance and transfer and of critically ill children and the provision of paediatric critical care should be clear about the role of the anaesthetic service and General Intensive Care Unit (if applicable) in each stage of the child's care.		BI Doc Visit				
10.	**GICU Care of Children** If the maintenance guidelines in QS PM-506 include the use of a General Intensive Care Unit, they should specify: a. The circumstances under which a child will be admitted to and stay on the General Intensive Care Unit b. Availability of a registered children's nurse to support the care of the child and to review the child at least every 12 hours c. Discussion with a L3 PCC consultant about the child's	1 This QS is not applicable if a General Intensive Care Unit is not one of the possible areas for maintenance of paediatric critical care (QS PM-506). The criteria for admission should be consistent with the agreed network criteria (QSs N-502 & 503). 2 The requirement for discussion with L3 PCCU does not apply to children aged over 16 for whom use of adult facilities is considered appropriate. 3 The frequency of discussions with a L3 PCC consultant is not specified but should be agreed between the GICU consultant and the L3 PCC consultant. More frequent discussions are likely to be needed for younger or sicker patients.	Doc Visit				

	condition prior to admission and regularly during their stay on the General Intensive Care Unit d. Agreement by a local paediatrician to the child being moved to the Intensive Care Unit e. Availability of a local paediatrician for advice f. Review of the child by a senior member of the paediatric team at least every 12 hours during their stay on the General Intensive Care Unit g. 24 hour access for parents to visit their child						
11.	**Clinical Guidelines - Anaesthesia** Clinical guidelines should be in use covering: a. Pain management for children b. Pre-operative assessment c. Preparation of all children undergoing general anaesthesia d. Difficult airway management		Doc				

Data collection and clinical governance

No.	*Quality standard*	*Notes*	*Demonstration of compliance*	*RAG*	*Comments*	*Standard agreed by Review Team*	*Review comments*
12.	**Review and Learning** The service should have appropriate multi-disciplinary arrangements for review of, and implementing learning from, positive feedback, complaints, morbidity, mortality, transfers and clinical incidents and 'near misses'.	1 These arrangements should include feedback to operational staff and should link with Hospital-Wide governance arrangements. 2 This QS is additional to Paediatric Critical Care Network review and learning (QS N-798). 3 This QS is additional to the requirement for reporting and formal review of the death of a child in hospital.	Doc BI				
13.	**GICU Critical Care Minimum Data Set** The critical care minimum data set collected and submitted to SUS should include data on children and young people admitted to the unit.	This QS is not applicable if a General Intensive Care Unit is not one of the possible areas for maintenance of paediatric critical care (QS PM-506).	Doc Visit				
14.	**Document Control** All policies, procedures and guidelines and should comply with Hospital document control procedures.		Doc				

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